



Information and Communication Technologies



Human Development Report | **TURKEY 2004**

Foreword

Information and Communication Technologies (ICT) have a vital role to play in sustainable human development. Globally, the development community has recognized that ICT has a significant impact on enabling countries to achieve specific development goals, including empowerment and participation, education, health, economic opportunities and eradication of poverty. ICT can be harnessed to improve access and expand basic services, cut transaction costs, improve government efficiency, promote transparency and make development possible.

In simple terms, ICT is an effective tool in enabling countries throughout the world to meet their specific development goals. As Mark Malloch Brown, the UNDP Administrator, has acknowledged, the integration of ICT into development should be founded on three key pillars: practice, policy and partnerships.

Practice: As the scorekeeper and campaign manager of the Millennium Development Goals, UNDP is active in 166 countries with its practices encouraging the application of ICTs to realize development goals. Based on this extensive work, we have explicitly recognized the key role that ICT can play in the fight against global poverty and promotion of good governance.

Policy: To this effect, the policy environment has a significant role to play in fostering the advancement of ICT. The regulatory framework is essential to harness the potential of ICT for development. Without the existence of a sufficiently adaptable regulatory framework, the expansion of ICT use and enterprise growth can be hindered.

Partnerships: The development goals would be achieved faster when government, private sector and civil society productively combine their interests. Therefore, the efforts for the advancement of ICT for development need to be complemented by the implementation of strategies based on a multi-stakeholder approach and innovative partnerships to expand dialogue, connect people to development situations and secure additional resources. Through innovative strategies, win-win situations can be created, thus unleashing the potential of new collaborative alliances and strategic compacts to harness the power of ICT for development.

It is not by chance that the theme of this year's *National Human Development Report* in Turkey was chosen as "ICT and Human Development".

Today we have a historic opportunity to give momentum to development efforts with effective use of ICT. The Government, recognizing its importance, has highlighted ICT among its development priorities for 2005. Collectively, the private sector, civil society, and government recognize ICT as a means to support Turkey's ambitious reform agenda and its move towards Europe. With this momentum, it is incumbent on all of us today to enable the environment in Turkey for ICT that will positively support Turkey's development agenda in the context of an open, inclusive information society that gives the excluded an unprecedented opportunity to become active participants in economic and political life.

The analysis in this report was made to highlight the key role that ICT can play as an effective tool in helping to achieve Turkey's development goals, and to help inform the process of strengthening the role of ICT in a manner that fosters an open information society. The analysis identifies entry points for ICT to bridge the digital divide in Turkey and opportunities that ICT can bring to Turkey's advancement of democratic governance, poverty reduction, and a strengthened education system. The report also recognizes that while there are noteworthy efforts in Turkey already towards achieving an inclusive information society, there are also significant gaps and disparities between high and low-income groups and between geographical regions. As an example, the highest education groups use ICT twenty times more than the lowest education groups.

The report also notes that while it is true that ICT can play an important role to give momentum to the development efforts of Turkey, improper strategies have the risk to widen the digital divide between the rich and the poor, the well educated and the little educated. If we fail to act with proper strategies, the information gap risks being widened into increased inequalities and leaves the poor and vulnerable further behind. But if we approach the matter with inclusive policies and partnerships, then we have every chance of enabling Turkey to achieve its development goals and reform agenda, including its path towards Europe, faster and more effectively than ever before.

Jakob Simonsen
Resident Representative
UNDP Turkey

Preface

Boğaziçi Üniversitesi/UNDP Human Development Policy and Research Center

2004 Turkey Human Development Report is published in English and Turkish. In addition, this year, for the first time, background papers that form the basis of the HDR are being published in full in a separate volume. The collection entitled *Perspectives on ICT and Human Development: Turkey* and published by the BU/UNDP Human Development Center treats the subject matter from a more academic perspective. It is hoped that this volume will serve as a reference to researchers interested in ICT applications and human development in Turkey. The central themes and arguments of the background papers are summarized in this report with an emphasis on policy implications and recommendations. Readers who will have a chance to read the background papers in their entirety will note that we have used the “editor’s scissors” somewhat generously and have taken the liberty of not only summarizing but also modifying them rather extensively. Therefore, individual sections of the report do not bear any signatures.

The major difficulty we encountered in the preparation of the *2004 Turkey Human Development Report* was the scarcity of up to date and reliable data. Data problems proved to be an obstacle both in the calculation of the various indices and in the evaluation of the current ICT applications. Human Development Indices in the 2004 Report have largely been based on the 2000 Census of Population. Although more current statistics were available at the aggregate level, our preference was for disaggregated province level data which, we believe, is more insightful and telling than a single index for the whole country. However, this choice forced us to make do with three or four-year old data.

On the other hand, obtaining data related to Communication and Information Technologies proved to be extremely difficult and, at times, simply impossible. To cite but one example, we observed that wide discrepancies existed between data provided by different sources on internet and computer use. Therefore, we approached the existing statistics with great caution. The State Institute of Statistics disclosed the major findings of the “Household Information Technologies Use Survey” shortly before the publication of this Report. Unfortunately, there was no time for a detailed analysis of the data collected in this important survey.

In selecting Communication and Information Technologies as the theme of the 2004 Report, we were well aware of another difficulty. A report dealing with such a fast changing area is faced with the risk of being outdated on the day it is published. For example, connectivity statistics change weekly. Similarly, new regulations as well as committees and bodies come into existence by the day.

Despite all these limitations, we believe that the main arguments of this report will remain valid and relevant for some time to come. Basically, we argue that, with a cautionary, caring, informed and well rounded approach, **Communication and Information Technologies can make substantial contributions to Turkey's human development.**

Many individuals and organizations assisted us in the preparation of the 2004 Human Development Report. We would like to especially acknowledge the contributions of the **Turkish Informatics Foundation** and its president **Mr. Faruk Eczacıbaşı**. We are very grateful to **Microsoft Turkey** for their help. On the other hand, both the **State Institute of Statistics** and the **State Planning Organization** were always cheerfully available whenever we called on them.

Finally, as the Human Development Center which coordinated the publication of these reports and of the collection of background papers, we would like to express our deepest gratitude and appreciation to Boğaziçi University and the UNDP, and the administrators of these two institutions for their continued support.

Yılmaz Esmer

Director

BUI/UNDP Human Development Policy and Research Center

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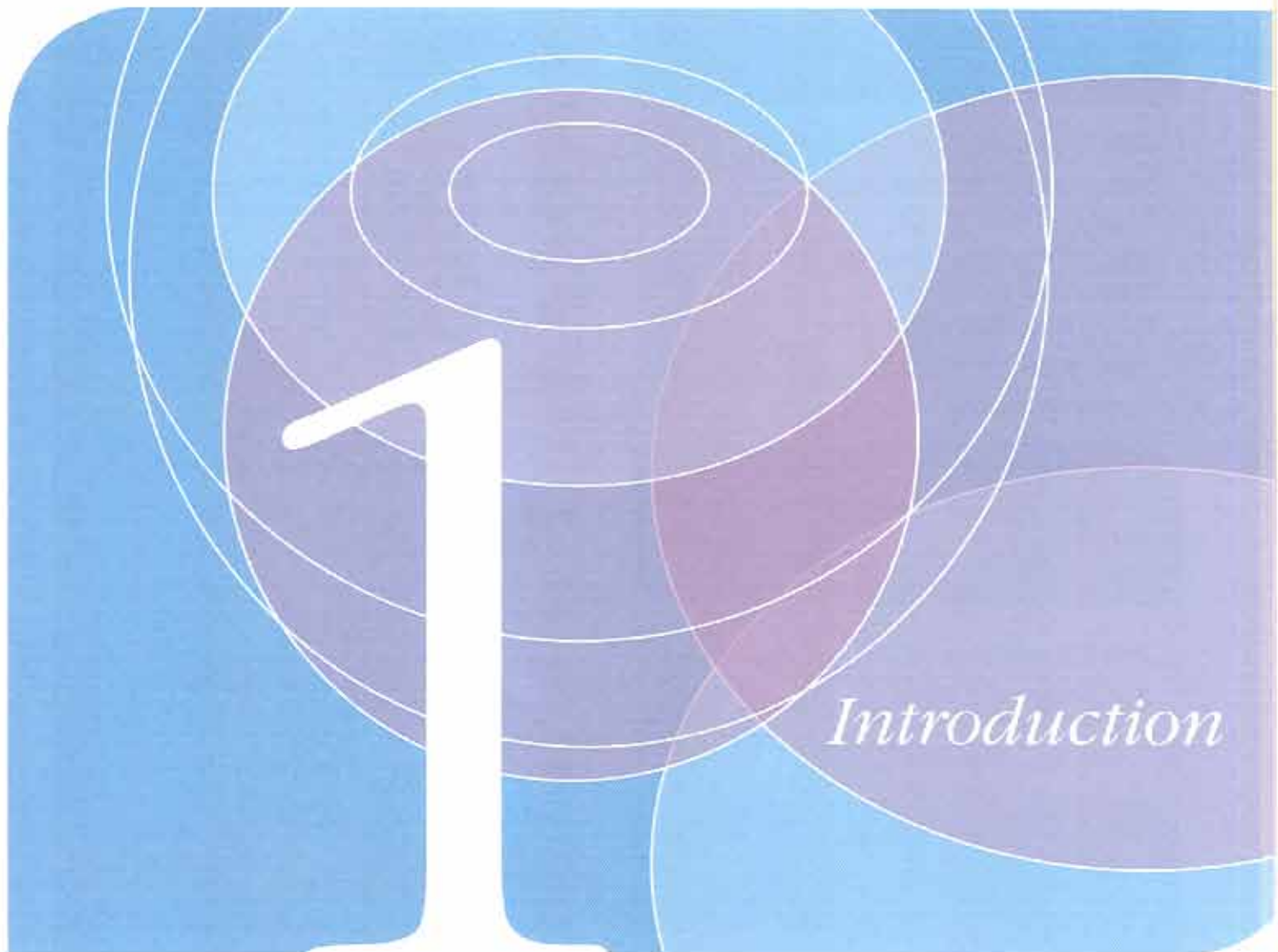
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The theme of *2004 Human Development Country Report* for Turkey is the relationship between Information-Communication Technologies (ICT) and Human Development. The main body of the present Report, therefore, is devoted to the actual and potential contributions of ICT to Turkey's human development efforts. Borrowing a term from the *Global Human Development Report 2001*, one should perhaps prefer the

expression "harnessing ICT for human development." "Harnessing" is a more appropriate term because ICT policies should consider both the great advantages and possible risks of cutting edge technologies. Once the risks and pitfalls are given careful consideration and necessary precautions taken, widespread use of ICT could greatly enhance and accelerate Turkey's human development.

Before introducing the main theme of this Report, it will be helpful to refresh our memories by briefly reviewing the concept of Human Development and trying to assess Turkey's accomplishments and failures in this field.

Fourteen years have passed since the publishing of the first global Human Development Report in 1990. Nowadays, it is widely accepted that human happiness and development cannot be reduced to GNP/cap figures alone. Income is no doubt extremely important both for individuals and societies. Eradication of poverty is a major goal and a profound challenge for mankind. But we have accumulated enough data to know that access to education and health services, for example, do not automatically follow increases in Gross National Product. And achieving gender equality with respect to income, education and health services, among other aspects of human life, has a strong cultural component as well.

Human Development approach has clear demarcation lines from other theoretical approaches such as growth, welfare or basic needs models. Human Development places individuals right at the centre of the development process making them the agents rather than objects of change and development. The concept of Human Development is perhaps best defined in *Human Development Report 1995*. Over the years, the

concept of Human Development has unfortunately been overshadowed by the Human Development Index (HDI); so much so that, at least in journalistic reporting, HD has, to a large extent, been equated with HDI. This is indeed unfortunate since the index, although very useful and handy, is necessarily a summary that is prone to the usual quantification problems and must depend on available data. HDI gives one figure and one ranking for a country. HD refers to increasing the choices available to individuals expanding to broad aspects of human existence such as governance, human rights, political freedoms, gender equity, income distribution, access to safe water, to cite but few examples.

Turkey's Human Development Performance

Although Turkey has shown significant improvements in certain spheres (e.g. infant mortality), the country's overall HD performance has been somewhat erratic and at times even disappointing. For instance, economic -or more specifically GDP-growth for the last half a century or so has been slower than that of many countries which had more or less similar per capita incomes at the start of the post-war period. Moreover, the country failed to achieve sustainable growth and experienced significant negative growth in some years. From a long term perspective, Turkey's GDP per capita annual growth rate between 1975 and 2001

Table 1.1

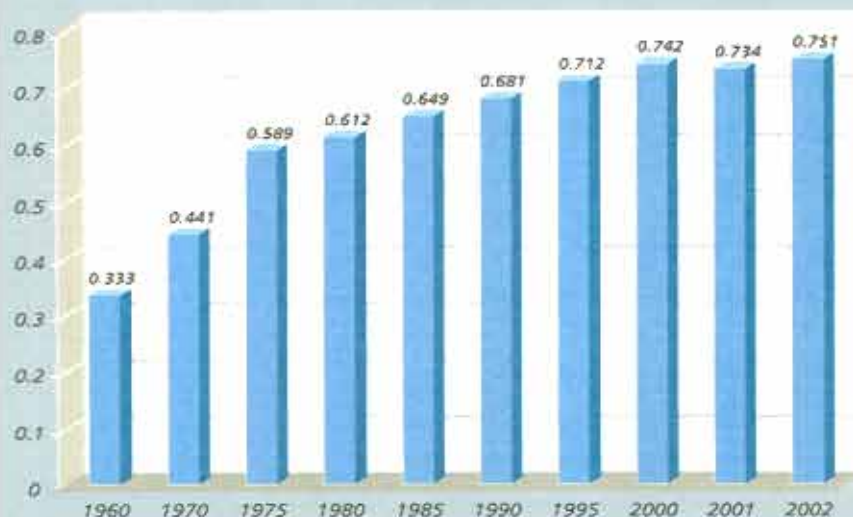
GDP/Capita Annual Growth Rates

	HDI Rank	1975-2001	1990-2001
Tunisia	91	2.0	3.1
Guyana	92	0.5	4.4
Grenada	93	3.8	2.9
Dominican Republic	94	1.8	4.2
Albania	95	-0.5	4.3
Turkey	96	2.0	1.7
Ecuador	97	0.2	-0.3
Sri Lanka	99	3.4	3.6
Armenia	100	...	-1.3

Source: Human Development Report 2003, p. 275, Table 12

Figure 1.1

Changes in Turkey's HDI Scores: 1960-2002



Sources: 1960 and 1970 HDI values from: UNDP, Human Development Report 1994, New York: Oxford University Press, 1994, p.195, Table A5.3
 1975, 1980, 1985, 1990, 1995 and 2001 HDI values from: UNDP, Human Development Report 2003, New York: Oxford University Press, p.242, Table 2.
 2000 HDI value from: UNDP, Human Development Report 2002, New York: Oxford University Press, 2002, p.130, Table 1.
 2002 HDI value from: UNDP, Human Development Report 2004, UNDP, 2004, p.140, Table 1.

was 2.0%. The country experienced slower growth in the 1990s with an average annual rate of 1.7%. Table 1.1 puts this performance into broader perspective by comparing Turkey with countries that rank slightly above or below with respect to HDI. As the figures in Table 1.1 show, Turkey's growth in the 1990-2001 period

lagged behind most of the countries with an HDI ranking of 91 to 100. Clearly, the dramatic decrease from 2,965 to 2,123 USD in per capita income in 2001 pulled down the average growth rate between 1990 and 2001 considerably. Nevertheless, one must note that 2001 was not the odd year and that Turkey experienced a negative growth rate of 6.1% both in 1994 and 1999 (<http://www.die.gov.tr>).

The situation with respect to the other components of HDI is also one of mixed blessings. Life expectancy at birth, for example, was only 57.9 years for the 1970-75 cohort. It is presently 70.5 years. This is a significant and commendable improvement. On the other hand, countries such as Tunisia, Ecuador, Sri Lanka and Armenia which have HDI rankings that are close to Turkey's all have slightly higher life expectancies.

In recent decades, Turkey has achieved a dramatic reduction in infant mortality rates: from 150 per 1000 live births in 1970 to 36 in 2001.¹ This is the good news -a remarkable success by any standard. But the bad news is that this is still too high in comparison to countries with similar income levels and HDI rankings. In fact a number of countries (e.g. Republic of Moldova, Vietnam, Syria, Indonesia, Honduras) which have substantially lower HDI rankings than Turkey have succeeded in achieving infant mortality rates that are under 36 per 1000 births. The situation is much the same with respect to under five mortality rates.²

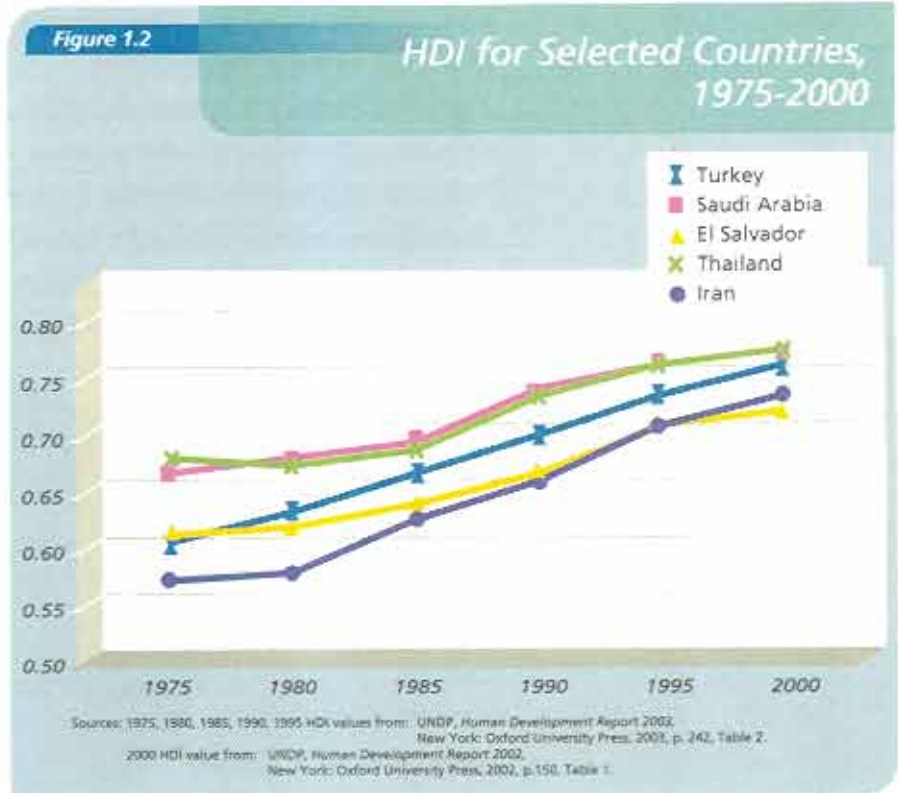
¹ Recent surveys indicate that infant mortality rates continue to improve.

² Comparative figures are from UNDP, Human Development Report 2003, New York: Oxford University Press.

More detailed figures reflecting Turkey's "progress report" in various fields related to HD are given in Table A1. But before ending this section, we deem it useful to review Turkey's performance as measured by HDI scores and rankings. Changes in Turkey's HDI scores since 1960 are given in Figure 1.1. It is observed that the rate of increase in these scores has slowed down in the 1990s and there is even a decrease from 2000 to 2001. However, as noted before, this is due to the sharp decrease in GDP in 2001.

It will be more revealing to view changes in Turkey's HDI scores from a broader comparative perspective. HD performances of a number of selected countries that had more or less similar HDI scores with Turkey in 1975 are sketched in Figure 1.2. It can easily be observed that Turkey's performance between 1975 and 2000 has been closely comparable to countries with similar HDI scores at the beginning of this period -neither significantly faster, nor slower.

When HDI scores are published each year, relative rankings of countries receive at least as much attention, if not more, than the scores themselves. According to *Human Development Report 2004* Turkey's ranking is 88 among 177 societies for which data are reported. Although it represents an improvement over the previous year (96th among 175 societies) this ranking is not commensurate with the country's potential or with the



self-image of its people. This is particularly true and should be of some concern when we take into account the fact that Turkey ranked 70th in 1990 (*Human Development Report 1991*³). The following year Turkey dropped one place and ranked 71st. *Human Development Report 1995* published statistics for 174 countries and Turkey's ranking was 66 (1992 data). These results were pointing out to an optimistic outlook for the country. Had that trend continued, Turkey today could be among the "high human development countries" or at least close to making its way into that

Turkey's performance between 1975 and 2000 has been closely comparable to countries with similar HDI scores at the beginning of this period.

