BLUE PAPER 2007

REPORT FROM THE 8TH INTERNET BOAT

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Written by
the BUTE- UNESCO Information Society Research Institute and
GKIeNET Ltd. Research teams

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Introduction

The BLUE PAPER is a comprehensive public report giving an account of one year in the building of the information society in Hungary. It is an assessment study that looks at both the past and the future of the area.

The BLUE PAPER has been published by the organisers of the Internethajó (Internet Boat) and presents the level of progress of the information society in Hungary using publicly accessible data. The Paper is written under the professional leadership of the Internethajó, by the researchers of BUTE-UNESCO ITTK and from 2007 in partnership with GKIeNET Ltd.

Each year the BLUE PAPER is published one week before the launch of the Internethajó, and from 2007 in English, too. We would like to give everyone the opportunity – the passengers of the Internethajó, professional organisations, the representatives of public administration and the government, as well as related organisations – to contribute to the debates and discussions reviewing the Hungarian information society by sharing their opinions and ideas. All comments received by us will appear on the homepage of the event.

We call on everyone to join in the debate and act together, and while doing so to rely only on facts and valid arguments.

Enyedi Nagy Mihály	Diósy Tamás	Pintér Róbert
civil sector	market sector	research

Executive summary

Since the publication of the first BLUE PAPER a year has passed and numerous defining events have taken place in the Hungarian information society. Our present report elaborates seven themes in six chapters. The most important findings in relation to these can be read in the several pages that follow.

Infocommunications in society:

- Approximately half of the Hungarian population are computer users and about one third are Internet users.
- There is an almost 100% mobile phone penetration – this represents 10 million active mobile SIM cards, but does not mean that every Hungarian has their own mobile phone.
- Home Internet use is popular, with more and more people subscribing to have access to the Web from their homes.
- The digital divide has decreased among middle-aged people as well as between small and large settlements, but has not changed significantly among those people with low qualifications, the Roma, and elderly people.
- E-mailing continues to be the favourite Internet activity, with 84% of users using the Internet for electronic correspondence.

Broadband:

- From 2006 broadband may be regarded as the most predominant among Internet users, and with one million subscribers to broadband to be found in Hungary dial-up Internet has definitely declined.
- Access is becoming cheaper: there is now a subscriber fee for less than 5,000 forints, thus breaking a psychological barrier. However, broadband is still inaccessible in 1,000 settlements, and 500 thousand people (5% of the population) have no access to the infrastructure whatsoever whether they want to or not.
- Despite the increased capacity broadband in Hungary is still slower than in Western Europe, and significantly slower than in Japan for example (where connections are generally 50-100 mbps). For the same money the Hungarians get less than citizens of the old EU countries and because of the smaller bandwidth the quality of the services that can be utilised is also worse. However, the example of the development project in town Bóly shows that the building of a significantly more modern broadband network is not unattainable in Hungary.
- By European comparison the indicators for Hungary in regard to the Internet still do not reach the level that can be expected. We are a "Pre-eminent country lagging behind": penetration is low while the proportion of broadband is considerably high.

Politics:

- The Gyurcsány government was true to its promise and closed down the Ministry of Informatics. Looking at the year that has passed this has rather had a harmful effect on the supervision and management of the informatics area. The ministries and their representatives did not elaborate an efficient model in order to fulfil their inter-departmental responsibilities.
- Since 2006 the government has had virtually no policies or strategy for the information society. During the past period no new programmes have been launched, which markedly deviate from those launched in the previous period. As a result, the smaller and larger scale projects inherited from the Ministry of

Informatics and Communications continue. What can be seen here is the gradual political devaluation of this area.
- According to the competent minister, the primary task at hand is to make the government accept the need for IT-based modernisation, which should be utilised in re-engineering big systems, for example in the reform of the health-, education-, and public administration sectors, etc.

E-administration

- There is a need for public administration reform. In many respects this reform raises similar issues to those during the introduction and expansion of electronic administration, by propagating a service-centred approach in all public administration and enhancing its efficiency and operational quality, thus making it altogether less expensive.
- The role of the state in reform must be clarified and the performance of public administration must be measured and assessed, while superfluous overlaps must be eliminated.
- In 2006 the first foundation period in the setting up of e-administration drew to a close. In regard to the level of readiness in electronic services, in 2006 Hungary made the biggest leap in Europe by coming up from 23rd to14th place, thus reaching the average level of development in the EU. However, in regard to other aspects of success, it is critical that this internationally recognised renewal does not lose its impetus.
- Infrastructural developments in themselves do not generate greater turnover in government services, thus targeted marketing with an approach that more directly addresses the needs of users is required.

Information society and economy:

- While there are some impressive data in the ICT industry, the user markets for the population, the government and companies may be regarded as being at a low level of development.
- The question is how long the relatively dynamic ICT production structure and development can be maintained without the parallel development of the internal market and the population's ICT use. The low level of digital literacy restricts the opportunities for growth in the Hungarian ICT market. The mobile telephone sector is the only one that can produce any serious results in the area of ICT use.
- Although statistical data for the Hungarian ICT industry do not paint a completely dark picture, this picture is in fact distorted since the results are primarily produced by the activities of a few multinational companies and not by the growth dynamics of the internal market.

Digital culture:

- The 60-70% rate of digital illiteracy thus means the majority of society. We can therefore say that digital culture in Hungary is a minority culture, in contrast to the developed world where it is increasingly becoming an accepted medium. This situation is becoming increasingly harder for the country to deal with and in the end it will directly or indirectly adversely affect everybody.
- Despite the high rate of digital illiteracy, the digital world in Hungary is growing: in March 2007 the number of visitors to web pages audited by Medián surpassed 4 million, and in the same month iWiW[1] had more than one million users. Without even including the extraordinary percentage in the case of iWiW, the growth rate of visits made to the biggest sites was as high as 40% during the past year, and the average growth rate for visits to the first 25 domestic portals was 45%.

[1] iWiW is the biggest Hungarian social networking site, see: http://iwiw.hu.

- It is possible that web 2.0 is merely a castle in the sky, however. Companies run the risk of falling behind if they do not join in, since if the web 2.0 "revolution" leads to a permanent cultural shift, the advantage that their competitors could potentially gain would become unbridgeable. Thus, new entrants first begin to develop and only after this do they look for a sustainable business model.
- The switchover to digital television is a top-down revolution: it is terminating the old technology before the majority of society switches to the new system at their own discretion. All of this is very likely to lead to conflict in the coming years, since the five years Hungary has to implement the digital shift seem too short, necessitating the harmonised co-operation of those involved. In addition, a new challenger to digital television has appeared: Internet-based television services have already been launched in Hungary, thus placing the county among the first in the world in this respect.

Education:

- The Sulinet Expressz programme[2] did not produce the results that had been hoped for, as the provision of ICT tools for the population did not increase significantly after it had been modified numerous times, the programme was finally terminated at the end of 2006.
- The use of infocommunication tools in schools presents a contradictory picture: although the machine pool is out-of-date, it continues to be replaced thanks to funds from newly introduced normative support and even novelties are being introduced (e.g. the so-called digital trolley (a mobile multimedia presentation tool), interactive whiteboard); however, informatics has been limited to computer labs and has not been integrated into education as a whole.
- In the 2005/2006 school year the Sulinet Digital Knowledge Base programme was launched, which made digital teaching material accessible. The pilot scheme contributed to the growth in popularity of the Moodle course management system within the education system. However, apart from in the sphere of public education e-learning has not spread any further in Hungary.

[2] The Sulinet (Schoolnet) Program is launched by the Hungarian government in 1996. The Sulinet Expressz as the part of original Sulinet was launched in 2003. Based on tax refund it aimed to help and accelerate the ICT purchase and use in general. See: http://www.sulinet.hu/.

Introduction: an exciting year

Almost one year has passed since the publication of the previous BLUE PAPER and in regard to the information society and informatics it has proved to be an eventful one. The following is a quick overview of the most important of these events: the ministry for informatics was closed down, Elek Straub resigned from his position as head of "Matáv", in Hungary the web 2.0 revolution continues apace, the first domestic video sharing sites have been launched, and it has become possible to subscribe to the first IPTV services. Narrowband Internet has completely come to an end – it became generally the case that everyone who had an Internet connection now uses broadband Internet, in their homes. One billion forints – which is equivalent to a jackpot on the lottery – was paid for a Hungarian Internet community site, which in all "is only capable" of connecting several hundred thousand people with one another.