³ The 1991 Report published data for 169 countries instead of the 175 in the latest Report. However, this factor alone cannot explain Turkey's significant decline relative to other countries.

group. Unfortunately, that upward trend did not continue; to the contrary, Turkey lost considerable altitude with respect to its relative HDI rank. *Human Development Report 2000* (based on the 1998 HDI values) showed Turkey to be the 85th country among 174. In the three Reports that followed, Turkey's rankings were 82, 85 and 96, respectively.

It is obvious that Turkey now has a long way to go just to catch up with 1992. That would involve outperforming 29 countries and would be a formidable task indeed. Clearly, **policy makers, academicians and intellectuals should be engaged in an intense analysis of the factors that contributed to this decline and drawing up recommendations and plans for reversing the trend once more.**

ICT and Human Development: The Case of Turkey

Human Development Report 2001 was devoted to a detailed analysis of "making new technologies work for human development." That Report begins by stating that "People all over the world have high hopes that new technologies will lead to healthier lives, greater social freedoms, increased knowledge and more productive livelihoods" and notes

that "The technology divide does not have to follow the income divide. Throughout history, technology has been a powerful tool for human development and poverty reduction." (p. 1)

The role that information and communication technologies could play in accelerating HD in

Turkey is the basic question that this report sets out to investigate. Indeed, it has been demonstrated both theoretically and empirically that ICT can provide a low cost and effective alternative to

traditional methods in, for example, education and health services. Narrowing the gender gap, increasing government transparency and accountability, enhancing good governance practices, widening marketing opportunities for traditional products, improving production techniques are only some examples of where ICT could be of substantial help. It is particularly important to note that ICT opens new windows of opportunities especially for developing countries for achieving higher levels of HD in many areas. It is much cheaper, as we all know, to connect the students of a remote rural school to the best teachers in the capital city than sending specialists, who are usually in very short supply anyway, to a village. Potential benefits of ICT are immense

Turkey stands to gain enormously from ICT applications in many fields crucial to Human Development.

and it would not be an exaggeration to say that the varieties of possible applications are almost infinite.

As the present report argues, Turkey stands to gain enormously from ICT applications in many fields crucial to HD. Needless to say, like every new technology or method, the possible adverse side effects of ICT should be considered and policies should be designed with the aim of eliminating or at least minimizing these. Some of the common risks are breaches of privacy, short-term unemployment, the so-called "gender divide" and regional disparities. Well aware of these as well as other risks, the present report maintains that these are not insurmountable as long as they are built into the model. But much more serious is the risk of decelerating the access of the broader

citizenry to electronic information.

Turkey is favourably situated, with respect to both physical and human capital, to make optimal use of ICT to help achieve its economic, political and social development objectives. This report explores these opportunities particularly with respect to economic growth and

eradication of poverty,

providing high quality education to both girls and boys and achieving good governance in accordance with democratic principles and respect for human rights. Such a

document should begin with an inventory; a balance sheet, in a way, of where the country stands with regard to ICT. It was this first step that was the most problematic in the preparation of this Report.

Indeed, in many instances **data**

Turkey is favourably situated, with respect to both physical and human capital, to make optimal use of ICT to help achieve its economic, political and social development objectives.

Table 1.2

Digital Access Index: 2002 Scores for Selected Countries

High Access		Upper Access		Medium Access		Low Access	
Sweden	0.85	Ireland	0.69	Belarus	0.49	Zimbabwe	0.29
Denmark	0.83	Cyprus (South)	0.68	Lebanon	0.48	Honduras	0.29
Iceland	0.82	Estonia	0.67	Thailand	0.48	Syria	0.28
Korea (Rep.)	0.82	Spain	0.67	Romania	0.48	Pap. N. Guinea	0.26
Norway	0.79	Malta	0.67	Turkey	0.48	Vanuatu	0.24
New Zealand	0.72	Kuwait	0.51	Macedonia	0.48	Pakistan	0.24
Italy	0.72	Grenada	0.51	India	0.32	Azerbaijan	0.24
France	0.72	Mauritius	0.50	Kyrgyzstan	0.32	Mali	0.09
Slovenia	0.72	Russia	0.50	Uzbekistan	0.31	Burkina Faso	0.08
Israel	0.70	Mexico	0.50	Vietnam	0.31	Niger	0.04
		Brazil	0.50	Armenia	0.30		

Sources: www.itu.int

Table 1.3

e-Readiness Index

Rank	Country	Point
1	Finland	5.92
2	USA	5.79
3	Singapore	5.74
4	Sweden	5.58
5	Iceland	5.51
6	Canada	5.44
7	UK	5.35
8	Denmark	5.33
9	Taiwan	5.31
10	Germany	5.29
.....
.....
50	Turkey	3.57
.....

Source: World Economic Forum

related to ICT availability and use in Turkey either did not exist or contained inconsistencies and discrepancies. Fortunately, two international agencies, the World Bank and the International

Telecommunication Union collect and publish comparative data on many aspects of ICT. The latter also calculated a so-called "Digital Access Index" for the first time ever.

ITU's DAI groups countries into four categories: high access (DAI 0.70 or above), upper access (DAI between 0.50 and 0.69), medium access (DAI between 0.30 and 0.49) and low access (DAI 0.29 or below). Table 1.2 gives DAI scores for top five and bottom five countries in each group.⁴ Turkey ranks fifth in the "medium access" group and has an overall ranking of 72 (among a total of 180 countries) with a Digital Access Index value of 0.48. Sharing

almost the same⁵ DAI value with Turkey are Lebanon, Romania, Thailand and FYR Macedonia. Countries like Brazil, Mexico, Russia, Mauritius, Grenada, Kuwait, St. Lucia, Costa Rica, Jamaica, Bulgaria, Trinidad and Tobago, Argentina and Seychelles all have higher Digital Access Index scores than Turkey.

Still another comparative measure is provided by World Economic Forum's "Global Information Technology Report 2002-2003" where 84 countries are ranked according to their "readiness for information society." The Report finds that Turkey, with an e-Readiness Index of 3.57, ranks 50th among this group of countries. This clearly shows that Turkey needs to act, and act fast, before the lag turns from serious to grave. Table A4 gives much more detailed data on various indicators of ICT and compares Turkey with a number of countries with respect to these indicators. However, the essence of Table A4 can be summarized in one sentence: Without further losing any time, Turkey should formulate and implement policies that will carry it into the digital era. Clearly, more energy, effort and funds are needed to accelerate this process. This has been more recently recognized by Turkey's current government and hence, a new project, "e-Transformation Turkey," has been launched to accelerate and coordinate efforts to transform Turkey into an information society in the new millennium.⁶

Without further losing any time, Turkey should formulate and implement policies that will carry it into the digital era.

⁴ The full list countries with their scores and ranking as well as a technical note about how the composite index is formed can be found at ITU's website: www.itu.int

⁵ The differences are in the order of thousandths of a decimal point.

⁶ It is encouraging that an "e-transformation committee" led by three cabinet ministers (Abdullah Şener, Ali Ergün and Bülent Yıldırım at the time of writing) has been formed to oversee and direct efforts and projects in the field of ICT.

"e-Transformation Turkey" Project

The Urgent Action Plan (KDEP), introduced by the current government that took power in 2002, emphasizes and specifies actions for remedying Turkey's long term problems, such as financial stability, public management, social security administration, agriculture, and manufacturing. The Plan's Public Management Reform Section declares the e-Transformation Turkey Project as a project of high priority. The State Planning Organization (SPO), is charged with the responsibility of carrying out this project. Furthermore, to ensure the success of the Project, a new coordination unit, Information Society Department, has been established within the SPO. This is a rather significant step considering that for the first time in Turkey a separate unit has been named and designated as the coordinator of information society activities.

Overview of the Report

Each chapter of this report looks at one aspect of human development and the potential impact ICT can have on that particular dimension of HD in Turkey.

Chapter Two examines the benefits ICT can bring to democracy when the citizen is no longer a passive recipient of governance but an interactive user of e-government. The chapter

highlights the potential ICT can bring for greater connectivity, accountability and transparency as well as a strengthened civil society and the creation of policies more suited to citizens' needs. The chapter provides examples of how ICT is currently being used in government administration and the potential for future use of technologies in an e-Europe.

Chapter Three provides an overview of the poverty reduction potential of ICT, specifically in the areas of access to information, job creation and participation. The chapter notes the potential of ICT to remove barriers of physical distance and to create inclusion, but points out that these benefits may not be automatic and that there may be costs involved.

Chapter Four focuses on education, an area in which Turkey lags behind countries with similar economic development levels with female illiteracy levels (above age 15) reaching 25%. The chapter examines the educational content of ICT as a set of new skills and their potential as an instrument of teaching or learning. The chapter points to the ICT benefits of interactivity, curriculum organisation and of sensitivity to individual learner needs and uncovers some of the costs involved in wider access.

Chapter Five introduces a case study of the introduction of computers, training and Internet access into a village, with the aim of promoting commerce and increasing human

development. The chapter provides an insight into the complexities of introducing ICT for human development purposes, the dangers of increasing inequalities and the importance of addressing

specific user needs.

The Report finds that while Turkey has already made progress in areas of ICT relating to education and governance, these efforts may

**Box
1.1**

Information-Communication Technologies and Turkey: The Most Recent Data

It is clear that a report with the main theme of Information and Communication Technologies must be based on up to date and reliable data. It has by no means been easy to obtain data during the writing of the 2004 Turkey Human Development Report.

On the other hand, like elsewhere, in Turkey too, "up to date ICT statistics" has come to mean "daily statistics." Indeed, data on computer use or internet connectivity, for instance, have to be updated constantly.

The success of policy recommendations aimed at harnessing ICT to enhance and accelerate human development will depend, to a great extent, on the availability of sound data. Indeed, the Short Term Action Plan of the e-Turkey Transformation Project has recognized this need and has charged the State Institute of Statistics with the responsibility of eliminating the data deficiencies in this area. We are happy to note that, shortly before the publication of this report, the State Institute of Statistics published the preliminary findings of the "Household Information Technologies Use Survey." This survey, conducted by SIS for the first time, contains rather detailed statistics on the general public's use of information technologies. As indicated in the SIS News Bulletin, data information technologies have been collected through face-to-face interviewing in 9,571 households covering 24,462 individuals.

Viewing the basic findings of the SIS Survey, three points must be underlined:

- 1. Among Turkish households, levels of both computer and internet use are extremely low.*
- 2. The gender gap with respect to access to information technologies is immense.*
- 3. Similarly, the generation gap is sizeable.*

reinforce current inequalities without specific interventions to correct a growing digital divide. Thus if ICT is to aid human development in Turkey, policies of ICT utilization must be developed interactively with citizens

and private enterprises. The National Human Development Report takes an abroad view of human development in Turkey and in doing so offers policy makers a broad spectrum of entry points for ICT to bridge the digital divide.

In the language of numbers:

- **Only about one tenth of the households in Turkey possess a personal computer.**
- **The proportion of households with internet access through any means, including mobile phones, is around 7 percent.**
- **At the individual level, the proportion of those who used the Internet during the three-month period prior to the interview is only 13.3 percent.**
- **More than twice as many men as women use the computer. An even greater gap exists with respect to internet use (the proportion of men using the internet being almost 2.5 times that of women). It is clear that active intervention policies must be put in place to reduce the gender gap in ICT use.**
- **It is expected that younger generations make more widespread use of ICT. In Turkey, however, computer and internet use decreases dramatically in groups that are not even middle aged and almost diminishes in 50+ cohorts.**

**Computer and Internet Use
by Gender and Age (%)
(SIS June 2004 data)**

Age	Computer Use		Internet Use	
	Women	Men	Women	Men
16-24	21.07	44.40	15.95	38.30
25-34	13.10	26.41	9.87	21.47
35-44	7.05	19.16	4.92	13.89
45-54	2.76	12.91	1.66	9.28
55-64	0.67	4.00	0.64	2.67
65-74	0.11	0.80	0.06	0.88

Source: "Hanehalkı Bilgi Teknolojileri Kullanımı Araştırması: Sonuçları, 2004" (Findings of Households Information Technologies Use Survey); *DİE Haber Bülteni*; 15.10.2004 (www.die.gov.tr)



Information and Communication Technologies and Governance

Governance and Human Development

The fundamental democratic idea of self-rule demands a political subject or a group of subjects to be “connected.” In other words, the constitutive elements of a democracy must feel the presence of others who are parts of the same system. One major novelty in the so-called “digital age” is connectivity which can be defined as the capability of elements of a system to reach each other instantaneously without external supervision.

There is a striking parallel between the arguments of contemporary political theory and what the new communication and information technologies could offer. In an age in which the problems that citizens face extend far beyond local and even national boundaries, the significance of connectivity on a global scale gains unprecedented importance. The demands for a direct, participatory democracy place the citizen-subject at centre stage and, thanks to the digitalisation of information, the new citizen-subject is not altogether helpless in the middle of an increasingly complex world.

The credibility of governance institutions ultimately depends on their ability to deliver results that respond to the needs and expectations of their constituents. Sustainable societies must focus on the needs of citizens because the authority of democratic governments depends on the consent of its citizens being governed. Transparent and fairly applied laws, regulations and codes need to be equally enforced. Transparency promotes effective governance by opening up decision-making processes to public scrutiny and enhancing the degree to which constituents can hold governance institutions to account. Effective governance requires ethical behaviour and vigorous action to fight corruption. In addition, integrity is a pre-condition for the creation of a trustworthy and effective framework of governance.

Efficient governance institutions demonstrate good stewardship of resources by achieving concrete results with minimum waste, while following agreed-upon standards and procedures. Achieving efficiency requires effective and responsive policies for building and maintaining well-performing and efficient institutions to deliver quality services. Coherency helps to ensure that combined policies are serving the same goals and are adaptable. Effective governance is not static. New risks are constantly emerging and societies need to continuously reflect on the values

their governance arrangements are intended to promote and to anticipate the changing needs and meet them through innovative procedures and new policies.

Participation and consultation are mechanisms for identifying and aggregating the will of constituents. Building them into the decision making process can increase support for governance institutions and their policies. Consultation and informed participation can also help lead to policies able to better address the needs of the constituents.

ICT and Good Governance

It is a common conviction in many contemporary societies that information technologies has the potential to pave the way for an effective democratic system based on active citizen participation. Some might argue that, throughout history, every new technology has been viewed as a saviour for the social problems prevailing in a given period. However, the digitalisation of information has a peculiarity that separates it from the earlier advances in technologies of communication. Indeed some historians of technology have argued that digitalisation can only be compared to the industrial revolution.

This peculiarity involves the fact that, today,

information can be saved, stored and retrieved by the user whenever it is necessary and wherever a medium of retrieval

There is a striking parallel between the arguments of contemporary political theory and what the new communication and information technologies could offer.

is available. In addition, there exists a spatial dimension where user-to-user interaction is possible in contrast to user-machine interchange.

One must keep in mind that digitalisation has the potential to challenge traditional perceptions of the State. Furthermore, digitalisation seems to have the potential to question the notions of "public" and "private" and allows the citizen the possibility of meaningful and interaction with the State.

New communication technologies have the potential to allow and even encourage citizen participation which is an essential ingredient for "direct" democracy.

These consequences are certain to have a profound impact on governance. Indeed, new communication technologies have the potential to allow and even encourage citizen participation which is an essential ingredient for "direct" democracy.

To assess the democratic potential of ICT, it is useful to think about the impact of these technologies on transformations in the public sphere. It is clear that the success of electronic democracy projects will depend on their capacity to support and enable the introduction of new forms of "publicness" within a public sphere dominated by privately owned and controlled and by state-owned media (Tsagarauisanou, 1998:175). ICT have created an expanded definition of the word "public." Public space on the Internet is not linked to sharing a common locale and a common time. The Internet gives users the chance to select their form of "public". It is defined as "dialogical space", allowing

communication by many to many.

Entering a public space on the Internet depends on the individual wish of a person who is willing to share his/her views. Under the anonymous conditions of the Internet, disembodied voices can share their opinions. Through disembodiment, "any basis for enacting embodied discrimination is removed, freeing access to participation and granting each participant equal status within the network" (Wilson, 1997:149).

In modern democracies, the formation of public opinion is dominated by the mass media. Although there are limitless possibilities for reaching and selecting information and knowledge, mediated information and knowledge depend on a gatekeeping process determining the content of mass communications. The Internet breaks down the conventional divide between the producers and the audience by changing the one-way communication into a two-way process through interactivity. Theoretically everyone could become an opinion manager while participating or sending messages to online discussions.

One can readily identify at least five reasons why ICT may have an impact on democracy: i) Easy access to information; ii) Immunity from authority; iii) Freedom of expression; iv) Increasing political participation and v) Expansion and globalisation of civil society. We shall briefly comment on these five factors.

Easy Access to Information: By lifting the barriers of time and space in communication, the Internet makes

citizen participation in decision-making processes much easier. However, it is important to remember that this is not a straightforward conclusion. For instance, faster and more convenient access does not translate into equal access.

Immunity from Authority: Internet communication is not under the control of any central authority. This is quite different from traditional means of communication in which the use of technology maintains authority based on ownership. The political and economic potential of the Internet makes it an attractive target for economic and political powers. Unlike TV or radio, the decentralized structure of the Internet prevents easy exploitation. The Internet lacks a concrete structure to be owned, leased, or sold. It is a system open to expansion and participation at any given time.

Freedom of Expression: Freedom of expression, a *sine qua non* for democracy, is claimed to reach its pinnacle under the conditions of digitalisation (Rheingold, 1995; Poster, 1997). With a mass of information and reduced censorship and supervision, this new media space encourages a multiplicity of ideas and opinions, though not without problems. Internet freedom is vulnerable to anti-democratic or thoroughly anti-human content such as child pornography. However, the Internet is a social medium of communication and we are already able to observe initiatives of self-regulation.

Increased Political Participation: Digitalisation makes it much easier

for the citizen to raise his/her voice and to actively participate in political discussions as well as in the decision-making processes at both local, regional and national levels. Even autocratic governments find it difficult to turn a deaf ear to public demands now much more easily, conveniently and, if necessary, anonymously through the Internet.

The Expansion and Globalisation of Civil Society:

The Internet can provide citizens' initiatives a communication and information space beyond the spatial barriers and restrictions imposed by the traditional boundaries of locality. Many issues of local significance, such as environmental concerns, can now be linked with other localities with similar problems in order to establish a global network of environmental consciousness and action, to give but one example. It should also be noted that the potential of connectivity has a tremendous impact on the very definitions of local and global (Frederick, 1997).

Citizens of the digital age have an active, participatory and constitutive role in the democratic system. With this new role assumed by the citizenry, it would not be realistic to imagine an unchanging State. The State is expected to adopt and even perhaps guide these transformations -hence the now widely used concept of "e-government."

Citizens of the digital age have an active, participatory and constitutive role in the democratic system. With this new role assumed by the citizenry, it would not be realistic to imagine an unchanging State.

e-Government can be regarded as the most important effect of digitalisation on the structure and administration processes of the State. The process of globalisation emerged, at least partly, as a response to a crisis of the legitimacy of the State. Globalisation requires a redefinition of the State and its traditional ideology of governing as well as citizen-to-citizen and citizen-to-State relations. To overcome a State's crisis of legitimacy, social relations need to be reformed on the basis of a dialectical interaction brought about by technological advances and organizational structures immanent in the society (Castells, 1997:8).

Starting with the 1980s, e-governance appears to occupy the centre stage as a consequence of new economic and political developments.

e-Governance is significant in reshaping the global and local policies of social organizations. The

e-Government can be regarded as the most important effect of digitalisation on the structure and administration processes of the State.

"White Paper on European Governance" prepared by the Commission of the European Communities in 2001, suggests that e-governance is a trans-national form of governing expected to give a new shape to the existing mechanism

described as closed, excluding the citizen and somewhat dysfunctional. e-Governance constitutes the backbone of the vertical and horizontal organization of the Union that is designed as a network allowing openness, participation, responsibility, effectiveness and harmony.