Meanwhile, the number of mobile phones active in Hungary could very soon reach ten million, thus we are slowly joining the group of countries in which the number of mobiles exceeds that of the number of inhabitants. However, the number of domestic subscribers to the home Internet is a tenth of this, despite the fact that more than half of all households will soon have a computer. Finally, it is no longer true either that Internet services cost the earth, as it is possible to use the Internet for a fixed monthly price of a few thousand forints, and soon it will not be necessary to subscribe to a telephone to have ADSL, and even bandwidth has been increased (in tandem with a continuing fall in prices).[3] Thus, the cost of Internet use cannot be regarded as a "deterrent", which does not apply to the "merely" 1,000 settlements (with their 500 thousand inhabitants) where it is not possible at all to subscribe to the broadband Internet.

This is all a far cry from when five years ago, in 2002, Matáv announced that it was going to terminate its "flat rate" dial-up package – at the same time as the Ministry of Informatics and Communications was established. A new world has been built since then, with the exception of one thing that still has not changed: by international comparison Hungary is not in the lead, and moreover it is lagging behind according to many indicators. Development is relative, since the countries that Hungary measures itself against are progressing faster and Hungary is left with an ever-increasing gap to bridge. This is how a country can be pre-eminent but at the same time be lagging behind: alongside a low rate of penetration almost everybody uses broadband Internet, since whoever has been able to has in most cases already had themselves connected to the web, although in fact this is true only for a minority, i.e. every third adult (above the age of 14) in Hungary.

Of course this is quite a subjective evaluation of this year, but everybody has their own slant on things based on their experiences in this period. In the following pages of BLUE PAPER we will attempt, despite this subjectivity, to present this year's overview, supported by facts and data, as well as to highlight – and present by international comparison where possible – the most important changes in some key areas in regard to the information society and infocommunication. We hope that all of this will help provide a more objective benchmark of this year, lest with time we forget all that happened in 2006-2007.

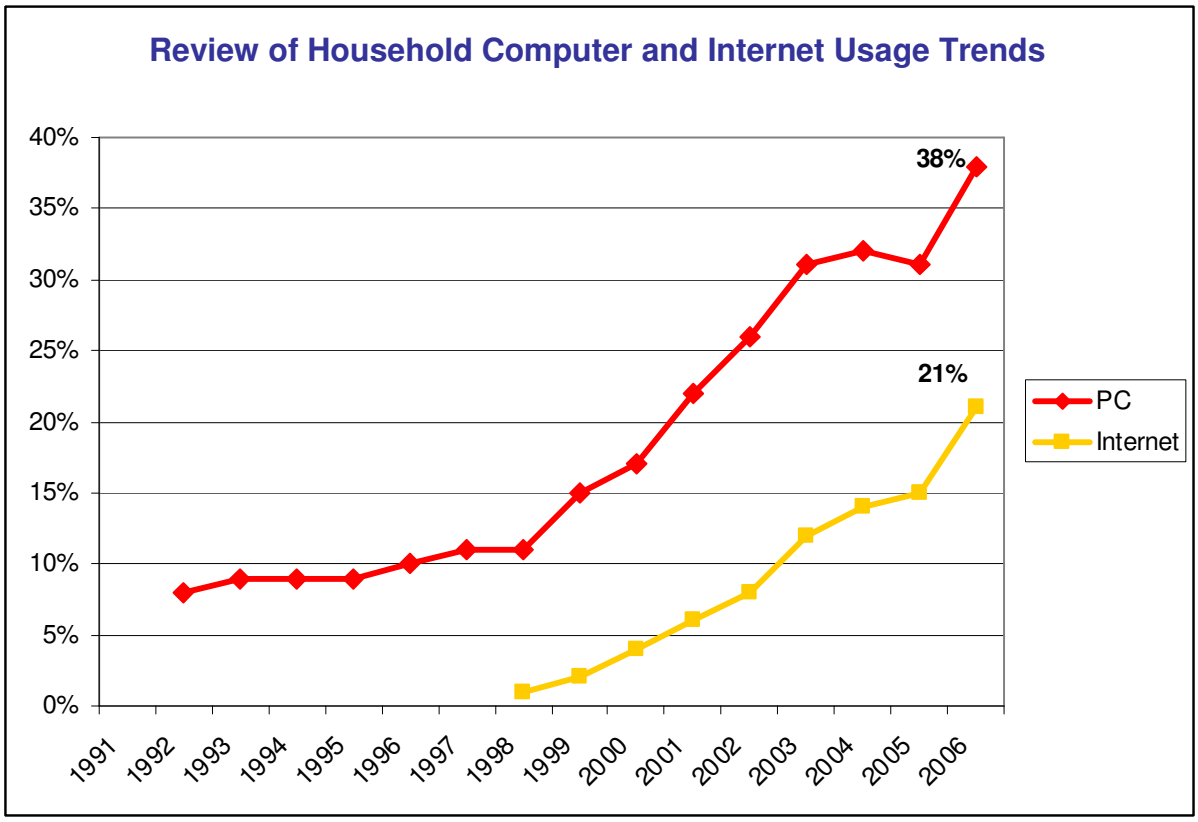
[3] Of course it is also part of the picture that the increase in broadband has not taken place to the same extent everywhere (it depends on the physical distance between the centre and the consumer) and just subscribing to ADSL and not a telephone line can be fairly difficult if somebody does not have a telephone (and therefore does not want to unsubscribe from an existing line).