According to a United Nations Report of 2002 (*Benchmarking e-Government: A Global Perspective*), "e-government transforms governance like no previous reform or reinvention initiative."

e-government potentially empowers individual citizens by providing them with an alternative channel for accessing information and services and interacting with government. It also gives the individual citizen another choice: whether to become an active participant in the governing process or not.

e-Governance in Turkey

e-Governance applications in Turkey are relatively new. Nevertheless, there is strong pressure in that direction and there is reason for optimism.

Applications increase constantly and some are particularly praiseworthy. Statistical data about the diffusion and use of ICT in Turkey come from a variety of sources and, as noted in the introductory chapter of the present report, are not always consistent. The findings of two studies, carried out in 1997 and 2000 (DUIT, 2000 "Diffusion and Use of Information Technologies 2000; TÜBİTAK, BİLTEN, 2000), reporting data on urban Turkey, are very informative and provide us with a basic insight into the demographic diffusion of the technical infrastructure as well as the ways in which Turkish people use the e-government infrastructure and the Internet.

In 1997, only 6.5% of all urban households owned a computer, in the year 2000 this figure had nearly doubled (12.3%) and continues to increase fast. Home access to the Internet increased nearly six times from, 1.2% to 7%, during the same three-year period. However, these increases in computer and Internet use do not necessarily point out to an integrated utilization of e-government.

Ownership of computers and Internet access indicate a "digital gap" within Turkey. Lower-income families represent only 2% of computer ownership, while nearly two-thirds of high-income families have a computer at home. Internet access ratios between low and high-income families indicate that only 0.5% of low-income families have access to the Internet, while approximately half of high-income families have Internet access (DUII, 2000; TÜBİTAK, 2000).

In addition to the differences between low and high income households there are also significant disparities between regions and between differing levels of educational attainment. The South-eastern Anatolia region represents the lowest computer ownership with 1.2%, while the Marmara region exceeds the national average by approximately five percentage points and reaching 16.9%. In addition there is an approximate ratio of one-to-twenty in Internet use between the highest and lowest education groups. It is clear that ICT infrastructure and use have followed the path of the earlier modernization process dividing the country into developed and underdeveloped regions,

high and low income families, and levels of educational attainment. This reality somewhat blurs visions for e-governance in Turkey, at least in the short-term. e-government may risk rendering some parts of the population "more equal" than others if such problems are not resolved. If such disparities continue to exist, expected positive impact of ICT on participation, democratisation, in short, on good governance will be delayed at best. At worst, by reinforcing economic, social and political inequities, new information technologies could consolidate the positions of the already privileged groups, thereby impeding rather than enhancing the democratisation process.

Turkey's e-government policies are best viewed in conjunction with Turkey's modernization project. Some would argue that technical infrastructure investments and the discursive aspirations toward e-governance are dominated by a desire to catch up with the "developed world". Catching up with the modern world can be translated into the strongly felt need to integrate Turkey into new times, that is, into global political and economic structures. The new economic and political paradigm requires substantial overhauling of public administration. Recently the EU membership process and e-Europe regulations have fostered transformations such as e-government, but e-governance is still at rather early stages of development.

Ownership of computers and Internet access indicate a "digital gap" within Turkey.

The Internet in Turkey

A basic requirement for Internet access is the existence of a reliable telephone infrastructure. Since the 1980s, Turkey has been making large scale investments in the field of telecommunications and has initiated a privatisation efforts although which, according to some, are "too little and too late." The Turkish population has near-universal access to telephone mainlines with over 90% of the households connected to a mainline telephone. In 2002, the number of telephone mainlines per 1,000 people was 281 --considerably higher than with countries that have higher HD rankings than Turkey. (HDR 2004, Table 12, p. 181).

Therefore, at least with respect to telephone infrastructure, Turkey does not face significant problems. It goes without saying that telephone ownership does not automatically translate into Internet use and only a small minority of Turkish households have yet taken that step.

Latest statistics on e-government applications can be found at www.bilgitoplumu.gov.tr (A government site with the name "knowledge society."). The mere existence of such a website in itself is a very positive indication and has symbolic as well as substantive significance. It is worth quoting few paragraphs from the report entitled "e-Devlet Proje ve Uygulamaları Özeti" (e-State Projects and Applications: A Summary) found at this website in

order to assess Turkey's current standing with respect to e-government applications (Box 2.1). Perhaps even more instructive is a chart found in the same report (pp. 3-4) indicating Turkey's position with respect to 20 basic public services agreed upon by the EU. It is observed that a great majority of these 20 basic services are either not available at all or are not provided at a satisfactory level through the Internet. Nevertheless, such a candid assessment in an official report available on a government site is in itself worth celebrating and cause for future optimism.

Although many government offices are now "on the web," it is worth noting that the main reason for using government websites is still information gathering. Interactive and operational uses are limited to only 1% of users according to a report by the Turkish Informatics Convention (*Türkiye Bilişim Şurası Raporu*, 2002:212). This extremely low level of interactive use of government sites may be due to two reasons. First, public institutions in Turkey see their websites as a medium for one-way information transfer. This tendency may have more to do with an institution's public relations functions rather than e-services in the true sense of the concept. Second, users lack "e-culture." Citizens in Turkey do not seem to trust operations involving personal information transfer over the net. A possible reason could be related to the traditional State-citizen relations in Turkey involving a strong submission on the part of the latter. It is also possible that there is a lack of trust in technology generally. As

Public institutions in Turkey see their websites as a medium for one-way information transfer.

Box
2.1*e-State Turkey: Significant Progress Made But There is Still Much to be Accomplished*

There are currently 3,054 websites belonging to offices providing public services. These are distributed as follows: 1,767 with gov.tr extensions which in general belong to central government; 161 with bel.tr extensions which belong to local administrations; 911 with kt2.tr extensions which belong to primary and secondary schools; 174 with edu.tr extensions which serve universities and institutions of higher education; 8 with mil.tr extensions which belong to the military; and 33 with pol.tr extensions that belong to internal security services.

Web pages belonging to executive ministries and institutions in general contain information on the particular institution, rules and regulations concerning its establishment and functions, its subsidiary and related offices, how to contact the given institution, its e-mail, and certain announcements. Some web sites contain tender information as well.

Apart from these, it is observed that certain applications which allow interactive operations (for example, obtaining identification number, inquiring about traffic violations and paying traffic fines, filing passport applications, paying motor vehicles taxes, queries about corporate taxes, completing customs clearances, e-sales by State Procurement Office, etc.) at various levels have been growing.

Rules and Regulations Information System (Mevzuat Bilgi Sistemi) which compiles all current laws and regulations is available to the public at the Prime Ministry's website. Furthermore, certain isolated efforts are being made to put together all e-services provided by public institutions.

A common design standard does not exist for government websites. In addition, although collecting online services of the institution in question in the same webpage by way of links to related public offices offers some limited convenience to users, it certainly is not an ideal e-State application because interoperability and data sharing of information systems of various institutions has not been realized in many basic applications. In other words, the general practice in our country is not yet at the level of e-State, but rather e-public office.

.....

Despite all these, it is observed that e-service culture is steadily developing in many public offices and institutions. Therefore, this development will have a positive impact on e-State efforts and the integration of services that are being carried out within the framework of e-Transformation Turkey Project."

a result of these factors, ordinary citizen-users fear the misuse and even abuse of personal information by the State, especially by the security forces (Timisi, 2003).

A significant step towards ICT-based governance is the "e-Europe" initiative and Turkey's initiation of "e-Turkey" project. The European Commission launched the e-Europe Initiative in December 1999. e-Europe+ 2003 Action Plan involves actions concerning the member states' in three main fields: i) inexpensive, fast and reliable Internet; ii) investment in people and skills; and iii) encouraging Internet use (Arifoğlu *et. al.*, 2002: 38-41; Türkiye Bilişim Şurası, 2002:225). Turkey joined the e-Europe initiative in June 2001. The Prime Ministry of Turkey began working on e-Turkey tasks in October 2001. Thirteen study-groups were formed to work on issues such as education, infrastructure, law, commerce, security and coordinating ministries and institutions were appointed (www.e-turkiye.gov.tr; "e-Türkiye Girişimi 1. Ara Raporu," 2002).

A significant step towards ICT-based governance is the "e-Europe" initiative and Turkey's initiation of "e-Turkey" project.

The World Bank places hope in the e-Europe initiatives concluding that "The full and effective implementation of the e-Europe+ program, of which Turkey is a member, will advance ICT and enhance the global competitiveness of the sector. The introduction of competition policy additionally will inject new dynamism into the sector. For maximum effect these reform

efforts should be undertaken with tight interagency coordination and linked to a comprehensive e-government implementation strategy." (The World Bank, 2004:65).

Established ICT-Based Governance Structures

Some examples of better established ICT-based governance structures are given below. It should be noted, however, that this is not intended as a comprehensive list.

•Parliamentary Website

[www.tbmm.gov.tr] The Turkish Grand National Assembly (TGNA) website has been on the Internet since November 1996. The average number of hits on the web site varies between 80,000 and 100,000 per month. This figure has risen, on the average, 10% annually. The goal is to make the Parliament's activities directly available to the public and to support transparency. The parliamentary process has been made public in a direct, impartial and objective manner through the website.

Although the website is mainly informational, it is an important database and information source on parliamentary activities and functions. An e-mail service receives an average of 8,000 e-mails per day and provides an interactive element. tbmm.gov.tr, the Turkish Parliament's website, is an exemplary initiative. Its significance can be examined under four headings each of which is closely related to e-governance:

i. Transparency: The citizen relationship with the State requires a regulatory mechanism providing guidance and assuring transparency.

ii. Institutional Memory: It is possible to define parliament (and recently, the web site) as the institutional memory of the State. Parliament maybe the most reliable source of information regarding the state administration.

iii. Symbolic Significance: Parliaments bear a symbolic significance with respect to the regulatory role in the context of transparency. It is a body in which all legal political tendencies are represented and thus it has the capability to embody the differences of the political system.

iv. The Citizen's Right to Control: The website can effectively give citizens the right to control the representatives simply by providing the e-mail addresses of the parliamentarians and government agencies and links to the web addresses of state institutions.

•e-Municipality

The literature on democracy points out that local discussion and local parliaments reinforce democracy in two ways: First they educate citizens in political participation. Second, local discussion and local parliament are a political force in their own right. These considerations underline the significance of connecting citizens at the local level as active participants of governance.

As of the time of writing of this Report, some 69% of Turkish municipalities had computer infrastructure. 95% of these computers have sufficient minimum technical quality. However the research shows that only 30% of municipalities have achieved automation in their public work and only 15% of these municipal governments have access to the Internet. Computerization, automation and Internet use is highest in the Marmara region, at 90%. The lowest rates are in the South-eastern Anatolia region, with a computerization figure of 43%, automation 21% (www.yerelnet.org.tr).

Turkish Grand National Assembly website is an important database and information source on parliamentary activities and functions.

•The YerelNET Database

This repository contains a wide variety of information on local governments in Turkey. Launched at the end of the year 2000, YerelNET also functions as a web site connecting local governments with each other throughout Turkey. The web site is financed by public funds with the collaborative efforts of the Public Administration Institute for Turkey and the Middle East and Local Governments Research and Education Centre.

•The Internet City

Yalova province is the pioneer of e-governance initiatives in Turkey. Yalova was selected as "pilot province" within the framework of e-Turkey because of its existing status of "pilot city" for *Turk Telekom*, with fibre optic cables extending to its

villages and technologies like ISDN and PRI readily available. The Yalova Congress held in May 1998 emphasized the significance of the use of information technologies in local development and progress, the outcome of which was the formation of a City Parliament. As a result, Yalova has an advanced e-governance initiative (www.yalova-bld.gov.tr). The web site contains a wide range of citizen-related information from garbage collection hours to the

administrative structure of the municipal government. In addition citizens also can carry out transactions, such as utility payments on the site.

Under the umbrella of the e-Turkey initiative, several databases and service portals have been formed under various ministries demonstrating the use of ICT in government administration. Some of these are listed in Box 2.2.

Box 2.2

Some Examples of ICT in Government

MERNIS Project: *The MERNIS Project is the backbone of the Turkish population information system. Its main objective is to create a central database for the entire population and provide citizens with identification numbers which are to be used in all interactions with public offices. The project, which took several years of planning and implementation, has only partially achieved its objectives as of the time of this writing.*

VEDOP (Tax Offices Automation Project): *This project was started by the Ministry of Finance with the aim of improving control over tax payments. Currently it is active in close to 200 tax offices.*

MOTOP: *Motop deals with motor vehicles taxation procedures and is active in 17 tax offices in 16 provinces.*

The Retirement Fund Project: *This project aims to place public health expenditures under better and more efficient control. It covers 333 hospitals and 17,000 pharmacies nationwide.*

KOBINET: *Formed under the Ministry of Industry and Commerce this web site offers e-commerce information for small and medium-scale companies.*

GIMOP: *The objective of GIMOP is the modernization and automation of customs offices. It has not been completed yet.*

ULAKBIM: *Designed as a National Academic Network and Information Centre, ULAKBIM begun operations in 1996. Its main objective is to create an interactive computer network among universities and research centres.*

Policy Implications

The current applications of e-governance in Turkey suggest an expansion effort and vast potential for the widespread use of ICT. If carefully managed, this could have profound impact on achieving transparent, efficient and effective government and would provide a boost to the process of achieving good governance. However, one can think of at least three major factors which act as an impediment.

First, achieving the objectives regarding e-governance applications does not come automatically with technology production or transfer. The lack of "e-culture" and the uneven distribution of access are the main hindrances for realizing the full potential of e-governance applications.

Second, a legal base, covering issues ranging from Internet security to protection of privacy emerges as a vital necessity for the healthy introduction and development of ICT in governance.

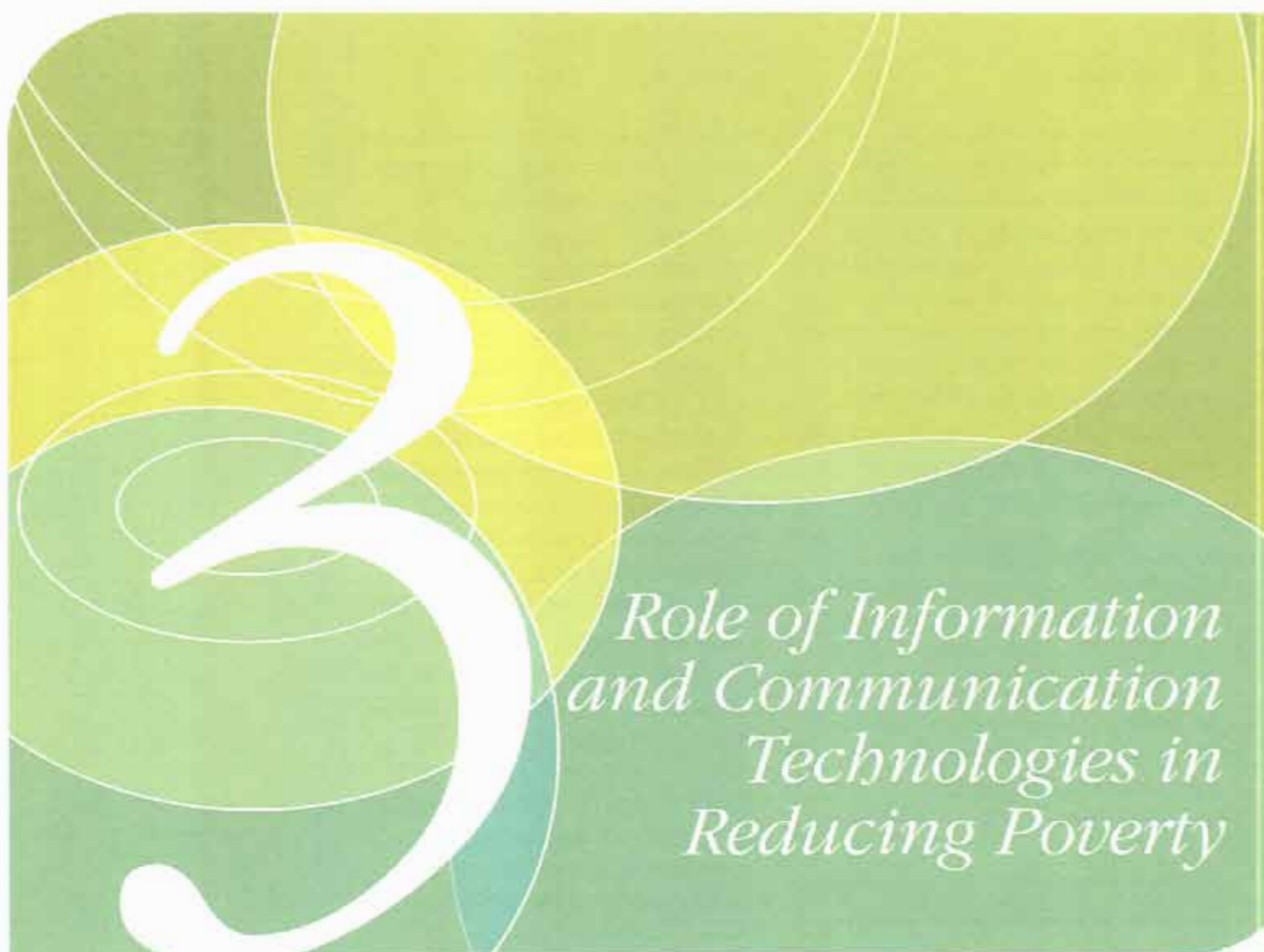
Third, the administrative restructuring of the State in general emerges as a prerequisite. It is clear that particular applications could only result in limited success in terms of a better and more democratic citizen-State interaction. Therefore e-governance should be seen as part of a larger transformation in the Turkish state's reorganization. Such a major and extensive reform is on the public agenda but many would think that this is "easier said than done!"

Concluding Remarks

Information that is particularly useful, relevant and timely is increasingly tied to digital technologies. The crucial points here are i) equal access to technical facilities by the citizenry and ii) the extent to which there is an active interaction between equal participants. As in more traditional media, the Internet can be used in a way that might turn the mass of participants into passive consumers of information and services. This is true for state agencies and private businesses that seek to sell or distribute goods and for political actors who attempt to organize their constituency in an authoritarian way, using computer technology for the purposes of sheer propaganda.

The decentralizing tendencies of the Internet do not guarantee an economically and politically more equal power distribution or more democratic access to political decision-making processes. Digital technologies do not create active, participatory citizens who are major agents of a democratic society on their own, but they are closely linked to political and economic interests which will determine to what extent the democratic promise of these new media will be realized.

It is claimed, therefore, that in order for the new citizen to realize his/her full potential, fast and equal access to information is crucial. In this context, the transition from analogue to digital information storage and retrieval gains particular significance as a social function.



Role of Information and Communication Technologies in Reducing Poverty

It has been widely argued that, if managed properly and with an awareness of the possible pitfalls and risks, the use of ICT could greatly contribute to economic and social development by empowering people through allowing them to expand their choices. One of the areas in which ICT can open up opportunities towards development is their ability to enhance the lives of the poor. Thus ICT can be used as a powerful tool for alleviating poverty.

twofold: first, we aim to map the way in which ICT can be used to combat poverty, evaluating not only the positive links between ICT and poverty alleviation, but also the potential threats and risks involved in using ICT; second, we will position Turkey within this framework, with a view to assessing the past and the present usage of ICT in the fight against poverty, as well as to come up with a set of strategies that would enhance the future use of ICT in that effort.

Understanding Poverty

The concept of poverty continues to be one of the most important dimensions of the debate on human development. Yet, the concept still lacks clarity and is defined in different ways. How the term is defined has obvious repercussions for each different definition will call for different methods and strategies for policymakers.

Poverty can be broadly categorized under two headings. The first explains poverty solely with reference to income (that is, in cash or cash-equivalent money terms), the second, though not denying the importance of cash or cash-equivalent money, argues for the necessity of considering a set of additional variables that would enable the individual realize him/herself. The corollary of this distinction is that while the first group considers poverty as a one-dimensional issue (as living below a certain level of income), the other perceives it as a multi-dimensional and complex phenomenon.