The magic of numbers[4]

Infocommunication tools in households

The latest (2006) data of the World Internet Project[5] (WIP) – similarly to other research projects – **show that landline phones in households continue to be on the decline**, and this is typical of disadvantaged regions. Households in areas that enjoy more favourable conditions tend to keep their landline telephones in addition to their mobile phones, in contrast to households in more disadvantaged regions, where it is much more common to exclusively have a mobile phone. Three quarters of those aged above 14 have a mobile phone; the majority of these (90%) have their own, while the remaining 10% have a company mobile. One third of all mobiles are post-paid phones, while two thirds are pre-paid. According to the macro data of the Hungarian Central Statistical Office (HCSO) study, the number of **post-paid mobile phones** per every 100 inhabitants continued to rise, and in the last quarter of 2006 it stood at 99.1%, thus **the country is on the verge of breaking the magical "100% penetration" barrier.**

According to WIP data, over the last few years the **rise in home computer and Internet penetration** has shown a growth rate of varying degrees but stayed consistent. Nowadays more than a third of Hungarian households have a PC (38%), and just over one fifth (21%) have an Internet connection too.



[4] Similarly to the BLUE PAPER that was published in 2006, in our present report we will also be reviewing the most important Hungarian indicators in connection with infocommunications. Since these data are closely interconnected with the issue of infrastructure, we will also briefly present these too, especially in regard to the situation of broadband.

[5] The World Internet Project (WIP) is an extensive international research programme organised to examine the effects of the Internet on society, and was launched in the United Sates in 1999. Hungary has been participating in the WIP since 2001 (with the collaboration of TÁRKI, ITHAKA and ITTK).

Figure 1: PC and Internet in households (household surveys by TÁRKI; WIP)

Along with the growing Internet penetration **the majority of connections are now broadband**. **Three quarters of households with Internet access were already connecting to the Internet by broadband as early as 2006**. According to the HCSO data of the fourth quarter in 2006, close to half (46%) of the total number of subscriptions (approx. 1.3 million) were some type of DSL connection, and three tenths (29%) were cable, this represents three quarters of subscribers; in the meantime the proportion of wireless and other types of connection[6] (18%) continue to rise.

	Dial-up	ISDN	xDSL	Cable television	Rented line	Wireless	Other	In total
2001	265 190	28 192		17 571	3 108		7 592	321 674
2002	327 480	34 549	32 054	31 190	4 487		16 103	445 863
2003	355 874	35 524	114 813	77 189	4 631	24 055	18 023	630 109
2004	284 376	36 118	235 969	135 803	4 384	35 015	10 105	741 771
2005	210 662	30 949	372 523	212 145	4 507	62 514	13 963	907 263
2006	70 969	14 909	597 331	374 647	4 749	214 215	15 246	1 292 066

Table 1: The number of Internet subscriptions (pieces) by access type (HCSO 2006)

Similar figures were published by the National Communications Authority (NHH) in their quick report at the end of January, according to which the number of xDSL lines stood at 632,086, while the number of cable modem subscribers was 307,173.[7] Based on the two pieces of data it can be claimed that in Hungary **the number of line-based broadband subscriptions stands at one million**. In 2006 broadband Internet represented an overwhelming majority over dial-up technology. Within a year the number of dial-up subscriptions fell drastically, by approx. one third, while ISDN subscriptions – which were rather few anyway – seem to be disappearing altogether. After 2005, when narrowband fell by some 20% within the total number of subscriptions, the decline of narrowband continued at a similar pace. The figures published by HCSO and NCA are also well reflected by population surveys: according to both WIP and the Hungarian Online Monitor (HOM), nearly three quarters of households were connected to the Internet via broadband in 2006:[8]

	WIP 2006	HOM 2006. 4th quarter
Analogue modem	16%	10%
ADSL	42%	45%
Cable	32%	34%
ISDN	5%	4%
Other	5%	6%

Table 2: Home Internet access according to type of technology (WIP 2006, HOM 2006)

[6] According to the information of HCSO "other" refers to connections where the Internet is delivered as a combination of technologies (e.g. cable and microwave) or connections that do not fit into the other types (e.g. PLC).

[7] This latter figure one is lower than the value published by HCSO, although it must be pointed out that the data service cable companies' market share is merely 75-80%.

[8] Only a few months passed between the two research projects, but the decline of dial-up connections in the meantime was highly perceivable – the results of the survey are also substantiated by HCSO figures.

Broadband: you can't get enough of it

Unlimited broadband Internet access is not only one of the most important components in regard to competitiveness but with the spreading of web 2.0[9] it is also an essential component in user satisfaction. From this aspect it is by no means unimportant whether or not such services are **accessible to everybody** and provided at affordable prices.

The price of broadband access has fallen, which can partly be attributed to the internationally recognised work carried out this year by the NCA.[10] The monthly fee for basic packages fell to below 4,000 forints (for one year of customer loyalty), which is competitive even by European comparison if we only look at the amount itself and not the purchasing power parity or the speed of the connection. Considering the last indicator, it can clearly be seen that more developed countries provide far faster connections for the same amount as in Hungary. Moreover, these basic packages (after the bandwidths were broadened at the end of 2006 the cheapest package comes with an average 1 mbps downloading and 128 uploading capacity) often provide only limited access and thus cannot really be regarded as being genuinely broadband.

It is important to emphasise that in Hungary there are presently **close to 1,000 settlements** (out of almost 3,200) **in which broadband infrastructure is not accessible**, since in these tiny "remote" places no return on investment can be realised so access is not provided. The New Hungary Development Plan provides for the allocation of considerable funds to support these areas, and it is hoped that these grey areas will be also be provided for by 2010, making broadband technology accessible for those who might have the greatest need for it. Five percent of the population, i.e. half a million people, live in these grey areas.

Features of usage: e-mail is the number one hit

According to WIP data, **close to half (47%) of the above 14 age group** in Hungary **used** (regularly or occasionally) **a computer** and **over one third** (36%) **used the Internet** with some degree of frequency in 2006. Although the typical inequalities (age group, education, settlement type) continue to make their effects felt even today, **the situation of disadvantaged groups in recent years has been improving at a faster pace**, thus it has been possible to somewhat whittle down their respective disadvantages. Significant, above average rates of growth can be seen mostly among middle aged people and in the case of those living in small settlements.

Internet is mostly used for e-mailing (84%), while other significant uses of the Internet include searching for information (70-80%), as well as entertainment and games (65%). In regard to the more novel forms of communication, only a few people (15%) use VoIP services, but at the same time every second Internet user chats online.

International comparison: eminence and lagging behind

Comparing the individual basic data for Internet access and use in European Union member states, we can see that **Hungary continues to lag behind as compared to the EU average**. The number of households with Internet access and the proportion of Internet users in Hungary can still be regarded as low. **However, if we consider the *proportion* of broadband connections the situation is puzzling**: this percentage is far above the EU average and since the survey conducted at the beginning of 2006 it has continued to rise. According to this indicator Hungary has overtaken such countries as Italy with 40%, Germany with 50%, Austria with 63%, and Slovenia with 63%. However, this same indicator is highly deceptive**. If we take the total households with**

[9] The web 2.0 concept plays a role in the report several times. In summary, it refers to those services and applications that users have become involved in since the millennium by their active cooperation e.g. blogging, wikis, video sharing sites, RSS etc. But this does not simply represent the services since web has become a technological platform in which all this is taking place.

[10] See e.g. the reference unbundling offer provided by Significant Market Players and extension of so-called Tantusz portal to broadband.

Internet access, Hungary is lagging behind and has only really overtaken Slovakia and Greece so despite the high proportion of broadband, the number of Internet users is low.