Within the approach that treats income as the sole dimension of poverty, there exist two definitional variants: "absolute poverty" and "relative poverty." Absolute poverty is defined with reference to one's ability to sustain one's life at a very minimum level. Relative poverty, on the other hand, recognizes that the individual is a social being and accepts a necessary level of consumption and life standard that would allow him/her to reproduce himself/herself socially as well. The latter definition takes into account

the particular society in which the individual lives.

Operationally, the absolute poverty line is often defined as One USD per day per person after allowing for an adjustment for purchasing power parity (PPP).

Relative poverty is defined with reference to the proportion of individuals in the total population whose incomes are below a certain percentage of the mean or the median income level in that society.

In the last two decades it has been increasingly argued that a broader understanding of poverty is needed beyond just income levels. Class, gender, ethnicity, access to natural resources, education and health services should equally constitute elements of the poverty problem. According to this approach, an individual unable to enjoy his/her civil, social, cultural and political rights, or who is being discriminated against for reasons such as gender or ethnicity should also be considered within the concept of poverty. Operationally, the Human Poverty Index (HPI), developed by the United Nations Development Program (UNDP), can capture the wider definition of poverty.

The debate on the definition of poverty concludes that human development should support and sustain people to develop and realise their full potentials. The *2001 UNDP Human Development Report* discussed the role of technologies in development, noting that development is about expanding the

ICT can open up opportunities towards development is their ability to enhance the lives of the poor. Thus ICT can be used as a powerful tool for alleviating poverty.

choices people have to lead the kind of lives they value. The report lists the most basic capabilities for human development as the ability to “lead long and healthy lives, to be knowledgeable, to have access to the resources needed for a decent standard of living and to be able to participate in the life of the community”(UNDP, 2001:9).

Although the income level, not doubt, is a major parameter in defining poverty and in designing policies to eradicate it, unequal access to productive assets should also be included in the definition of poverty. This wider definition will be used in the discussion that follows.

ICT and Poverty Reduction

There is a broad consensus today that to alleviate poverty, additional resources should be devoted to the poor, in the form of, *inter alia*, increased education, health facilities, employment opportunities, which would lead to better income and wealth distribution within a given society, in either a direct or an indirect way. Furthermore, there is increasing agreement that the absence of participatory decision-making mechanisms, transparency and accountability undermines political action aimed at reducing poverty by increasing the risk of favouritism and networks of patronage, partisanship and nepotism.

ICT have to date played a transformative role in a broad range of areas within which information has become a central activity. EAO recognises the role of ICT in facilitating “increasingly low-cost access and distribution of information

and also interactive participation in the creation and use of information” (FAO, 2000). ICT have created an unprecedented opportunity for decentralising the creation of and access to information and have thereby resulted in tangible benefits for alleviating poverty.

The impact of ICT on fostering human development in general and reducing poverty in particular, can be categorised under three interrelated, headings:

1. Articulation of knowledge: ICT can provide rapid, low-cost access to information. An important area in which ICT is expected to play a role in poverty reduction strategies is education. Distance learning and continuous training have the potential to **increase the human capital of the poor** thereby creating a host of new opportunities. A further possible area in which the use of ICT **is expected to make improvements in the lives of the rural poor is through long-distance medical diagnosis.** The rural poor often face difficulty in accessing health care and ICT can at least partially remedy this problem. ICT can also play an important role in increasing productivity in the agricultural sector, ICT can help to articulate and disseminate information related to the diagnosis of various crop diseases by providing accurate weather forecasts, or warning of natural disasters.

2. Creation of new employment and marketing opportunities: ICT has the potential to break some of the barriers of distance and provide information related to labour markets. ICT may also help reduce transaction costs in commerce within and across countries. A more efficient labour

market will be beneficial to all segments of society, including the poor. Similarly, a reduction in the transaction costs of commerce will enhance overall productivity in the economy, benefiting the poor as well. In addition ICT may even create new export opportunities that may play a vital role in supporting poor families. Similarly ICT can help development by **fostering entrepreneurship**. ICT may **assist small scale or rural entrepreneurs** unable to be competitive due to the high transaction costs relating to the barriers of distance and limited access to market information.

3. Enhancing participation: ICT is expected to enable people to communicate and obtain a wide range of information with regard to the public sphere at a very low cost. This opportunity presents the possibility of participation in decisions that directly and indirectly affect people's lives. A knock on effect may be a more efficient use of public resources. Not only could citizens' demand be heard more effectively, but also governments' failures (bribery, favouritism, etc.) could be prevented in more effective ways. The possibility of the poor actively participating in decision-making processes will eventually create an opportunity to formulate better policies in the fight against poverty.

There are three basic dimensions related to the use of ICT in poverty reduction that require attention.

The first dimension clarifies whether the impact will be direct or indirect. An example of a direct impact link might be a young person finding a job through the Internet. Indirect

benefits are more difficult to observe, because they go through a variety of processes. To give but one example, the increased awareness of the poor via good governance may partially depend on the use of ICT.

The second dimension is the time involved. One impact of ICT on poverty reduction may be of a one-off nature (as in the case of finding a job through the Internet) or may be longer lasting (as in the case of acquiring education through the Internet). It is also useful to consider whether the result of an action is felt instantaneously (i.e. being informed of an approaching drought), or over a long period of time (i.e. continuing education via the Internet).

Thirdly, it is wise to consider the scope of an ICT intervention. Impacts can in fact be occurring at three levels; local, national and global. A municipality providing a user-friendly and accessible interactive web page may be seen as a local approach. A continuing education programme may be executed at the national level while e-commerce may be an example of a global attempt to demand and supply goods and services from anywhere in the world.

ICT have created an unprecedented opportunity for decentralising the creation of and access to information and have thereby resulted in tangible benefits for alleviating poverty.

Risks and Pitfalls of Using ICT for Poverty Reduction

Although the benefits ICT can produce to enhance development constitute a long list, one should not jump to the conclusion that ICT will inevitably and unconditionally serve

to alleviate poverty. There are indeed risks and pitfalls which need to be taken into account. It is these costs and risks that we now turn our attention to.

The use of ICT will undoubtedly have **operational costs**. Users of ICT will encounter fixed costs relating to hardware and software purchases as well as variable costs including electricity and maintenance. In addition to these fixed and variable costs, providers will incur costs of creating information.

Since many developing countries face a struggle against poverty within the agricultural sector a lack of attention to ICT in this sector may have significant negative effects.

Simply measuring ICT profits against costs may not be a sufficient indicator of the level to which ICT can be attributed to the reduction of poverty for the following reasons: (i) The poor may be less likely to be able to allocate money to the use of ICT because of the costs

involved. This situation may create a "digital divide" between those able and those unable to take advantage of the benefits of ICT. (ii) ICT creates information with the characteristics of public good in the sense that, once available, an additional user will bring no additional cost to the provider. Even those who are able to contribute (those who are not poor and are able to allocate money) will take advantage of this fact. Local and national governments as well as other civic organisations should therefore take responsibility for supporting ICT at a general level to ensure that the poor benefit from ICT.

A further risk ICT may pose to strategies to reduce poverty is that although ICT is expected to increase the overall efficiency of systems, it may also bring about **job losses and job insecurity in the short run partly due to automation**. This is of major concern from a policy perspective as it threatens to increase poverty instead of reducing it.

It should also be recognised that, except for some niche areas such as data-entry, abstracting services and similar labour-intensive services, the information economies of North America, Europe and Japan are in the best position to exploit the market. Developing countries wishing to rely, at least partially, on ICT as part of a poverty-reduction strategy will be in competition with powerful and likely well-organised private businesses, whose interests may not necessarily be in line with those of the poor.

Unless ICT strategies for rural areas acknowledge cultural differences and differences in socio-economic conditions and infrastructure, the impact of ICT will be limited for the rural poor. Since many developing countries face a struggle against poverty within the agricultural sector a lack of attention to ICT in this sector may have significant negative effects.

Careful consideration must be given to the processes involved in implementing ICT related strategies for poverty reduction. As with other developmental strategies, even a single unsuccessful ICT initiative in rural development and poverty reduction may create an adverse, if not hostile, attitude from the poor towards future uses of ICT.

Finally, it is critical to consider that

women in poverty may face particular difficulties in accessing therefore benefiting from ICT. Women face lower levels of literacy inhibiting their ability to access the benefits of ICT. This may be perpetuated in societies with gender hierarchies where men may prefer to restrict women's access to ICT, thereby possibly creating a gender-based digital divide.

Poverty in Turkey

It can safely be argued that even though absolute poverty does not pose a severe problem in Turkey, the situation becomes rather more serious when economic vulnerability and relative poverty are taken into consideration. More than a third of the whole population are found to be economically vulnerable. The ratio of absolute poverty in rural and urban areas is close to three to one, indicating an imbalance in the spatial distribution of poverty.

A recent study investigating welfare issues such as poverty and economic vulnerability in Turkey (World Bank, 2000) suggests that education and poverty risk are strongly correlated and that labour market status is a further significant correlate of poverty. Although important progress has been made in the last decade, Turkey still lags behind countries with similar economic development levels in terms of its performance in education. Regional and gender disparities in educational opportunities and enrollments are of particular concern.

The labour market in Turkey contains a considerable informal sector. Unskilled labourers in the informal sector are more likely to become

trapped below the poverty line. Notably, some 1.6 million children working in this sector do not receive an adequate education or professional training, forcing them to continue as unskilled labourers into their adult lives (DIE, 1999).

Poverty Reduction Through ICT in Turkey

Various ICT related projects are underway in Turkey. The following examples provide an overview of these initiatives in each of the three areas identified as adding value to efforts to reduce poverty.

Articulation of knowledge: An ongoing distance higher education programme (*Açık Öğretim*) run by Anadolu University provides opportunities for about 100,000 students each year (currently some 500,000 students are enrolled in the programme). Although the primary medium for education is the television, students also periodically interact with academic staff. This is a direct investment in human capital intended to contribute to development in Turkey and therefore to reduce poverty. There is particular scope for women to obtain greater levels of literacy and to benefit from ICT from this programme.

An "Extensive Farmer Education through Television Programmes" project undertaken between 1991-97 by the Ministry of Agriculture and Rural Affairs, aimed to transfer knowledge and information on such

It is critical to consider that women in poverty may face particular difficulties in accessing therefore benefiting from ICT.

topics as animal breeding, the use of insecticides, pesticides and irrigation to farmers in an efficient, effective and extensive manner through television. Rural citizens suffer than their urban counterparts in terms of poverty-related problems. Thus this project is likely to have had a positive impact on productivity levels within the agricultural sector.

Participatory communication and learning processes should be incorporated into ICT usage to enable the poor to use ICT efficiently and effectively, thus narrowing the digital divide.

As a part of the South-eastern Anatolia Project (GAP), the "Geographic Information System" provides information coordination and management among various government organisations, public service providers and municipalities. If efficient sharing of data becomes feasible, the success rate of the Project, which aims to contribute to development of the region, will increase. It should be noted, however, that the GIS system is currently far from meeting its potential capacity.

The creation of new employment and marketing opportunities: The South-eastern Anatolia Project (GAP), the Multi-Purpose Community Centres (ÇATOM) and Entrepreneur Support and Guidance Centres (GIDEM) have all been promoting the use of the Internet for marketing purposes. Of these centres the first kind, operational since 1995, was designed exclusively for women of the South-eastern region in order to promote gender-balanced development. Centres have been harnessing income-

generating activities as well as supporting local women in their problems pertaining to education and health. The second type, operational since 1997, has provided investment services to promote new businesses, help improve the existing ones and develop entrepreneurship at a local level. Both types of centres are aware of the existence of the market barriers for small organisations in the South-eastern region, and have supported e-commerce.

The National Employment Agency (İŞKUR) has been using ICT (in the form of the Internet and call centres) to facilitate a match of supply and demand in the labour market. The Agency also provides information, suggestion and guidance through its web site to help build a more effective and efficient labour market.

Enhancing participation: The ongoing "Turkish Grand National Assembly on Television and the Internet" project, which was started in 1994 and is carried out by the Office of the Speaker of the Assembly, makes parliament's activities directly accessible to the public through television and the Internet. The Project makes an important contribution to the direct participation of the public in the pluralistic parliamentary system, thus improving governance.

The "Local Agenda 21 in Turkey" project, which was started in 1997, aims to develop the understanding of governance at large (based on participation and local partnerships within the framework of the Local Agenda 21 process). ICT has been extensively used in the Project. Increasingly, the municipalities that are part of the project have created

Internet facilities to inform and interact with citizens enhancing greater participation, accountability and transparency.

The Social Aid and Solidarity Encouragement Fund (*SYDTF*) conducts the evaluation and monitoring of its local projects in a transparent manner entirely in a computer environment. This has resulted in standardisation of evaluation and monitoring processes in addition to increased efficiency, transparency and accountability.

Despite these and similar examples, the overall use of ICT in Turkish society remains unsatisfactory as the figures given elsewhere in this report clearly show.

Policy Implications

This discussion has indicated the ways in which ICT can play a role in reducing poverty while being aware of the possible risks involved. The following issues underline areas in which measures should be taken in order to minimize the risks and maximize the effectiveness of ICT use.

Ensuring that the poor have access to ICT: As market mechanisms are bound to underprovide ICT to the poor, corrective public intervention is needed. Therefore, national and local governments, the private sector and non-governmental organisations should coordinate their activities in tripartite formations to make certain that the poor have access to ICT. Participatory communication and learning processes should be incorporated into ICT usage to enable the poor to use ICT efficiently and

effectively, thus narrowing the digital divide.

Labour market and ICT: Vigilance should be shown in assessing and, if necessary, taking actions against the positive as well as negative impacts of an expanding ICT sector on the labour market. ICT may result in the creation of jobs since an expanding sector will need an educated, trained work force but may also cause redundancies in the short to medium term.

Human capital gains from ICT:

Awareness must be built among decision-makers and stakeholders of the need for investment in ICT as a contribution to long-term human capital development in areas such as health care, skills development (mostly for employment), continuing education and environmental management. The government, in cooperation with the private sector and civil society, should assume the role of raising this awareness. Emphasis should also be placed on training women and young people to use ICT and ensuring the inclusion of disadvantaged groups.

Participation and ICT: At all levels procedures should also be implemented to enhance feedback and widen participation in the development of information resources. Therefore, the monitoring, evaluation and documentation of successful and unsuccessful applications of ICT for development and poverty alleviation should be conducted continuously. This will make it possible not only to correct mistakes but also to develop models for identifying strategic future investment and programmes. By the same token, support should be

ICT can significantly improve education and health services, thus lessening the regional differences.

provided for research and pilot projects on the role of ICT to support development and poverty reduction. Citizen participation at the

municipality level should be expanded throughout the country in order to increase efficiency, transparency and accountability.

Municipalities should take the necessary steps to accommodate as wide a spectrum of participation as possible.

User-specific ICT initiatives: Finally the specific information needs of various users should be identified in order to develop user-specific, locally sensitive content and applications. Rural development institutions should provide support at a local level for rural people to generate their own content and applications.

Tripartite formations: National and local government, the private sector and civil society should form coalitions to develop, use and disseminate ICT. The institutions of higher education and similar research institutes should play an equally important role in these formations. Such coalitions may currently be occurring on a sporadic basis (in terms of time or location), but efforts should be made to make them nationwide and more sustainable, with a long-term vision. Awareness and commitment for ICT development and the importance of erecting coalitions must be promoted among political leaders.

Long-term ICT strategies: Long-term strategies should be formulated on the effects of ICT on development in

general and on poverty eradication in particular. Such a process should be undertaken by a tripartite coalition and consideration should be given to infrastructure and trained personnel. The selection of national (and regional) ICT strategies should be done in co-ordination with other (national and international) partners active in developmental issues.

Narrowing the digital divide:

Resources should be allocated to infrastructure and training programmes that enable the poor to enjoy the benefits of ICT. Due to a low percentage of Internet usage in general, particularly in the rural areas, care should be given to ensure that the poor have access to the Internet. One example, might be to make the facilities of municipalities, universities, high schools and different ministries available in out-of-office hours.

With the above considerations adopted as guiding principles it is important to consider which areas require the particular attention of ICT initiatives for poverty reduction.

ICT in education: ICT should be used to offer various education/training programmes, tailored for different segments of society (e.g. children, youth, women and the illiterate), either as a part of curricular activities or as extra-curricular activities.

ICT in agriculture: Resources should be devoted to the agricultural sector with the aim of increasing productivity levels by raising the level of knowledge among farmers. Training for farmers through television, radio and the Internet could provide access to information on market prices, agricultural tools

and supplies and technical support on weather conditions, crops and pesticides. Interactivity should be an indispensable dimension of all these initiatives as local problems may differ throughout the country.

ICT in governance: The current examples of participation at the municipal level (within the framework of Local Agenda 21) should be expanded throughout the country. In order to accommodate a wider spectrum of participation, municipalities should facilitate the inclusion of disadvantaged groups. Participation by citizens in public decision-making leads to good governance as it increases efficiency, transparency and accountability.

ICT and people with disabilities: Special efforts should be paid to the large number of people with disabilities by providing training and education specific to their needs to help their participation in society. ICT may prove to be effective in extending education to those currently marginalized due to being partially sighted or blind. Certain public services could be provided electronically helping people with disabilities become more involved in economic, political and social life.

ICT and health: ICT should be employed nationwide to strengthen the health care system and infrastructures to combat diseases and improve preventive medicine. Since poor suffer more from health problems, particularly those that can be prevented and/or treated, these efforts would help reduce poverty in an indirect manner.

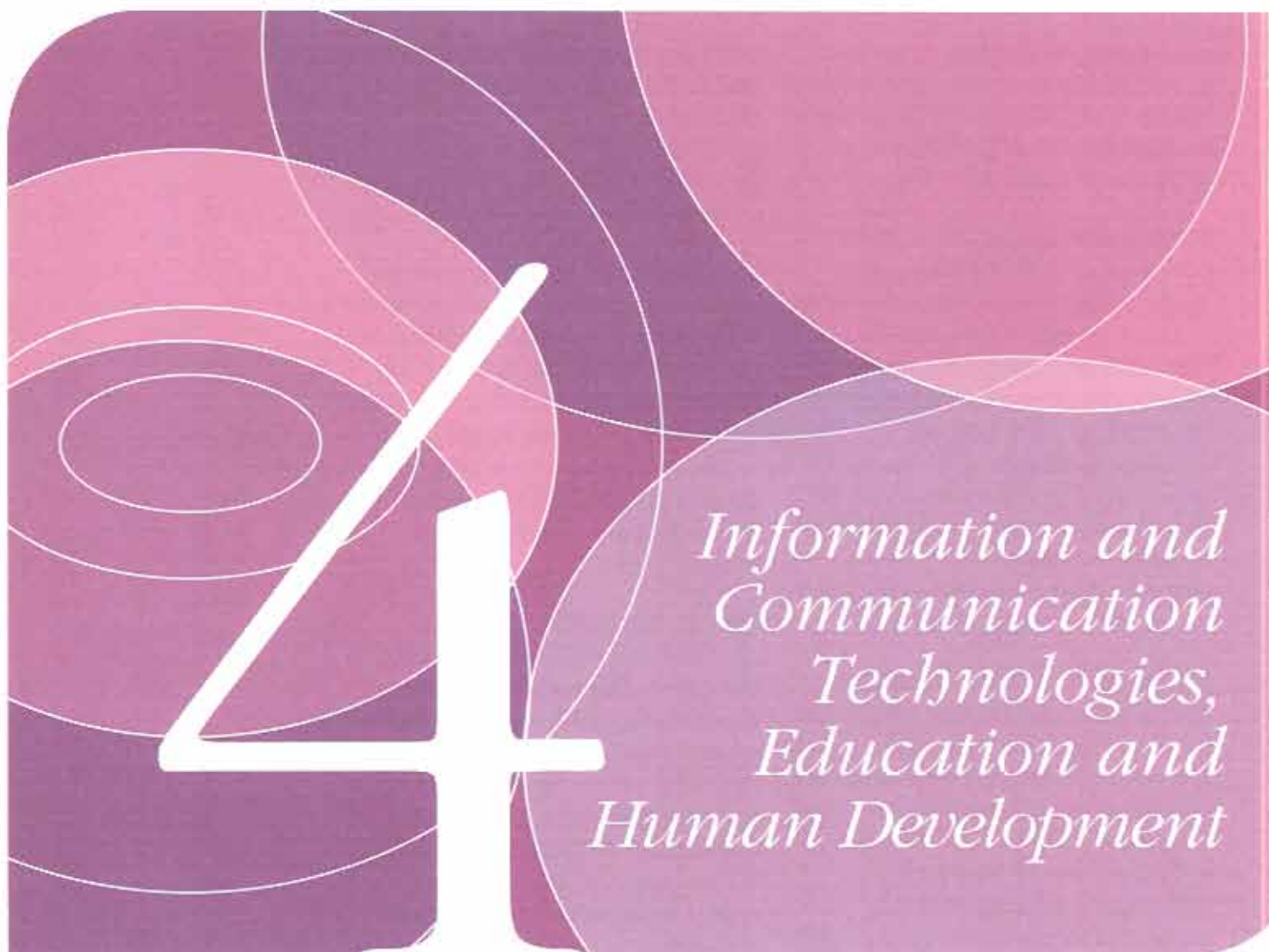
ICT and SMEs: Efforts to foster entrepreneurial activity and lower

transaction costs via ICT, especially for those living in the South-eastern and Eastern regions, should be continued.