To sum up, we can say that **the predominant majority of the population using the Internet have switched to solutions which by domestic comparison can be regarded as modern, thus increasing the gap between themselves and those left out.**

	Proportion of households with Internet	**Of this the proportion of households with broadband Internet**	**Proportion of broadband in households with Internet**	**Proportion of Internet users aged 16-74**
EU 25 average	*52%*	*32%*	*62%*	*47%*
Austria	52%	33%	63%	55%
Denmark	79%	63%	80%	78%
United Kingdom	63%	44%	70%	57%
Estonia	46%	37%	80%	56%
Finland	65%	53%	82%	71%
Greece	23%	4%	17%	23%
Holland	80%	66%	83%	76%
Ireland	50%	13%	26%	44%
Poland	36%	22%	61%	34%
Latvia	42%	23%	55%	46%
Lithuania	35%	19%	54%	38%
Hungary	32%	22%	69%	42%
Germany	67%	34%	51%	59%
Portugal	35%	24%	69%	31%
Sweden	77%	51%	66%	80%
Slovakia	27%	11%	41%	43%
Slovenia	54%	34%	63%	47%

Table3: Internet in households, type of connection, proportion of Internet users in some European countries (Eurostat 2006).

If we broaden our focus and look at the countries in the world with high broadband penetration (this primarily applies to South Korea and Japan but developments in this area have also begun in some European countries), it can be seen that **another new shift, based on fibre optics, is in the making**, which is similar in its importance to that from dial-up to ADSL. There are already 7.5 million subscribers to FTTH technology in Japan, which means that these users have connections with a capacity of 50-100 mbps, for approximately the same sum that in Eastern Europe would buy 1 mbps.[11] There are only minimal signs of this kind of shift taking place in Hungary (e.g. the activity of the Broadband Utility Round Table, and the building of the network in the town of Bóly).

[11] Such bandwidth can provide for several digital quality television broadcasts.

Politics: building an information society is not on the agenda

It was already common knowledge in 2006, when the BLUE PAPER was published, that the information portfolio would become part of the Ministry of Economy and Transport. However, what consequences this would have on the political treatment of the area was not known, nor whether **the question of an information society,** which **requires a much more comprehensive, conceptual modernisation,** and not a simple infrastructure development, or Internet-policy, would be raised to its proper rank. The past year has shown us that no strategic progress has been made on the part of high politics in the area of informatics or information society in Hungary. **The government continues to regard the matter of an information society as a sectoral, mainly an infrastructural issue, and not as an overall modernising framework,** with information technology at its centre. In contrast to this, the European Union has, for more than ten years, regarded the concept of an information society as a modernisation programme, equal in importance to that of sustainable development. Here in Hungary, the message conveyed by the closing down of the ministry was that the issue is even less important than it was when the field had a ministry of its own. The Ministry of Informatics and Communications was not even considered as an important portfolio. During the period of 2002-2006, the theme of an information society was treated as a second- or third-rate issue by the government.

With this, Hungary once again joined those Eastern-Central-European countries where there is no independent, ministerial-level treatment of this question. The good news is that in the competitive field of the global information society, which is so very important from the point of view of Hungary's future, the structure in which a government plans and implements its own strategic programmes is almost of no importance. **An independent ministry is neither a sufficient, nor a necessary condition for a successful, future-oriented policy of an information society.**

The essence is much rather about **how the various portfolios and their representatives are able to cooperate, whether they can work together, share their respective information and resources with each other, while the developments all point in one direction.** Irrespective of the fact that the ministry was closed down, **the criteria of success depends on whether the information developments of the various portfolios are harmonized**, whether the financing of joint, inter-ministerial projects are undertaken along the most appropriate priorities, and whether the government leaves the portfolios to deal with the question on their own, since we cannot react to the challenges of the new information era as well on our own as we can together.

Withdrawal

With the closing down of the information technology portfolio in the summer of 2006, the Ministry of Economy and Transport took over its tasks in the new government. The official explanation for this consolidation was that **the best place for information technology was within the Ministry of Economy and Transport, which is the ministry responsible for infrastructural issues.** However, the Minister of Economy's concepts regarding this area differ radically from earlier practices, and this has an effect on the management of the area.

According to the new minister, an era has come to an end with the closing down of the one-time Ministry of Informatics and Communications, the aim of which was to create the infrastructural basis – including the Sulinet programme and the development of eHungary points. Having reached the end of this era, says the competent minister, **we now have a double challenge ahead of us:** on the one hand, we have to accept that **financing these developments cannot be the primary task of the state** (it no longer has the resources needed for this), on the other hand, we have to learn to apply a new logic that promotes **the successful exploitation of the opportunities offered by**

the European Union. This new double approach could be the basis of modernisation in the creation of an information society in Hungary.

All this means that we should not assess the government and information society on the basis of the number of Sulinet endpoints or eHungary points. According to the mission of the **Ministry of Economy and Transport**, **it is not responsible for the number of Hungarian households that have broadband Internet,** nor is it its task to conduct such surveys (as did the Ministry of Informatics and Communications).

Thus, the Ministry of Informatics and Communications laid down the foundation of today's development, and the Ministry of Economy and Transport is continuing the construction, but the **age of major projects is over**, because these projects are neither efficient nor transparent, the state is not a good owner, and they even cause backlog in the technological race, as they are not flexible enough. **Central assistance is badly utilized, so there is no need for it** in this form.

The management of information technology projects is not among the tasks of the new ministry, what's more, the portfolio does not have budget resources for this field, the **Ministry of Economy and Transport only intends to spend a "few" billion Forints on this area**, significantly less than what the underfinanced Ministry of Informatics and Communications received. **However, the development funds of the European Union are available.** The use of these resources could significantly contribute to the building of an information society. There is, however a great need for a different approach, and not only among political operators. **The fact that the Hungarian political elite cannot really accept the thought of an information society is a real problem**.

Having said this, the question automatically arises: What, then, is **the task of the Ministry of Economy and Transport** with regard to "information technology"? According to the minister's own definition, the primary task is, beyond the minor programmes managed by the portfolio, to **"smuggle"** informatics and **information-based modernisation into the general work of the government,** for example into the reform of the health-care system, educational reform, the reform of public administration systems, etc., in other words, to promote information-based modernisation.

It is the portfolio's task to increase competitiveness, to attract industries with value added production to enter the country, and **to improve efficiency and productivity. The business environment must also be improved**, for example by making it easier to establish a company in Hungary (at the moment this is quite difficult), there is a need for the modernisation of informatics in this field as well.

It is also the task of the Ministry of Economy and Transport to **encourage the IT way of thinking which characterizes the whole of the National Development Plan,** instead of simply lobbying for the operative programme of an information society. According to the minister, developing an independent operative programme for information technology does not promote the efficient use of Union funds. This can actually be *counterproductive*, as it might lead to simply "ticking off" the task of developing information society as having been completed, whereas this approach should in fact affect every single operative programme.

The **instruments** for implementing tasks are limited: the state first and foremost **regulates**, then **it modernises itself**.[12] Furthermore, the state is a **partner in strategic co-thinking, it can create motivation and interest** where it sees an opportunity for this among citizens (e.g. anyone who sends in their tax return electronically should get tax advantages), finally, **it improves the quality of life** (by introducing electronic services, for example, or by creating the necessary conditions for digital television, etc.).

The minister is of the opinion that instead of using the strategies used so far, and **creating strategies, a strategic way of thinking is needed instead**. In the event that the complete public administration (and the business sector) is not permeated with a

[12] Thereby it indirectly helps all players since an efficient modern state can offer much cheaper and better services.

strategic way of thinking, Hungary must renounce the possibility of modernisation for quite some time, and that is what is really at stake here today regarding the developments of an information society. Accordingly, there is no need for the Hungarian Strategy for an Information Society, instead, a **White Book,** prepared in partnership cooperation, could define what the actual aims, tasks and instruments should be.[13] Unlike its predecessors, the Ministry of Economy and Transport therefore did not prepare a new strategy for an information society, as it is of the opinion that there is no need for one in Hungary today, since **it is not for the state to point out the direction in which to proceed, but rather for the profession, therefore there is a need to think together and to point out new aims.**

All in all, evaluating the government's first year of work, it seems that **the government does not have a policy or strategy for an information society, but a minister with a unique philosophy and creed**, who is responsible for this area. However, during this period, no government initiatives concerning an information society could be heard **which were markedly different from those of earlier periods**. Basically, minor and major projects **inherited from the Ministry of Informatics and Communications are being continued,** as indicated by the government programme. The second Gyurcsány government did not treat the question of an information society as a priority until the spring of 2007, so **in the past year an actual gradual political devaluation of this area could be observed**.

[13] At the time the manuscript of the current BLUE PAPER was finalised, the official, public version of the White Paper was still not available, but it is expected to be published soon.

Electronic public administration: before a strong start?