Concluding Remarks

ICT can play an important role in enhancing development and reducing poverty provided that the potential risks and drawbacks are properly taken into account. To be able to do this seems to be contingent on the extent to which government, the private sector and civil society join their efforts to coordinate their activities.

ICT may aid poverty reduction provided that societal intervention is present to deal with its possible shortcomings and openly consider the risks and pitfalls involved. ICT can significantly improve education and health services, thus lessening the regional differences. In addition ICT can provide new opportunities in the labour market and boost small entrepreneurship, through which the poor may benefit. ICT have the potential to foster good governance both at local and national levels. Through better governance, the poor undoubtedly will be better positioned to express their problems as well as to provide their own suggestions. These areas and principles of intervention may form a preliminary strategy for using ICT for poverty reduction in Turkey. Whether ICT can really help reduce poverty will be determined not necessarily by the increasing number of varying examples of ICT applications but by the processes adopted in the design and execution of their use for poverty reduction.



Education and Human Development

Almost all development indicators are also markers of formal or non-formal educational goals. Some indicators are directly relevant to educational improvements (e.g. enrolment rates at different educational levels, adult literacy and educational expenditure) while others are indirectly associated with some educational content (e.g. family planning, energy consumption and water improvement). Education is

vital for development. But beyond that, obtaining a proper education must be considered a fundamental human right.

Educational needs may appear similar in nature but their intensities and priorities change from country to country. The following areas of educational needs are of particular importance to Turkey and are perhaps areas where ICT can play a valuable role:

Empowerment of Women: Raising the social, political and economic

status of women is a high priority issue in Turkey which performs poorly in Gender Empowerment Measures (GEM). The majority of the illiterate population in Turkey are female. There are a high proportion of underweight children and, despite formidable improvements mentioned earlier in this report, infant mortality rates are still considered high in Turkey. One of the immediate interventions could be to empower of Turkish women with appropriate "information".

Health and Education: Average life expectancies are shorter in Turkey than in many other countries. There are some immediate, straightforward educational implications of health indicators such as the number of doctors per 1,000 people. There is a mutually dependent interaction between low performance in tertiary education and having an insufficient number of doctors per person. Both formal and non-formal education must build capacity relating to health issues.

Ecological Sensitivity: Though many countries now utilise ICT in the agricultural sector, Turkey currently does not.

Tourism Education: The natural beauty and heritage of Turkey attract an increasingly greater number of visitors each year. The people of Turkey warmly welcome foreigners, but formal education available for training professional tourism personnel is far from meeting the demand.

Marine Education: Despite being surrounded by seas Turkey has only

ten vocational high schools and only one college training students for seafaring jobs. Oceanography classes are a very recent addition to the curriculum in Turkish universities. There is no training to improve coastal fish farming or deep-sea mining.

Traffic Education: Mobility is one of the measures of social dynamism. Traffic data show a high incidence of accidents and casualties in Turkey. There are many cognitive, affective and psychomotor educational objectives hidden within this fact. Radio, for example, can be used as an ICT component for multi-purpose "on the job" training for drivers. But educational radio in Turkey is almost solely used for broadcasting to children during the school day.

Impact of ICT on Education

There is a worldwide movement to use advanced technologies both as an end and as a means for educational improvement. Many countries include ICT integration, either in their national policies or in laws pertaining to the education sector.

There are two immediate impacts created by the advancements in ICT on education: First, these technological innovations bring about new subject matter areas to be taught at every educational level. Computer literacy, software engineering, the management of information systems and the economics of information are just a few examples. Second, information and communication technologies provide the means to reach a wide array of educational

objectives at school and/or in non-school settings. Computer-assisted learning, e-learning, interactive TV and open universities are examples of ICT based educational practices.

The greatest impact of technology can be observed on instructional equipment. Technology has become both the content and the instrument at the same time. The computer has besieged the domain of educational technology in the last two decades. The interactive capabilities of the computer enable learners to be exposed to appropriate information throughout their learning career. Computer-assisted instruction (whether in stand-alone workstations or in any kind of network environment) enables storage, retrieval and evaluation of the educational message.

It should not be forgotten that the textbook has reigned supreme in education for five centuries. It is a compact, economical and practical device for storing huge amounts of visual stimuli. The learner has fast back-and-forth control over the printed codes. Verbal, pictorial, graphical and numerical symbols are permanently synchronized to the encoding rate of the reader. It is permanent in terms of storage and display. Although the message can be transmitted authentically, colourfully and cheerfully it is not interactive. ICT approaches such as

In addition to costs saved by requiring a smaller teaching staff, certain educational messages could be exported to a much larger audience than that currently enrolled in schools via ICT.

video, TV and the Internet can offer complementary approaches in areas of education for example by respecting a right of privacy in sex education.

Some Universal Trends

The Expansion of Knowledge:

Information is expanding without other obvious limits but time. Expanding information risks becoming disorganized unless creatively contracted into a viable curriculum. Educational institutions will need to harness this explosion of information. Curriculum development will have to be continually researched, refined and reorganized. Teaching-learning interactions will take place in physical settings different from the conventional ones. Electronic classrooms and computer labs are already common in many schools.

Changing Value Patterns: Among the educational objectives of an information society are creativity, critical thinking, inventiveness, an inquiring mind and tolerance. Memorizing, conformity and routine skills are now outdated modes of learning in much of the developed world. Machines can imitate all programmable functions of man. Deep theoretical understanding will dominate over broad knowledge. The cognitive aspects of learning will take place at home. A high academic IQ will soon not be enough for prosperity, prestige or happiness in real life (Goleman, 1995). Unfortunately, schools emphasize academic aptitude sometimes at the

expense of emotional intelligence. Schools must teach the essentials of anger management and conflict resolution as well as empathy, impulse control and other fundamentals of emotional competence. Radio, TV and the Internet can be used as “persuaders” for preventive help at home. In cases where prevention fails they may be the most feasible educational agents in correctional facilities.

User-Specific Education: Social interactions are moving from formal, role-dominant styles towards informal, personality-relevant styles. Emphasis is being given to the requirements of the individual rather than of the institutional structure. Variable group sizes, heterogeneous grouping and dynamic scheduling replace fixed size, homogeneous grouping and fixed interval schedules. Modes and methods of instruction are undergoing great change. Discovery strategies will replace the expository ones. Knowledge transmission may be better accomplished by audio-visual equipment rather than through a teacher. Individualized tutorial guidance will become the basic mode of teaching.

Using ICT in Education: The Advantages and Risks

It is easy to assume that effective and efficient distant education can be achieved using ICT. In addition to costs saved by requiring a smaller teaching staff, certain educational messages could be exported to a much larger audience than that currently enrolled in schools. Radio, TV and the Internet could transfer

some of the burden from schools to other settings, mainly to homes and dorms. However, while this could potentially be achieved with available resources, such a scheme would need careful curriculum planning and optimum use of teaching media.

Divergence and convergence are successive phases of media development. When a newly emerging medium diverges from others by its unique capabilities, sooner or later they all converge upon each other in some combination. Print-sound, sound-motion, word-pictures, radio-phonograph, TV-video, TV-movie and mobile phone-cameras are immediate examples of some media couplings. However, no matter how advanced it is, no ICT application can replace an instructional system as a whole but when “properly configured,” productivity can be increased. When ICT applications are utilised other media should support them. This is termed as the “integration” of components. However the unique capability of each medium should be exploited to the fullest possible extent.

Table 4.1 illustrates the recently argued alternatives to former familiar practices. Because instructional television is not superior to illustrated comic books and the computer's instructional usage is still limited to an electronic page-turner, instructional media, including ICT based approaches are better used in combination. Unfortunately, the capabilities that make each approach unique are not being exploited, but are being advocated as alternative instructional systems. The top left corner of the grid (Table 4.1) is now

being proposed as an alternative to the other three zones where the old familiar practices used to be located.

The six criteria in Table 4.2 are useful to compare and contrast approaches. For example one can choose between TV and the computer with respect to their capabilities in terms of permanent or transient necessities of the message display. These criteria can also be used to justify the optimal use of an option within itself. For

instance, how permanent (or transient) the message should appear on the TV or PC screen.

There are three major ways to exploit the capabilities of computers for instructional purposes besides their other self-evident uses in educational management:

1. Computers in programmed instruction: It is tiresome to follow the instructions of programmed

Table 4.1

Hypothetical Examples of Integration and Differentiation in ICT Usage

	<i>ICT APPROACHES (Uniqueness of ICT)</i>	<i>CONVENTIONAL APPROACHES (ICT support for learning at school)</i>
ICT APPROACHES	Virtual lab in sciences	Using electronic whiteboard
	Interactive TV in a sociology class	PowerPoint presentation in geography
	e-Learning in business admin	Teleconferencing between universities
	Dialogue on art appreciation	Slide show in a painting class
	Live concert and commentary	Excerpts from a documentary in history
	Panel discussion on world politics	Geometry sketchpad demo
	Interview a painter at an exhibition	Spreadsheet applications in statistics
	Adaptive testing in foreign language	Live broadcast from a surgery
CONVENTIONAL APPROACHES	<i>(School support for learning ICT)</i>	<i>(Indispensable conventional practices)</i>
	Hardware maintenance in workshop	Socratic / Herbartian discussion
	Java programming at school	Classroom discussion in philosophy
	Educational Technology courses	Feedback and correctives in languages
	Software development projects	Spot quiz in Turkish
	Script writing	Real Experiments in sciences
	SPSS practice	Creative Drama in mathematics
	Photos for archaeology presentation	Lecture in literature
Virtual library for homework	Tutorial help in playing the piano	

Table 4.2

Evaluation Criteria for Measuring ICT versus Conventional Methods of Teaching Media

<i>Evaluation criteria</i>	
1	Proximity in time and space
2	Frequency and duration of independent occurrences
3	Frequency and duration of synchronic occurrences
4	Number of common elements
5	Continuity of intent, content and events
6	Frequency and duration of participation

textbooks, for a tutor as well as for a student. While the computer determines the learning path of the individual and keeps track of it, it can keep pace with the speed of the learner, or whenever needed, it can control the speed of the learner by changing the frequency and the sequence of information frames. The computer tolerates mistakes, failures and slowness. It has infinite patience, endures repetitions, delays and pauses. By exploiting the interactive capability of the computer some surprising elements can be incorporated into the learning exercises to keep the learner interested.

2. Computers in adaptive testing:

Items on paper and pencil tests are sequential in nature. For a variety of reasons items have to be independent of each other. Immediate feedback cannot be given to the examinee even when it is necessary to do so. Timing cannot be controlled at the item level but only at the beginning and at the end of the test or at intervals. When the test items are stored in the computer, however, the route can be controlled according to the particular response given to a particular item. The "menu" can be designed in such a way as to provide options. Time limits can be set for each particular item. Cues, prompts and hints can be displayed at any time. Motion and sound can be incorporated into testing situations. Response data can be recorded. Whether norm-referenced or criterion-referenced, all kinds of statistical analyses can easily, accurately and immediately be analysed. The right of privacy can be maintained by using passwords.

3. Computer as a simulator: When used skillfully, technology increases the quality and quantity of production. However, technology might also be dangerous, expensive and difficult for those who are not supplied with the necessary training and education.

Achieving a balance of educational media, both conventional and ICT based, seems prudent. Variations in the balance of instructional material are illustrated in Figure 4.1 where Box A represents a traditional structure and Box D opts for the complete adoption of ICT to the exclusion of traditional methods of teaching. A further option considers all four options for every single instructional unit.

ICT in Education in Turkey

All recent Turkish Governments and Development Plans have declared that formal and non-formal education will be reorganized so as to meet the demands of contemporary society in accordance with technological advancements. Table 4.3 presents possible educational uses along two bivariate dimensions, setting and style. Put differently, in Table 4.3 we consider "where?" and "how?" ICT might be used in education both in and outside of school.

ICT has the potential to multiply the educational message for all. This feature can be exploited to attain equality of educational opportunity

No matter how advanced it is, no ICT application can replace an instructional system as a whole but when "properly configured," productivity can be increased.

to some extent, provided that the educational message is the one necessary for all. At present, the message discrimination is very sharp. Students enrolled in regular schools are given more relevant messages in depth. Students placed in ICT-based options (e.g., Open Lyceé, Open University) have to be satisfied with general, all-purpose information. Depth is ignored for the sake of breadth. The outcome of this discrimination results in inefficiency all around. Since schools spend much of their time and resources teaching general content, they spend less time reinforcing them in practice. Students being educated at a distance are deprived of this opportunity.

In individual subject matter areas, the Turkish instructional system usually avoids variety; exaggerates unity and ends up with uniformity. The textbook is the ultimate reference in any course within the school curriculum. The only variety is the blackboard. With its merits and drawbacks the textbook is synonymous with the curriculum. On the other hand, there is variety neither among nor within the textbooks. The paper quality is low, the print quality is lower and the content is very often outdated.

It is difficult to find a common core, a unifying theme in the curriculum. Starting from sixth grade, fourteen

Box 4.1

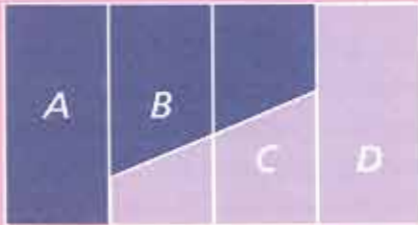
Introducing ICT into the Classroom: Some Basic Calculations

Introducing ICT into education in Turkey will not be without cost. In Turkey there are 30 school weeks per academic year and there are 35 class hours per week in the primary and secondary education systems. In total there are 1,050 class hours a year for a single grade. Students study for 11 years totalling approximately 11,550 class hours of instruction after kindergarten and before tertiary education. Assuming 20% of the total curriculum becomes ICT based a total of 2,310 class hours worth of course material needs to be developed. The average time needed to design, develop and test one hour of course material is 40 class hours. These figures imply that 92,400 class hours of work needs to be done to incorporate ICT only in primary and secondary education.

Providing an ICT infrastructure is necessary but not sufficient for teaching-learning interactions. Unless portals are well designed, item banks are rich enough, simulations and games support the non-traditional approaches, all infrastructure investment will be wasted. The most important element to decrease the discrepancy between the information sent by the "source" and the information received by the "target" is the instructional software. Scientifically sound virtual experiments, entertaining scenarios for TV lessons and attractive dialogues for radio broadcasts are essential for innovative teaching.

Figure 4.1

Balancing ICT in Education



- A. Omission of ICT or keeping it at negligible level; maintaining traditional, regular school-based education.
- B. Sustaining school as a socializing agent with significant ICT support such as computer assisted instruction, audio-visual-tutorial guidance, multi-media applications, etc.
- C. Adopting ICT-dominant strategies with significant support from the regular school system, such as blended e-learning or blended distant learning.
- D. Abandoning regular school rituals almost completely, relying on ICT platforms such as synchronised or unsynchronised e-learning programs, open universities and TV schools.

or fifteen different courses separate from each other are taught without synchronization. **ICT has the potential to create unity and variety at optimal levels.**

The Turkish instructional system tends to be rigid for the sake of control. Students at the same level are divided into groups of equal size. All class hours are 40 minutes. Weekly schedules are fixed throughout the year. The syllabus is the same everywhere. Teachers are unable to change their lesson plans according to current events. **Effective use of ICT does not mean haphazard practice but does require some flexibility.** For instance a 20-minute slide show after two hours of Internet

Table 4.3

Some Hypothetical Examples of How ICT can be Used in Education

Education	Non-School Settings	School Settings
Resmi (Formel)	Open University	Electronic classrooms
	Open High school	Computer Literacy Courses
	Distance Education	Closed circuit TV
	e-Learning	Drill & exercise
	Homework and projects	Simulations
	Trips and journeys	Virtual Lab
	Practice	Live broadcast to/from the school
Gayri Resmi (enformel)	Test Drills in newspapers	Extracurricular activities
	TV programs	Extended Curriculum
	Radio programs	Compact Curriculum
	Computer games	Enriched curriculum
	Internet Cafes	Computer clubs
	Apprenticeship	Exhibitions
	Field work	Closed circuit TV

surfing could replace fixed classroom teaching times. A large group could be shown a movie while discussions could be held in smaller groups. Large groups might attend a two-hour teleconference discussion while small groups might be busy with a virtual experiment.

In Turkey, there is a formal "open" higher education option via TV, offering degrees in economics and business administration. The least successful students in the university entrance exam are placed in this program. They learn "Human Relations" while they have no classmates. They are expected to learn a foreign language without speaking it and without any prompts for written communication. These examples and more point out to the need for the integration of methods as we have argued above.

e-Learning of all skills would be remarkable if it were possible. In many schools geography courses are being offered in crowded classes

without showing the scenery, history classes without authentic documentation, language classes without hearing a native speaker's accent and biology classes without observing real life processes.

Policy Implications

The preceding discussion of the benefits and risks of using ICT in education has already pointed out to a number of policy recommendations some of which need urgent attention. To recapitulate, these are the main policy implications:

- ICT provides solutions where curriculum compacting is essential and provides flexibility of instruction making opportunities available for the enrichment of the curriculum in institutions.
- It is important to attempt to achieve a successful mix of learning media combining both ICT and classical approaches.
- ICT is only as effective as the attention to the design of each instructional media.
- The application of ICT for education must ensure a specific match to the user needs while also matching the needs of the labour market.

Concluding Remarks

The core message of this chapter is that **ICT is indispensable in instruction to extend education to larger audiences with greater intensity, independent of time and physical settings.** However the

current application of ICT within the educational system in Turkey has considerable shortcomings. This is partly due to a lack of unity in the education system in Turkey but it is also a result of a rigid structure. Currently, students enrolled in ICT based educational programmes receive a weaker standard of education compared to their peers attending academic institutions. ICT based education in Turkey is reserved for the weaker performing students which neither meets their learning needs nor the needs of the labour market.

However, the **potential improvements ICT may bring to the education sector are immense.** ICT can aide instruction and testing but can also act as a stimulator. ICT has the potential to be innovative and interesting in its design, to be user specific in its approach and tailored to the time frames required and any access limitations experienced by the user. **At the same time, ICT can provide both unity and flexibility of curriculum at a national level. The benefits may be broader in terms of geographical reach and the potential for greater productivity is increased.**

Of course the benefits ICT can bring to education may not be achieved without considerable costs. The financial and man-hours cost of producing the required materials is almost unimaginable. Ensuring the correct balance of instructional media will require careful testing and planning in a continuous process of curriculum development. **Turkey's approach to policy surrounding the use of ICT within education should**

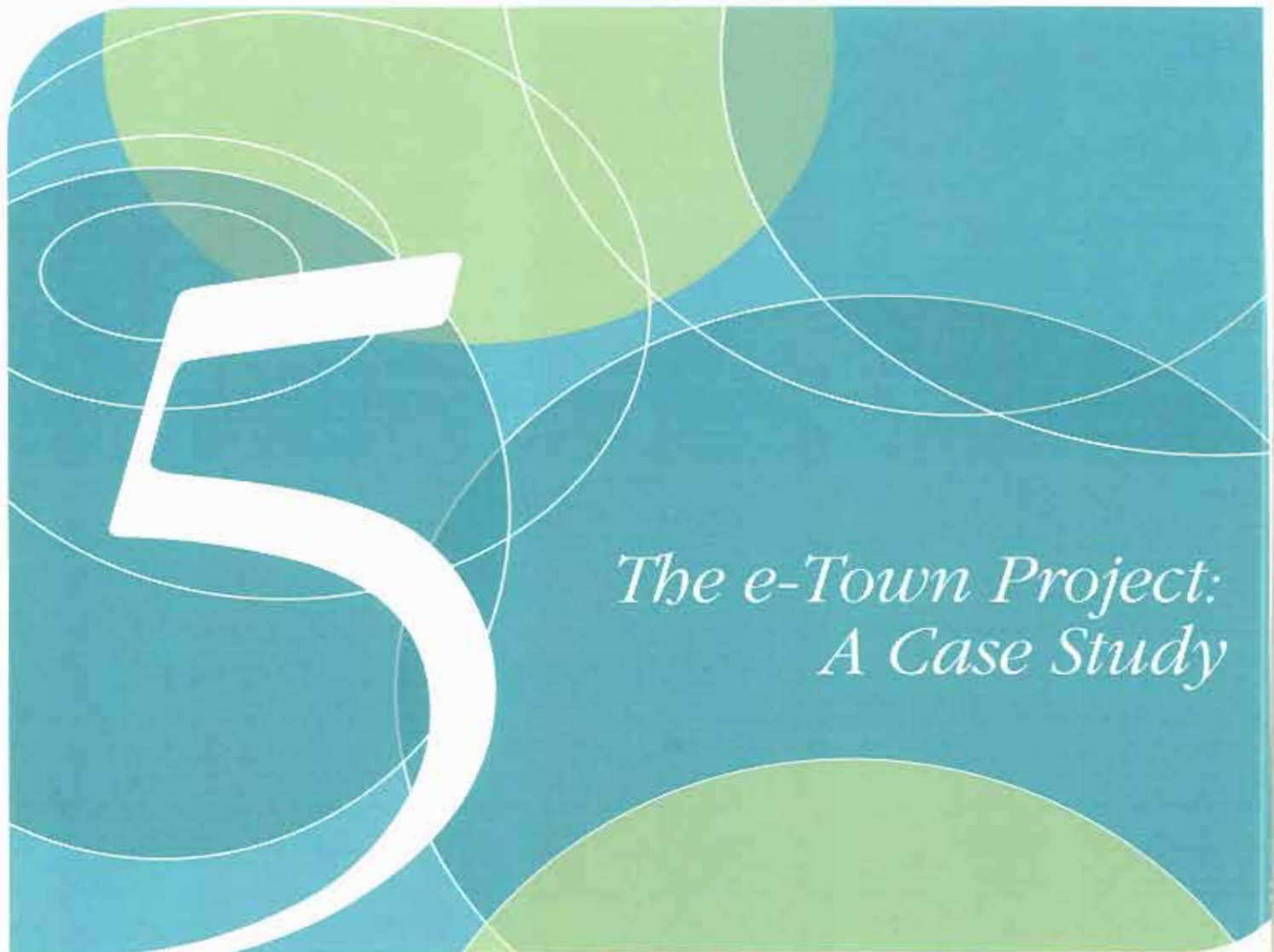
Box
4.2*Introducing ICT into Education in Turkey:
Need for a Learning Resources Development Centre*

With such a variety of topics from high school physics to graduate level statistics, the continuity of units as in foreign language teaching and the complexity of timing, a specialised body is required to coordinate ICT applications. A Learning Resources Development Centre (LRDC) can ensure that applications at different educational levels, and grades are coordinated for each topic. The major roles of an autonomous LRDC would be:

1. To develop and evaluate policies and practices on how public and private sector bodies can stimulate the effective use of ICT in education throughout society by providing practical examples of operational systems and services.
2. To focus on how to organize accreditation and assessment in different learning environments (home, Internet, etc.) other than the regular classroom which may be subject to cultural variations and fractious interactions as well.
3. To incorporate new ways of collaboration among institutions in the organization and operation of ICT applications to manage change in their educational practices.
4. To mediate among all institutions on cost and benefit issues as well as on technology choice and implementation.
5. To highlight case studies illustrating how institutions (schools, companies etc.) are integrating ICT supported learning into training and human development programs.
6. To discover and to disseminate examples of best practices and case studies in teacher training, faculty support and development, online collaboration and technology supported team teaching.
7. To build up quality development and quality assessment procedures throughout the learning processes and to focus on how this can be best achieved in ICT supported learning environments (e.g. e-learning).
8. To hypothesize on future visions of educational technology, (e.g. mobile learning) as well as an overview of developments with regard to new ICT applications.

not therefore be driven by a need to keep pace with international developments but should be led by the need to find appropriate niches

where ICT can enhance Turkey's multiple yet specific educational needs.



The e-Town Project: A Case Study

The “e-Town Project” aims to introduce ICT to small-scale handicraft industries in an Anatolian town in order to make them competitive and viable. e-Commerce is seen as the vehicle for enhancing the marketing opportunities of these industries. New technologies are also expected to improve production techniques and quality. Computer use and connection to the Internet are regarded as the first step for achieving these goals.

In 2000, the town of Yatağan in

Denizli province in Southwestern Turkey was selected as a pilot settlement for the e-Town Project. According to the last census, Yatağan has a population of 4,369. However, it is estimated that only about 3,500 inhabitants live there permanently with the rest having moved to the provincial centre of Denizli. The town has been producing cutting tools since the 15th century and today there are some 250 studios producing mainly knives. In fact, knife production seems to be the economic activity in Yatağan especially given the fact that

Table 5.1

Population Distribution (%) in Yatağan by Gender and Age

Age	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70+
Male	16.1	16.8	17.6	14.8	11.5	9.0	8.4	6.0
Female	16.1	15.0	13.5	14.1	11.0	10.8	10.4	9.1

climate and land characteristics are unfavourable to agriculture. With one kindergarten, two elementary schools, two vocational schools and one practical arts school for girls, Yatağan's educational resources are unusually ample for a Turkish town of this size. On the other hand, the town has nine mosques. Yatağan residents are religious and the town has a conservative character particularly with regard to the status of women. As an example, women are not expected to be seen in the town centre where the coffee shops are located.

The e-Town Project

The pilot project in Yatağan was implemented jointly by Informatics Association of Turkey (TBD), Small and Medium-Sized Industries Development Organization (KOSGEB), the Yatağan Municipality and the Microsoft Corporation. The project budget was \$441,000 and with the following initial targets:

- Opening an Internet cafe,
- Training 250 persons in the use of PCs and the Internet at the beginner level,
- Providing websites and e-mail addresses to around 250 knife producers,

- Supplying at least 125 computers and Internet connections,
- Training for the production of medical tools,
- Exporting 10 percent of Yatağan's total cutting tool production.

Unfortunately, few of the initial targets have been realized and the project has had to survive with only 18 donated personal computers instead of the original aim of 125 and salaries for two instructors for two years. As a result, 350 persons have received training. An Internet cafe was opened with nine of the PCs. A further six of the PCs were placed in the Municipality and three PCs were given to the most successful trainees as gifts.

The Impact of e-Town Project: A Field Study

To assess the impact of this limited pilot project on the economic and social life of Yatağan, a field study was designed and 223 open-ended, in-depth interviews were completed

The "e-Town Project" aims to introduce ICT to small-scale handicraft industries in Anatolian town in order to make them competitive and viable. e-Commerce is seen as the vehicle for enhancing the marketing opportunities of these industries.

with local politicians, teachers, *imams*, other opinion leaders as well as ordinary citizens expected to benefit from the e-Town Project.

Perhaps the first striking finding of the study was the "gender divide" which was apparent in the use of computers and the Internet. Of the 106 female respondents, only 30 (28 percent) reported using computers and the Internet. The corresponding figures for male respondents were 52 out of 117 or 44 percent. The difference of 16 percentage points is not insignificant although hardly surprising. The gender divide is more pronounced for married and older women. Initially, very few married women participated in the training courses. The main reason cited for the reluctance of married women to take part in training sessions was the fact that they were being held in the Internet cafe --a public space open to both men and women. At the time of the survey, only three out of 53 women aged 34 and above were using the computer and the Internet.

The main reason cited for the reluctance of married women to take part in training sessions was the fact that they were being held in the Internet cafe --a public space open to both men and women.

A number of respondents indicated that learning to use PCs and the Internet is "not good for married women." Others mentioned that married women were not allowed to participate in computer courses where men and women learn together. A further factor affecting women's

attendance at the training was the gender of the course instructor who happened to be a male. Finally the location of the course deterred married women who would have preferred to take the course at a school rather than in a cafe.

Results show that it is mostly the young people who use the PCs and the Internet -another expected finding. Of the 109 respondents over the age of 34, only 12 reported use of the PCs and the Internet, while 70 users were under the age of 35. Older people of Yatağan seem not to be interested in ICT. The younger respondents stated that older people's respect for them had increased considerably since the implementation of the e-Town Project. This unexpected outcome of the project strengthened links between generations.

Courses taught in school as part of the curriculum were the most important source of PC and Internet literacy in Yatağan, followed by the e-Town Project training courses. The e-Town Project's Internet cafe is, however, the most important point of access to the Internet. Of the 77 respondents, 41 reported that they used the Internet cafe for getting connected. Only 17 respondents said they could connect to the Internet at home. **Internet connection in schools was available only for teachers.** The e-Town Project's Internet cafe is therefore essential for the continuity of access to the Internet.

The study revealed that the e-Town Project did not have any significant impact on the economic life in Yatağan -at least, not in the short

term. Website ownership remains limited because of insufficient incentives. It was observed that neither the e-Town Project representatives nor bureaucrats intervened to a degree that would change the situation. Only 10 of our respondents stated that their place of work had its own website.

The introduction of the e-Town Project did not cause an appreciable increase in economic activities in the Yatağan. Knife producers' capabilities are still not adequate to begin exporting their products. This is firstly due to the fact that they cannot communicate in foreign languages needed for e-commerce. Secondly, they do not have business acumen. Thirdly, they do not have the capital to employ qualified workers who do possess the language skills and knowledge of international trade rules and payment systems. Lastly, their production is not standardized or suitable for international markets. However the e-Town Project offers the potential for future development. Some producers are using computers for their knife designs and buying sample knives online to improve the quality of their products.

Concluding Remarks

The outcomes of the e-Town Project in Yatağan may be evaluated from two perspectives. From the economic perspective, the project seems to have failed to meet the goals set initially. The main reasons for this disappointment were failure to use all initially allocated resources; lack of suitable infrastructure to support larger scale production; lack of

standardization in production; absence of commercial institutions; limited knowledge foreign languages, commercial practices and general business know-how. In addition there were serious flaws in the project design relating to gender inclusion and other cultural factors.

The project has, however, helped producers to identify resource prices, which makes comparison and consequently competition possible. They are able to access information on cutting tool designs, create their own designs on specific computer programs, contact foreign companies and purchase machines and tools on the web. There is no evidence that the project has affected present household incomes. Yet the prospect of e-marketing and exporting possibilities do exist. With some support and proper guidance, export potential could be realized.

Conservatism seems to have prevented full exploitation of the PCs and the Internet, particularly for married women. The outlook, however, is brighter for the younger generations of both females and males. The older generations comment that computers and the Internet will prove to be productive especially for the young. Besides getting respect from elders, younger residents of Yatağan enjoy the opportunities, such as the possibility of finding better jobs, offered by the

The younger respondents stated that older people's respect for them had increased considerably since the implementation of the e-Town Project. This unexpected outcome of the project strengthened links between generations.

project. Young girls and boys who did not have much social interaction before the project seem to have found a place to get together and socialize legitimately. The Internet cafe is serving that function well.

The e-Town Project has not yet met its promise of developing the small-scale production of cutting tools to

an appreciable degree. It does seem to have resulted in increased human capabilities and in opening new paths in the minds of people both commercially and socially. It may result in increased choices and freedoms in the future, leading to enhanced levels of human development.

Box 5.1

SMEs and ICT in Turkey

In recent years, the importance of small and medium size enterprises (SMEs) in the Turkish economy has been increasingly emphasized. In 2003, Microsoft conducted a survey of 728 SMEs in five major cities in Turkey: Istanbul, Ankara, Izmir, Bursa, and Adana. Among the objectives of the survey was to assess the situation regarding their current access to and use of ICT and the developments since 2000 when a similar survey was carried out of 538 SMEs as well as to compare the findings with those of research conducted in China, Brazil, the U.S, Germany, France and the U.K. in mid-2002.

The SMEs included in the Microsoft survey in Turkey were those having at least one PC. None were franchises, public enterprises or foundations, neither did they belong to a holding company. The data was collected based on face-to-face interviews with the owners or managers of selected SMEs.

The survey found that although 53% of the SMEs reportedly possess Internet infrastructure and 80% have Internet access, only 23% use PCs. In comparison, PC penetration in SMEs in China and Brazil scored 35% and 72%, respectively.

More than half of the Turkish SMEs using PCs are located in Istanbul and 50% of SMEs possess between 1-4 PCs. The main reasons given by the interviewees for not using PCs were the following:

- 56 % Their business does not require a PC
- 10 % PCs are expensive
- 8 % No knowledge of PCs

There are at least two important lessons to be drawn from this pilot project:

a. Installing some computers without much regard to other needs (technical, educational, economic and social) does not guarantee the materialization of the benefits expected from ICT applications.

b. Cultural factors are at least as important as technological infrastructure, equipment and software. Disregarding cultural variables may result in serious disappointments as well as the wasting of resources.

When compared with the findings of the 2000 Microsoft survey, there has been an 8% increase in the number of total employees using PCs, and a 4% increase in the number of skilled employees using PCs. The findings show that ICT is not generally viewed as a tool to enhance business by SMEs in Turkey. Even though 93% report that they have the infrastructure for e-commerce, only 7% are engaged in e-commerce. 90% do not have an investment plan for e-commerce.

One positive development since 2000 has been the 13% increase in the number of SMEs having their own web sites. According to the interviewees, the main objectives in having web sites are to make the enterprise better known and to promote its image. Only 32% see such sites as an instrument to increase sales and 21% view it as a medium for fast communication with customers.

The survey also reveals the interviewees' general approach to ICT. 96% believe that ICT increases productivity and 89% hold that it upgrades the position of the enterprise in the related sector. More than half of the respondents (51%) state that the future success of their enterprise depends on investments in technology.

Because entrepreneurs tend to be influenced by their colleagues, Microsoft recommends that the chambers of commerce and professional associations should play a more active role in promoting ICT usage in SMEs. Campaigns to enhance awareness of the benefits of ICT and to provide easier access to PCs are also offered as means to this end.



Conclusion

This report has provided examples of ICT initiatives fostering human development in Turkey. These initiatives may be categorised within three interrelated but distinct areas of human development: i) Articulation of knowledge, ii) Employment creation and iii) Enhanced participation.

The Articulation of Knowledge

Initiatives undertaken to date have

shown that ICT has the potential to provide rapid, low-cost access to information in many areas of human activity, fostering development in general. To take the alleviation of poverty as one relevant example, wider access to electronic teaching and training technologies will, in all likelihood, contribute to the wellbeing of the poor by increasing their human capital and thus creating new opportunities. However, achieving these benefits will require substantial investments and a flexible approach

to curriculum design to successfully use a combination of appropriate media. It must be emphasized that great care must be taken to consider the individual needs of learners to alleviate social inequalities. One unintended and unwanted consequence of the failure to do so may be increasing already existing inequalities rather than reducing them.

The rural poor is another example of ICT facilitating the articulation of knowledge for human development. ICT projects in Turkey could create the opportunity to increase agricultural productivity levels by enabling low-cost access to information relating to crop disease diagnosis, accurate weather forecasts, or warning of impending natural disasters.

Employment Creation

ICT has the potential to be used as a tool to break barriers of distance for obtaining market information and bring labour markets closer together. ICT may also reduce transaction costs in commerce and create export opportunities thereby fostering entrepreneurship. Initiatives to date have highlighted several lessons to be learned from attempts to support this process. Care should be taken at the project design phase to ensure that age, gender, culture and language do not become obstacles obstructing progress but rather that projects account for the individual needs of intended beneficiaries. Experience

has shown that the provision of computers and IT training do not automatically lead to employment creation. Such an intervention should be seen as one element complementing a larger employment creation or market stimulation programme.

Enhanced Participation

An area that ICT may prove to have significant potential to improve human development in Turkey is its ability to enable the poor or marginalized to communicate and obtain a wide range of public information at a low cost. This creates

possibilities for public participation hitherto constrained. Provided special care is taken around issues of access, all citizens would be able to actively have their voices heard and in this way demand transparency and accountability from government. ICT may directly promote good governance, both at the local and national levels resulting in a more effective and efficient use of public resources. In addition, practices such as bribery or favouritism, that are impediments to good governance, could be prevented more effectively. The possibility for the poor to actively participate in decision-making processes will help to ensure that

Initiatives undertaken to date have shown that ICT has the potential to provide rapid, low-cost access to information in many areas of human activity, fostering development in general.

their needs are taken to account at the policy development stages.

Assessment of the Situation and Policy Recommendations

Turkey's well-developed physical infrastructure in telephony, radio and TV broadcasting places the country in an advantageous position for realizing the human development

Turkey's well-developed physical infrastructure in telephony, radio and TV broadcasting places the country in an advantageous position for realizing the human development benefits expected from ICT.

benefits expected from ICT. In addition the foundations have been laid for continued development in the ICT sector and in the establishment of a comprehensive legislative and regulatory framework.

Measuring the impact of these developments on human development however is not straightforward. This Report proposes three criteria to aid this assessment.

- i) Is the impact direct (e.g. finding a job) or indirect (e.g. increased participation leading to good governance)?
- ii) Is the impact one off (e.g. paying a bill electronically to save time) or sustained (e.g. a training programme)?
- iii) What is the scope of the impact, (e.g. is it inclusive of vulnerable groups at a local, national and international level)?

Three important weaknesses in the current development of ICT from a human development perspective in Turkey are:

- i) Efforts towards the inclusion of disadvantaged groups thereby risking increased inequality are limited and largely inadequate;
- ii) ICT interactivity is underutilised risking the manipulation of information to passive recipients and perhaps even a dominance of technologies by certain sectors of society or bodies; and
- iii) The legal base for providing security and privacy remains weak, thereby limiting the citizens' trust in these technologies.

When these weaknesses are addressed, however, a number of exciting human development possibilities may be achievable in Turkey. By providing inclusive electronic interactivity, barriers of distance and discrimination may be removed, creating anonymity and giving voice and choice to citizens. Indeed a new definition of public, unconfined by time, space, educational attainment, income or status may be gradually in the making. Citizens may have the freedom to challenge government to transform its rigid structures to a more flexible open system, as civil society strengthens in an information exchange zone free from censorship by a central body.

But these visions of the future will not be realised unless costs are

mitigated. The unavoidable expense of equipment and the development and maintenance of information may limit access of the poor to ICT related human development. Efforts must be made to ensure access is not limited to those able to afford it. In recognition that the development of ICT by private companies may not place human development as its priority, the State must ensure inequality is not perpetuated. In the short term ICT may bring job insecurity risking the creation of a 'new poor'. With this in mind, all ICT

development should ensure sensitivity to the individual needs of users since poorly executed plans involving ICT may create a hostile attitude towards their future use. Special attention should be given to ICT initiatives supporting groups such as the rural poor in areas of agricultural development, women in access to information and methods of communication and to people with disabilities in tailored special needs educational programmes.

The report identifies significant

**Box
6.1**

Considerations for ICT Related Policy Formulation

- 1. Establish and maintain an independent body to develop policies, manage standards, encourage partnerships and information sharing and coordinate and monitor flexibility and sensitivity in developments in ICT to ensure human development.*
- 2. Ensure a balance of traditional and ICT related interventions for each single initiative to ensure appropriate exploitation of the benefits of ICT in coordination with existing beneficial structures. ICT solutions should not be used in isolation as a panacea to human development.*
- 3. Avoid the risk of over standardisation and the creation of a digital divide by ensuring that the potential for flexibility and interactivity is exploited to include the interests of all citizens when developing ICT related policies.*
- 4. Ensure creativity in the design of policies using ICT, to avoid excluding groups with more complex needs or damaging future potential for human development by alienating would-be users.*

shortcomings in Turkey's ability to use ICT to further human development. A decentralized institutional framework for setting up and implementing ICT strategy and policies has held back development and this has been coupled with the involvement of numerous agencies with

ICT offers the unique opportunity of focusing on the local policy level and connecting local issues both across Turkey and internationally.

overlapping responsibilities causing significant communication problems. Turkey is also faced with inadequate human resources in the ICT sector resulting from insufficient numbers of individuals educated in ICT and ICT-related fields. Compounding this problem has been a continuing decline in general education expenditures. According to DIE statistics, the share of education expenditures in GDP fell from about 18% in 1990 to 12% in 1995 and to 8.7% in 2001. A relatively low rate of computer literacy, low access to and use of computers and insufficient reach of Internet networks in rural areas therefore form areas of future focus for Turkey.

The policy implications identified in the report relate to the assurance that ICT does not merely mean modernisation and faster pace of life but that Turkey sees tangible benefits to human development. Box 6.1 lists four key policy considerations: i) establishment of an autonomous body; ii) ensure a healthy combination of ICT and traditional methods;

iii) take all necessary measures to avoid a digital divide; and iv) pay more attention to groups with special needs.

With these considerations adopted, a comprehensive implementation plan is needed to bring the e-Europe Action plan of 2001 to realisation. This must be a coordinated effort to recognise overlaps in responsibilities, individual needs and conflicts of interest with private enterprise. It goes without saying that sufficient resources will need to be allocated to wider use of ICT for human development but this will only be achieved when awareness is heightened among decision makers and stakeholders as to the potentials, pitfalls and risks. Mobilising resources and commitment should not be confined to national policy level. ICT offers the unique opportunity of focusing on the local policy level and connecting local issues both across Turkey and internationally. Such networking could have revolutionary impact on civil society initiatives and good governance. By focusing at the local level, ICT has the potential to better meet the specific needs of users in areas of health, education, enterprise, agriculture and political representation, ultimately expanding the choices people have to lead the kind of lives they value.

Box
6.2

ICT Strategies and Policies

The formation of the Turkish ICT strategy and policies dates back to approximately 1993 which roughly coincides with the global commercialization of the Internet. Before 1993, almost all of ICT projects were carried out under the control of the State Planning Organization. Perhaps one exception was the drive for wide coverage of wireless telephones in the late 1980's, which included locally manufacturing telephone exchanges, transmission equipment and other associated telephone equipment. The only significant strategy document of this period was the 1993 World Bank Report, "Turkey: Informatics and Economic Modernization" which included an information-based economy action plan for Turkey. The World Bank Report received mixed responses from Turkish government agencies and it is difficult to say whether the proposals in the report impacted the official government strategy and policies on ICT in Turkey.

Since 1993 universities, the public and the private sectors, and NGO's, have actively encouraged Internet-based information services in parallel to the worldwide commercialization of Internet services. The Turkish ICT market is weak due to its chaotic development. For many years, the environment lacked the required technical and legal infrastructure, human capital and coordination or regulation. In the last ten years there have been significant developments in formulated coherent strategies and policies:

1. The establishment of the first TURNET and later TTNET Internet backbones by Turkish Telekom, but without a clear strategy and long-term planning,
2. The establishment of the Internet Council (Internet Kurulu) as an advisory board to the Ministry of Transportation in matters related to Internet Technology in Turkey,
3. The establishment of the Public Internet Services Council (Kamunet) with top-level representation from six ministries and reporting directly to the Office of the Prime Minister in matters related to the provision of Internet-based public information services by government agencies and to coordinate Turkish IT projects,
4. Meetings, panels and workshops organized by the Informatics Association of Turkey and the Informatics Foundation of Turkey and convening of the "Informatics Convention",
5. Work carried out by the Committee on Information Society and New Technologies of the Association of Turkish Industrialists and Businessmen (TUSIAD) to compile a set of IT issues identifying problems and suggesting solutions with an action plan,
6. The establishment of the e-Commerce Coordination Council (ETKK), led by Department of Foreign Commerce on legal issues of e-commerce in Turkey and the infrastructure for a nation-wide, secure digital signature mechanism,
7. The TUENA Report by TÜBİTAK, on contract to Ministry of Transportation, to identify the networking needs of Turkey in the year 2010,
8. The establishment of a Telecommunications Council, as a regulatory body,
9. The establishment and activities of the Informatics Working Group in the Turkish Parliament, mainly to increase ICT awareness among representatives in the parliament.

Since there is no better ICT strategy and policy document yet, eEurope+ Action Plan could now be assumed as the blueprint for the near future of ICT in Turkey. Therefore, a realistic implementation of eEurope+ Action Plan with measurable and really achievable goals adjusted to the current economic situation in Turkey need be drawn up and followed for a period of next five to ten years.

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The Human Development Index table compares the relative levels of 80 provinces in Turkey. The table has been prepared by using 2000 data. It is comparable with the last (2001) National Human Development results. Two measures of human development that highlight the status of women for measuring the inequality, Gender-related Development Index (GDI) and Gender Empowerment Measure (GEM) are updated as far as new data was available.

The HDI is based on three indicators: longevity, as measured by life expectancy at birth; educational attainment, as measured by a combination of adult literacy (two-thirds weight) and combined primary, secondary and tertiary enrollment ratios; and standard of living, as measured by real GDP per capita (PPP\$). The combined gross enrollment ratio is a meaningful indicator at national level, yet enrollment in higher education poses several difficulties (if disaggregated hdi) are calculated. The combined gross enrollment ratio includes here only primary and secondary schooling. For the construction of the index, fixed minimum and maximum values have been established for each of these indicators: Life expectancy at birth: 25 years and 55 years. Adult literacy: 0% and 100%. Combined gross enrollment ratio: 0% and 100%. Real GDP per capita (PPP\$): \$100 and \$40,000 (PPP\$).

For any component of the HDI, individual indices can be computed according to the general formula: $\text{index} = (\text{Actual } x \text{ value} - \text{Minimum } x \text{ value}) / (\text{Maximum } x \text{ value} - \text{Minimum } x \text{ value})$. The HDI for a province is calculated as the arithmetic average of these three components (indices), namely life expectancy (LE), educational attainment (IE) and adjusted income (IY): $\text{HDI} = (LE + IE + IY) / 3$.

The indices are based on the following data:

Life expectancy at birth (LE): Life expectancy for the year 1997 is calculated using the Ph.D. Thesis by Şeref Hoggör (1997) and "East-life table models". Educational attainment (IE) is composed of two indicators: literacy rate (R) and combined enrollment ratio (C). Literacy rates are taken from 2000 population census results. Combined enrollment is the ratio of the number of students in primary, secondary schools to the population between ages 5 to 16. Year 2000 figures are taken from the State Institute of Statistics "2000 data on 'Per Capita Gross Domestic Product by Provinces'" has been taken from SIS publication "Gross Domestic Product by Provinces, Turkey", Publication No: 2582, p. 201-204.

The gender-related development index

The GDI adjusts the average achievement in each province in life expectancy, educational attainment and income in accordance with the disparity in achievement between women and men. For this gender sensitive adjustment the harmonic mean of the male and female values are calculated. The GDI also adjusts the maximum and minimum values for life expectancy, to account for the fact that women tend to live longer than men. For the women the maximum value is 87.5 years and the minimum value 27.5 years, for men the corresponding values are 82.5 and 22.5 years.

The calculation of the income index is not straightforward. Female and male shares of income are derived from data on the ratio of the average non-agricultural female wage

to the average non-agricultural male wage and male percentage shares of economically active population aged above 12 and above (The HDR considers actually population aged 15 and above). The wage ratios are derived from the Social Insurance Institution Statistical Yearbook 2001 (p. 28-41). Before income is indexed, the average adjusted real GDP per capita of each province is discounted on the basis of the disparity in the female and male shares of earned income in proportion to the female and male population shares. The indices for life expectancy, educational attainment and income are added together with equal weight to derive the final GDI value. An illustration is provided in HDR 2002 (New York).

The gender empowerment measure

To derive an "equally distributed equivalent percentage" EDEP for all three variables (Parliamentary representation, administrative and professional positions, share of earned income) the methodology of population weighted (1-CE) averaging has been used. Data on parliamentary representation (1993) has been collected from the Office of the Minister President (T.C. Başbakanlık Kadın ve Sorunları Genel Müdürlüğü, Ankara). Data on employed population by occupation has been derived from 2000 census. Each variable is indexed by dividing the EDEP by 50%. The three indices (for economic participation and decision-making, political participation and decision-making, and power over economic resources) are added together to derive the final GEM value. An illustration is provided in HDR 2002 (New York).

The human poverty index

In constructing the HPI, the deprivation in longevity is represented by the percentage of people not expected to survive to age 40 (P1), and the deprivation in knowledge by the percentage of adults who are illiterate (P2). Data on survival has been derived by the help of the Ph.D. thesis of Şeref Hoggör and Eastern life tables. The illiteracy data has been projected from 1990 census. The deprivation in a decent living standard in terms of overall economic provisioning is represented by a composite (P3) of three variables - the percentage of people without access to safe water (P31), the percentage of people without access to health services (P32) and the percentage of moderately and severely underweight children under five (P33). Data on "safe water" has been taken from a recent "news bulletin 29.08.1999" of SIS. Data is here available on provincial basis, however, including only municipalities, i.e., villages are excluded. There was information on P33 in a SIS-UNICEF (Ankara) preliminary study (1995), yet, only for five regions. The provinces in these regions have been assigned the same regional values. Data on access to health services, as it is defined in HDR 1999 (the percentage of population that can reach appropriate local health services on foot or by local means of transport in no more than one hour) is not available in Turkey. The main report of UNDP considers this variable for Turkey as null. For consistency it has been assumed here also that there is no access problem to health services in Turkey.

The composite variable P is constructed by taking a simple average of the P31, P32 and P33. Thus $P3 = (P31 + P32 + P33) / 3$. The formula for HPI = $(1/3)(P1 + P2 + P3) / 1/3$. An example is provided in HDR 2002 (New York).

Technical Note: Computing the Indices

Halis Akder

Table A1

	Life expectancy at birth (years) 2000	Adult literacy rate 14+ (%) 2000	Combined first-second gross enrollment ratio % 2000	Real GDP per capita (PPPS) 2000	Life expectancy index	Education index	GDP index	Human development index (HDI) value 2000	Real GDP per capita (PPPS) rank minus HDI rank
High Human Development									
Kocaeli	73,8	91,8	99,2	16536	0,813	0,942	0,853	0,869	0
Yalova	72,4	92,9	100,3	10209	0,789	0,954	0,772	0,838	1
İstanbul	72,4	93,2	100,3	9664	0,791	0,956	0,763	0,837	1
Bursa	75,2	91,3	95,6	7640	0,837	0,927	0,724	0,829	8
İzmir	72,2	91,5	99,1	9415	0,787	0,940	0,759	0,829	1
Muğla	72,0	92,5	93,3	9307	0,783	0,928	0,757	0,823	1
Sakarya	75,1	90,3	95,0	6462	0,836	0,918	0,696	0,817	13
Bolu	68,2	89,0	96,7	12446	0,720	0,915	0,805	0,814	-6
Tekirdağ	69,2	92,9	97,4	7467	0,737	0,944	0,720	0,800	6
Medium Human Development									
Balıkesir	72,6	87,6	93,7	6169	0,793	0,896	0,688	0,792	14
Ankara	66,9	87,6	102,6	9078	0,698	0,926	0,752	0,792	-3
Bilecik	68,4	91,5	93,2	7706	0,724	0,920	0,725	0,790	-1
Antalya	71,2	91,9	86,6	6371	0,770	0,901	0,693	0,788	9
Eskişehir	67,1	92,9	96,8	7373	0,701	0,942	0,718	0,787	2
Denizli	71,9	88,8	87,1	6143	0,781	0,882	0,687	0,784	11
Çanakkale	67,6	89,3	95,8	7583	0,710	0,914	0,722	0,782	-3
Aydın	72,7	86,8	82,9	6417	0,795	0,855	0,695	0,782	4
Manisa	71,0	85,5	86,9	7204	0,767	0,860	0,714	0,780	0
Kırklareli	61,8	92,9	97,7	9564	0,613	0,945	0,761	0,773	-14
Zonguldak	66,3	86,6	94,8	8270	0,689	0,893	0,737	0,773	-11
Edirne	65,0	88,8	95,7	7907	0,667	0,911	0,729	0,769	-11
Artvin	66,7	86,0	96,1	6160	0,694	0,894	0,688	0,759	3
İçel	66,7	88,7	81,7	7215	0,694	0,863	0,714	0,757	-6
Adana	64,3	85,9	93,5	7191	0,656	0,884	0,714	0,751	-5
Uşak	69,6	86,3	89,4	4480	0,744	0,873	0,635	0,751	19
Hatay	68,0	84,3	89,8	5366	0,716	0,861	0,665	0,747	4
Samsun	68,0	84,6	91,2	5088	0,717	0,868	0,656	0,747	6
Burdur	65,2	89,4	87,2	5970	0,670	0,887	0,683	0,746	0
Kayseri	66,4	88,0	92,5	5051	0,690	0,895	0,655	0,746	6
Karabük	66,3	85,9	96,1	4893	0,688	0,893	0,649	0,744	10
Gaziantep	70,0	81,6	88,4	4600	0,750	0,839	0,639	0,742	11
Kilis	70,0	78,0	87,2	5071	0,750	0,810	0,655	0,739	2
Konya	68,6	89,6	71,7	4904	0,727	0,836	0,650	0,738	6
Düzce	68,2	88,9	88,6	3587	0,720	0,888	0,597	0,735	22
Nevşehir	64,6	87,7	80,1	6364	0,660	0,851	0,693	0,735	-12
Kütahya	67,0	88,1	77,3	4937	0,701	0,845	0,651	0,732	1
Çorum	66,9	81,3	85,6	4981	0,698	0,827	0,652	0,726	-1
Rize	63,5	86,6	88,0	5342	0,641	0,871	0,664	0,725	-7
İsparta	66,3	91,8	69,6	4611	0,688	0,844	0,639	0,724	2

Human Development Index by Province

	Life expectancy at birth (years) 2000	Adult literacy rate 14+ (%) 2000	Combined first-second gross enrollment ratio % 2000	Real GDP per capita (PPPS) 2000	Life expectancy index	Education index	GDP index	Human development index (HDI) value 2000	Real GDP per capita (PPPS) rank minus HDI rank
Amasya	64,4	86,4	88,8	4484	0,656	0,872	0,635	0,721	3
Kırıkkale	61,3	88,4	74,2	7476	0,604	0,837	0,720	0,720	-27
Trabzon	67,5	87,5	71,2	4217	0,708	0,821	0,625	0,718	6
Afyon	68,1	87,4	71,2	3779	0,718	0,820	0,606	0,715	11
Karaman	60,6	89,3	78,4	6125	0,593	0,856	0,687	0,712	-17
Niğde	63,1	85,3	79,1	5478	0,635	0,832	0,668	0,712	-16
Sivas	67,3	83,6	75,5	3832	0,705	0,809	0,609	0,707	7
Kırşehir	62,9	86,3	86,5	4219	0,631	0,864	0,625	0,707	0
Malatya	66,3	83,8	75,7	4077	0,688	0,811	0,619	0,706	3
Kastamonu	63,1	78,7	87,3	5272	0,635	0,816	0,662	0,704	-17
Bartın	66,4	82,3	90,5	2965	0,691	0,851	0,566	0,702	16
Sinop	64,8	80,9	84,0	4112	0,663	0,819	0,620	0,701	-2
Osmaniye	64,3	85,0	86,0	3414	0,655	0,853	0,589	0,699	6
Elazığ	62,8	80,3	83,5	4931	0,631	0,814	0,651	0,698	-15
Giresun	64,5	81,5	72,7	4101	0,658	0,786	0,620	0,688	-4
Bayburt	66,5	85,0	72,1	2862	0,692	0,807	0,560	0,686	12
Tunceli	59,3	81,5	93,6	4355	0,571	0,855	0,630	0,685	-11
Tokat	64,5	84,3	66,0	3876	0,658	0,782	0,610	0,683	-5
Çankırı	64,9	87,5	60,9	3510	0,664	0,786	0,594	0,681	-1
Ordu	66,5	81,1	69,5	3009	0,692	0,772	0,568	0,677	6
K.Maraş	60,4	81,6	78,4	4224	0,590	0,806	0,625	0,674	-14
Aksaray	62,0	84,8	75,7	3123	0,616	0,818	0,574	0,670	2
Gümüşhane	64,7	85,3	58,8	3263	0,662	0,765	0,582	0,669	-1
Diyarbakır	68,1	67,0	70,5	3701	0,718	0,682	0,603	0,668	-8
Yozgat	64,7	84,8	64,6	2736	0,662	0,781	0,552	0,665	5
Erzurum	62,3	82,6	70,1	3178	0,622	0,784	0,577	0,661	-3
Ardahan	60,3	83,0	89,5	2315	0,588	0,852	0,524	0,655	11
Erzincan	59,9	86,4	65,1	3348	0,581	0,793	0,586	0,653	-7
Adıyaman	63,1	77,0	76,9	2736	0,635	0,770	0,552	0,652	2
Kars	60,3	81,2	80,4	2482	0,588	0,809	0,536	0,644	4
Batman	63,1	67,4	77,3	3410	0,634	0,707	0,589	0,644	-11
Mardin	66,2	67,6	70,4	2519	0,687	0,685	0,539	0,637	1
Siirt	63,5	65,8	76,5	3062	0,642	0,693	0,571	0,636	-8
Iğdır	60,3	73,2	83,7	2556	0,588	0,767	0,541	0,632	-2
Ş.Urfa	64,0	65,7	63,2	2847	0,650	0,649	0,559	0,619	-6
Van	63,7	66,6	68,2	2447	0,644	0,671	0,534	0,616	0
Hakkari	60,7	67,5	75,8	2455	0,596	0,703	0,534	0,611	-2
Bingöl	59,5	72,4	65,5	2331	0,575	0,701	0,526	0,601	-1
Bitlis	59,9	71,8	53,1	1932	0,581	0,656	0,494	0,577	0
Muş	62,0	67,3	58,3	1587	0,617	0,643	0,461	0,574	2
Ağrı	60,4	67,4	57,6	1803	0,591	0,642	0,483	0,572	0
Şırnak	57,7	62,3	70,6	1816	0,545	0,651	0,484	0,560	-2

Table A2

	Gender development index (GDI) 2000 Rank	Gender development index (GDI) 2000 Value	Life expectancy at birth (years)		Adult literacy rate age 14 and above		Combined primary & secondary gross enrollment ratio		Estimated earned income (PPPS)		HDI rank minus GOI rank
			(%) 2000 Female	(%) 2000 Male	(%) 2000 Female	(%) 2000 Male	(%) 2000 Female	(%) 2000 Male	(%) 2000 Female	(%) 2000 Male	
High Human Development											
Kocaeli	1	0,839	75,7	70,2	0,859	0,972	0,946	1,036	14.594	18.339	0
Yalova	2	0,812	74,2	69,0	0,879	0,973	0,969	1,035	9.068	11.236	0
İstanbul	3	0,810	74,2	69,0	0,887	0,977	0,989	1,016	10.304	9.044	0
Bursa	6	0,796	77,0	71,6	0,861	0,966	0,918	0,992	6.683	8.593	-2
İzmir	4	0,803	73,7	69,0	0,864	0,966	0,973	1,008	8.501	10.314	1
Muğla	5	0,797	73,5	68,9	0,874	0,971	0,921	0,944	8.269	10.241	1
Sakarya	9	0,783	77,0	71,5	0,837	0,967	0,891	1,006	5.416	7.476	-2
Bolu	7	0,796	68,9	65,6	0,825	0,953	0,919	1,013	10.803	14.045	1
Medium Human Development											
Balıkesir	15	0,765	73,5	69,8	0,814	0,939	0,917	0,955	5.430	6.896	-5
Ankara	8	0,790	70,8	61,2	0,885	0,978	1,010	1,040	8.458	9.683	-3
Bilecik	11	0,772	69,9	65,3	0,859	0,964	0,900	0,961	6.622	8.688	1
Antalya	16	0,764	72,5	68,1	0,865	0,969	0,845	0,886	5.748	6.957	-3
Eskişehir	12	0,770	70,9	61,3	0,885	0,974	0,931	1,003	5.893	8.859	2
Denizli	18	0,758	73,1	68,8	0,816	0,961	0,847	0,894	5.494	6.789	-3
Çanakkale	14	0,766	69,0	64,5	0,840	0,940	0,909	1,004	6.471	8.603	2
Aydın	21	0,754	73,9	69,7	0,794	0,942	0,795	0,861	5.858	6.974	-4
Manisa	20	0,755	72,4	67,8	0,774	0,937	0,816	0,921	6.165	8.243	-2
Kırklareli	13	0,769	63,0	58,9	0,885	0,968	0,956	0,997	7.323	11.597	6
Zonguldak	19	0,756	68,6	62,1	0,786	0,953	0,867	1,027	6.292	10.343	1
Edirne	17	0,759	66,4	62,1	0,825	0,944	0,942	0,971	6.709	8.966	-4
Artvin	23	0,742	67,6	63,9	0,771	0,949	0,910	1,010	4.971	7.334	-1
Çel	22	0,743	67,6	63,8	0,824	0,950	0,781	0,850	6.231	8.190	1
Adana	24	0,742	65,7	61,1	0,779	0,941	0,890	0,978	6.563	7.826	0
Uşak	27	0,729	71,6	65,7	0,784	0,946	0,863	0,922	4.066	4.901	-2
Hatay	29	0,728	69,5	64,5	0,754	0,936	0,851	0,942	4.487	6.261	-3
Samsun	28	0,729	69,4	64,6	0,767	0,934	0,855	0,968	4.676	5.527	-1
Burdur	25	0,735	66,0	62,6	0,825	0,963	0,852	0,891	5.119	6.813	3
Kayseri	26	0,732	67,5	63,4	0,801	0,960	0,879	0,970	4.591	5.512	3
Karabük	31	0,727	68,6	62,1	0,781	0,940	0,899	1,020	3.683	6.130	-1
Gaziantep	32	0,719	71,3	66,9	0,706	0,928	0,823	0,941	4.563	4.637	-1
Kilis	37	0,714	71,3	66,9	0,665	0,898	0,774	0,968	5.033	5.109	-5
Konya	33	0,719	70,0	65,5	0,831	0,962	0,688	0,745	4.269	5.529	0
Düzce	34	0,717	68,9	65,6	0,814	0,960	0,843	0,926	3.101	4.044	0
Neveşehir	30	0,728	64,4	62,9	0,797	0,959	0,753	0,848	5.574	7.173	5
Kütahya	36	0,714	69,0	63,3	0,815	0,946	0,707	0,835	3.749	6.098	0
Çorum	43	0,710	67,8	64,0	0,733	0,901	0,796	0,914	4.294	5.710	-6
Rize	38	0,713	64,7	60,4	0,766	0,970	0,825	0,933	3.771	6.944	0
Isparta	42	0,710	67,5	63,4	0,860	0,970	0,679	0,711	3.905	5.244	-3
Amasya	40	0,711	65,3	61,6	0,787	0,939	0,841	0,932	4.034	4.919	0

Gender Related Human Development Index by Province

	Gender development index (GDI) 2000 Rank	Gender development index (GDI) 2000 Value	Life expectancy at birth (years)		Adult literacy rate age 14 and above		Combined primary & secondary gross enrollment ratio		Estimated earned income (PPP\$)		HDI rank minus GDI rank
			(%) 2000 Female	(%) 2000 Male	(%) 2000 Female	(%) 2000 Male	(%) 2000 Female	(%) 2000 Male	(%) 2000 Female	(%) 2000 Male	
Kırıkkale	35	0,716	62,4	58,3	0,807	0,958	0,710	0,772	5.691	9.176	6
Trabzon	45	0,701	69,6	63,6	0,788	0,964	0,682	0,741	3.694	4.742	-3
Afyon	39	0,713	69,5	64,8	0,934	0,949	0,670	0,751	3.304	4.247	4
Karaman	41	0,711	61,9	57,4	0,834	0,953	0,746	0,819	5.282	6.978	3
Niğde	44	0,704	64,3	60,0	0,756	0,953	0,734	0,847	4.936	6.029	1
Sivas	51	0,689	68,7	64,1	0,739	0,930	0,702	0,807	3.011	4.629	-5
Kırşehir	46	0,700	63,6	60,3	0,785	0,947	0,821	0,906	3.540	4.920	1
Malatya	48	0,692	67,4	63,3	0,747	0,928	0,718	0,793	3.762	4.381	0
Kastamonu	47	0,694	63,5	60,7	0,690	0,894	0,797	0,949	4.003	6.628	2
Bartın	53	0,685	68,6	62,1	0,744	0,915	0,835	0,977	2.321	3.682	-3
Sinop	49	0,690	66,2	61,4	0,727	0,898	0,789	0,891	3.680	4.568	2
Osmaniye	50	0,689	65,7	61,1	0,764	0,937	0,796	0,921	3.101	3.722	2
Elazığ	52	0,688	63,3	60,5	0,687	0,921	0,752	0,912	3.942	5.900	1
Giresun	55	0,676	65,7	61,4	0,697	0,935	0,705	0,747	3.562	4.634	-1
Bayburt	59	0,670	67,8	63,3	0,756	0,946	0,636	0,800	2.597	3.125	-4
Tunceli	54	0,684	60,9	56,5	0,657	0,921	0,902	0,967	3.811	4.744	2
Tokat	56	0,673	65,5	61,6	0,765	0,922	0,613	0,704	3.463	4.279	-1
Çankırı	57	0,671	65,2	62,7	0,801	0,943	0,576	0,640	2.969	4.011	1
Ordu	62	0,662	67,3	63,8	0,709	0,917	0,659	0,729	2.596	3.427	-3
K.Maraş	58	0,670	61,4	57,6	0,709	0,922	0,727	0,837	3.487	4.933	2
Aksaray	60	0,665	62,8	59,3	0,757	0,945	0,713	0,799	2.838	3.414	1
Gümüşhane	63	0,657	66,0	61,6	0,758	0,945	0,550	0,623	2.625	3.882	-1
Diyarbakır	70	0,640	69,3	65,1	0,497	0,845	0,591	0,811	3.175	4.210	-7
Yozgat	65	0,653	66,0	61,6	0,765	0,934	0,605	0,686	2.144	3.323	-1
Erzurum	64	0,653	62,5	60,3	0,717	0,931	0,611	0,783	2.669	3.658	1
Ardahan	66	0,652	61,9	57,0	0,723	0,927	0,837	0,950	1.943	2.656	0
Erzincan	67	0,652	61,1	57,0	0,773	0,941	0,613	0,687	2.592	4.010	0
Adıyaman	68	0,643	64,3	60,0	0,653	0,892	0,709	0,824	2.519	2.951	0
Kars	69	0,640	61,9	57,0	0,685	0,930	0,720	0,882	2.098	2.836	0
Batman	71	0,628	64,3	60,0	0,506	0,848	0,637	0,897	3.322	3.496	-1
Mardin	72	0,613	67,5	63,1	0,495	0,851	0,581	0,817	2.286	2.739	-1
Siirt	73	0,608	64,5	60,9	0,454	0,845	0,566	0,944	2.215	3.837	-1
İğdir	61	0,664	61,9	57,0	0,809	0,962	0,747	0,923	2.076	3.005	12
Ş.Urfa	74	0,598	65,3	61,0	0,468	0,836	0,515	0,735	2.337	3.320	0
Van	75	0,596	63,0	62,5	0,482	0,850	0,490	0,860	2.068	2.810	0
Hakkari	77	0,590	62,1	58,0	0,437	0,853	0,603	0,895	1.766	3.014	-1
Bingöl	76	0,593	60,5	56,8	0,570	0,871	0,527	0,770	1.873	2.757	1
Bitlis	78	0,568	61,1	57,0	0,550	0,869	0,406	0,638	1.854	2.002	0
Muş	80	0,556	63,2	59,1	0,483	0,855	0,448	0,701	1.369	1.787	-1
Ağrı	79	0,558	61,3	57,8	0,484	0,857	0,438	0,702	1.626	1.968	1
Şırnak	81	0,543	58,9	55,0	0,358	0,826	0,552	0,846	1.580	2.012	0

Table A3

	HDI rank	Gender empowerment measure (GEM) rank	value	Seats held in municipal and provincial parliament by women (as% of total) 1993	Female administrators and managers (as% of total) 2000	Female professional and technical workers (as% of total) 2000	Ratio of estimated female to male earned income 2000
High Human Development							
Kocaeli	1	5	0,332	0,2	7,7	30,9	0,80
Yalova	2	4	0,337	3,8	8,5	32,9	0,81
İstanbul	3	2	0,363	3,8	13,0	38,2	1,14
Bursa	4	16	0,273	0,7	8,2	34,8	0,78
İzmir	5	3	0,356	3,4	12,4	41,0	0,82
Muğla	6	6	0,324	1,2	11,9	37,4	0,81
Sakarya	7	27	0,240	1,1	6,2	27,4	0,72
Bolu	8	7	0,313	1,2	8,5	30,8	0,77
Tekirdağ	9	10	0,292	1,6	8,0	37,3	0,83
Medium Human Development							
Balıkesir	10	19	0,258	0,8	7,5	34,3	0,79
Ankara	11	1	0,382	4,1	16,7	40,1	0,87
Bilecik	12	20	0,253	0,0	7,4	30,2	0,76
Antalya	13	14	0,278	0,4	10,8	36,3	0,83
Eskişehir	14	11	0,291	1,0	10,7	36,9	0,67
Denizli	15	23	0,248	0,1	7,0	35,4	0,81
Çanakkale	16	13	0,281	0,6	10,1	32,9	0,75
Aydın	17	17	0,266	0,7	7,9	37,3	0,84
Manisa	18	24	0,247	0,1	6,1	34,0	0,75
Kırklareli	19	12	0,290	0,4	8,1	37,1	0,63
Zonguldak	20	9	0,294	1,8	10,1	33,2	0,61
Edirne	21	8	0,294	0,4	9,9	39,7	0,75
Artvin	22	36	0,213	0,0	5,5	26,3	0,68
İçel	23	18	0,265	0,2	8,2	36,1	0,76
Adana	24	15	0,274	0,6	8,7	36,9	0,84
Uşak	25	35	0,215	0,6	3,7	33,1	0,83
Hatay	26	31	0,226	0,4	4,6	33,4	0,72
Samsun	27	26	0,244	1,6	5,8	33,4	0,85
Burdur	28	30	0,230	0,0	6,1	31,5	0,75
Kayseri	29	51	0,199	0,0	3,2	29,3	0,83
Karabük	30	21	0,253	1,8	8,4	30,6	0,60
Gaziantep	31	37	0,213	0,6	3,5	31,8	0,98
Kilis	32	41	0,211	0,6	5,3	26,1	0,99
Konya	33	59	0,190	0,0	2,9	26,7	0,77
Düzce	34	33	0,221	1,2	7,2	26,4	0,77
Nevşehir	35	34	0,217	0,0	3,3	31,9	0,78
Kütahya	36	52	0,199	0,4	4,3	25,7	0,61
Çorum	37	56	0,193	0,3	3,9	25,5	0,75
Rize	38	48	0,204	0,0	5,2	27,2	0,54
Isparta	39	28	0,237	1,2	5,8	31,2	0,74

Gender Empowerment Measure by Province

	HDI rank	Gender empowerment measure (GEM) rank	value	Seats held in municipal and provincial parliament by women (as% of total) 1993	Female administrators and managers (as% of total) 2000	Female professional and technical workers (as% of total) 2000	Ratio of estimated female to male earned income 2000
Amasya	40	29	0,230	1,1	5,6	31,1	0,82
Kırıkkale	41	39	0,212	0,0	3,9	25,6	0,62
Trabzon	42	44	0,206	0,0	5,1	29,9	0,78
Afyon	43	53	0,198	0,0	4,6	29,5	0,78
Karaman	44	43	0,208	0,0	3,8	28,1	0,76
Niğde	45	32	0,223	0,0	5,0	33,3	0,82
Sivas	46	62	0,184	0,0	3,7	26,5	0,65
Kırşehir	47	64	0,178	0,0	2,5	26,6	0,72
Malatya	48	45	0,205	0,0	4,2	31,2	0,86
Kastamonu	49	54	0,197	0,0	5,8	24,4	0,60
Bartın	50	25	0,246	1,8	9,7	32,5	0,63
Sinop	51	38	0,213	0,0	6,5	30,6	0,81
Osmaniye	52	40	0,212	0,6	5,6	30,5	0,83
Elazığ	53	61	0,189	0,0	3,0	26,6	0,67
Giresun	54	42	0,210	0,4	4,7	30,4	0,77
Bayburt	55	81	0,140	0,0	1,5	19,8	0,83
Tunceli	56	22	0,251	0,0	7,9	35,3	0,80
Tokat	57	58	0,191	0,5	4,2	25,0	0,81
Çankırı	58	60	0,190	0,0	5,0	25,5	0,74
Ordu	59	47	0,204	0,6	4,6	31,3	0,76
K.Maraş	60	66	0,178	0,0	3,2	24,3	0,71
Aksaray	61	63	0,179	0,0	3,7	26,7	0,83
Gümüşhane	62	77	0,154	0,0	3,1	20,2	0,68
Diyarbakır	63	49	0,202	0,0	4,2	31,8	0,75
Yozgat	64	78	0,152	0,0	2,6	21,8	0,65
Erzurum	65	65	0,178	0,0	3,4	26,2	0,73
Ardahan	66	57	0,192	0,7	6,3	23,8	0,73
Erzincan	67	55	0,197	0,5	5,7	23,9	0,65
Adıyaman	68	69	0,163	0,0	3,1	23,8	0,85
Kars	69	46	0,204	0,7	4,4	31,8	0,74
Batman	70	76	0,158	0,0	2,1	22,4	0,95
Mardin	71	75	0,158	0,0	2,3	23,9	0,83
Siirt	72	67	0,171	0,0	3,4	24,4	0,58
İğdir	73	50	0,200	0,7	3,9	31,2	0,69
Ş.Urfa	74	79	0,151	0,0	2,2	21,1	0,70
Van	75	68	0,167	0,0	3,0	25,5	0,74
Hakkari	76	74	0,162	0,0	2,9	22,4	0,59
Bingöl	77	80	0,150	0,0	2,0	22,4	0,68
Bitlis	78	70	0,163	0,0	2,7	25,3	0,93
Muş	79	71	0,163	0,0	2,7	26,6	0,77
Ağrı	80	73	0,162	0,0	2,9	25,5	0,83

Table A4

	Turkey	Greece	Iran	Poland
Country Background Information	2002	2002	2002	2002
Population, mid year (millions)	69.6	10.6	65.5	38.6
GNI per capita (PPP, \$)	6,120.0	18,240.0	6,340.0	10,130.0
GDP growth (1995-2002, %)	2.0	3.7	4.0	4.0
ICT Infrastructure & Access	2001	2001	2001	2001
Telephone mainlines				
Per 100 inhabitants	26.9	52.4	18.7	29.5
In largest city (per 1,000 people)	388	731	381	199
Waiting list (thousands)	199	8	1,155	502
Revenue per line (\$)	275	864	398	646
Cost of local call (\$ per 3 minutes)	0.12	0.08	0.02	0.08
Mobile subscribers (per 100 people)	33.6	84.5	3.3	36.3
International Internet bandwidth (per 100 people)	10.6	222.0	8.4	163.6
Broadband subscribers (per 100 people)	0.0	0.0	0.0	0.0
International telecommunications				
Outgoing traffic (minutes per subscriber)	36	147	25	73
Cost of call to U.S. (\$ per 3 minutes)	3.06	0.69	7.70	2.92
Daily newspapers (per 1,000 people)	111	23	28	102
Radios (per 1,000 people)	470	478	281	523
Television sets (per 1,000 people)	319	519	163	401
Computers & the Internet	2001	2001	2001	2001
Personal computers				
Per 1,000 people	40.7	81.2	69.7	85.4
Installed in education (thousands)	123.9	83.2	..	252.7
Internet				
Users (per 100 people)	7.0	15.5	4.8	23.0
Monthly off-peak access charges				
Service provider charge (\$)	25.0	15.2	..	14.4
Telephone usage charge (\$)	4.10	5.40	..	18.39
ICT Expenditures	2001	2001	2001	2001
Total ICT (\$, millions)	9,313.0	7,280.0	..	10,489.0
ICT as % of GDP	3.6	6.1	..	5.9
ICT per capita (\$)	142.7	688.0	..	271.1
Internet tariff as % of GNI	9.5	2.4	4.2	4.1
ICT Business & Government Environment	2002	2002	2002	2002
<i>(ratings from 1 to 7; 7 is highest/best)</i>				
Broadband internet access availability	4.1	3.5	..	4.0
Local specialized IT services availability	4.2	4.2	..	5.0
Competition in ISPs	4.2	4.1	..	3.5
Government online services availability	3.2	3.0	..	4.2
Laws relating to ICT use	3.1	2.9	..	4.1
Government prioritization of ICT	3.7	4.1	..	3.6
Secure servers	219	116	1	326

Notes: Figures in *italics* refer to an earlier year and figures in **bold** refer to a following year.
Sources: *ICT at a Glance* World Bank, 2005;
World Telecommunication Development Report 2005; International Telecommunication Union.

ICT Indicators: Turkey and Selected Countries

Thailand	Colombia	Syria	Russia	Romania	Bulgaria	Hungary
2002	2002	2002	2002	2002	2002	2002
61.6	43.7	17.0	144.1	21.8	7.9	10.2
6,680.0	5,870.0	3,250.0	7,820.0	6,290.0	6,840.0	12,810.0
0.6	0.7	2.3	2.6	-0.5	1.3	4.2
2001	2001	2001	2001	2001	2001	2001
10.4	17.4	12.3	23.9	18.7	36.8	32.6
452	327	156	463	368	564	588
544	1,175	2,806	6,020	576	182	20
579	291	253	195	222	0	1,017
0.07	0.03	0.01	0.01	0.11	0.01	0.09
26.0	10.6	2.3	12.0	22.9	33.3	67.6
16.3	12.7	0.9	61.2	87.2	10.1	1,048.3
0.0	0.1	0.0	0.0	0.1	0.0	1.1
52	40	96	29	44	43	51
1.49	2.20	20.04	6.12	1.96	2.37	0.98
64	46	20	105	..	116	465
235	549	276	418	358	543	690
300	286	67	538	379	453	445
2001	2001	2001	2001	2001	2001	2001
27.8	42.1	16.3	49.7	35.7	44.3	100.3
271.5	118.8	..	471.3	36.8	22.1	76.7
7.8	4.6	1.3	4.1	8.1	8.1	15.8
9.0	14.8	15.0	7.8	12.7
0.75	0.25	..	0.14	0.37	0.02	13.59
2001	2001	2001	2001	2001	2001	2001
4,751.0	10,434.0	..	9,908.0	956.0	530.0	4,646.0
3.7	12.0	..	3.3	2.2	3.8	8.9
75.6	230.9	..	68.2	42.8	65.4	465.5
4.2	12.2	58.6	5.6	16.4	8.3	8.1
2002	2002	2002	2002	2002	2002	2002
3.9	3.9	..	2.7	4.4	2.9	4.2
3.9	4.4	..	4.4	2.9	4.3	5.1
4.9	4.4	..	3.6	3.4	3.7	4.3
3.2	3.6	..	2.6	1.2	3.0	4.4
3.5	4.4	..	3.0	3.1	3.3	4.9
5.1	4.2	..	3.7	4.0	3.6	5.4
116	71	1	285	53	18	127

Acronyms

ÇATOM	Multi-purpose Community Centres
DAI	Digital Access Index
DİE	Republic of Turkey State Institute of Statistics
ETKK	e-Commerce Coordination Council
EU	European Union
FAO	Food and Agriculture Organisation
GAP	South-Eastern Anatolian Project
GEM	Gender Empowerment Measure
GİDEM	Entrepreneur Support and Guidance Centres
GİMOP	National Academic Network and Information Centre
GIS	Geographical Information System
HDI	Human Development Index
HPI	Human Poverty Index
ICT	Information and Communication Technologies
İŞKUR	National Employment Agency
KOSGEB	Small and Medium Sized Industries Development Organisation
LRDC	Learning Resource Development Centres
MOTOP	Motor Vehicles Office Automation Project
SME	Small and Medium Enterprises
SPSS	Statistical Package for Social Sciences
SYDİF	Social Aid and Solidarity Fund
TBD	Informatics Association of Turkey
TBMM	Turkish Grand National Assembly
VEDOP	Tax Office Automation Project