Indispensable e-administration

Nowadays, the e-administration developments linked to the modernisation of public administration have become factors that can increase social-economic competitiveness. Both the rate at which development is taking place and the change in attitude are enormous. The first static governmental portals were created just ten years ago, yet today the online services for public administration must face completely new challenges: government operations must become transparent and accountable, satisfaction of users and citizens must be increased, and the bureaucratic encumbrances that enterprises and tax payers must face should be reduced, ensuring at the same time that the functioning official services are accessible through several channels.

As a consequence of the weakening of the European Union's global competitive position, the role of information and communication technology instruments that generate growth is becoming more and more important. According to predictions, between the years 2005 and 2010, owing to the e-public administration research and pilot programmes, the GDP of the EU25 may well increase by 1.54%, that is by 166 billion euros. In the member states of the European Union, public administration "uses up" approximately 15-30% of GDP, so even an increase of a few percent regarding effectiveness may result in saving a significant amount.

2006: the year of electronic public administration in Hungary

Many similar problems have yet to be solved, thus the need for the modernisation of public administration in Hungary is pressing. Increasingly, citizens wish for a real service provider public administration of high quality, but the role of the state is not quite clear, and the assessment and evaluation of public administration performance has yet to be solved. Duplication characterises the processes of the service side, and the way the organisations operate in general, and there is a public accounts budget deficit – just to mention a few of the reasons why the Hungarian public administration reform is urgently needed. Despite all of this, we are of the opinion that **the reform of public administration in Hungary**, or its modernisation, **is not adequately harmonised with the instruments and opportunities offered by electronic public administration services,** even though the ICT instruments have been used in every developed country in order to realize the above-mentioned aims.

The first, basic phase of e-public administration in Hungary came to an end in 2006. What we can consider as a success is the fact that the basic infrastructure and the basic system of services necessary for its construction and operation were realised. According to the data of Capgemini[14], which constantly measures the level of preparedness of the 20 basic services of e-public administration in the European Union, **in 2006 Hungary progressed significantly in the European ranking**, rising from the 23rd place to the 14th: in 2003, the domestic electronic services were only at a 15% level of preparedness, and by 2006 this had risen to 80%, while the ratio of services completely accessible online was 50%, so **we reached the European Union average** in both indexes.

Hungarian demand for e-public administration services was supported by various other research projects, too. According to the World Internet Project's (WIP) data of 2006, during the three months preceding the survey[15] **48% of citizens using the Internet came into contact with some public institution via the Internet.** In the course of contact, users most typically are looking for information, but 16% of them also download forms, while 40% search for information on the webpage of a public institution.

[14] Capgemini 2006.
[15] See in more detail in Galácz (ed.) 2006.

The sociological characteristics of users interested in e-public administration are a lot more surprising. As opposed to the typically young, urban, well-to-do stratum of Internet users, the users of e-public administration **tend to be middle-aged, and many of them live in smaller towns or villages.**

International experience shows us that **the state may have a leading role** both **in defining the level of digital literacy**, and **in increasing the demand for e-public administration services.** In Denmark, for example, the use of e-government services is not a possibility, but an obligation, as it is required, among other things, through certain measures, that citizens indicate a current account through which monetary movements in connection with the state take place. **Electronic tax returns, made compulsory** in Hungary, may also **have a positive effect on the use of e-public administration services,** as can be seen through the exponential increase of private individuals who had registered on the Client Gate (Ügyfélkapu) by the end of 2006.[16] At the same time, according to the findings of the above-mentioned studies, parallel to launching the new services, the state must **pay more attention to and spend more money on** efficient **marketing and advertising activities** promoting the popularity of e-public administration. In Hungary, this did not take place with the necessary efficiency thus the media mainly reported failures and dissatisfaction, rather than success stories and achievements.

Pull instead of *push*: let the citizens dictate

Currently there are four known levels of online sophistication to which a fifth one, called **targetisation** (targeted level providing proactive, automated services), will be added from 2007. The New Public Administration Procedures and Services Act (Ket.) will provide an excellent basis to reach this level, since for example in the case of frequently used services, such as tax return, social security, it is unnecessary for citizens to enter data over and over again which is already recorded by public administration. For now there are only 20 obligatory services that need to be developed to the fifth level.

It can be perceived that **Hungary's good results might be in danger soon** unless the so far steady pace of progress is maintained and the next step is taken. It is clear that infrastructural developments alone will not generate higher indexes of use either in the area of simple ICT tools or that of e-services. Sources must be urgently concentrated on areas that facilitate the acceptance of or even the need for e-administration by citizens. To achieve this, **citizens' demands of e-administration must be surveyed** to understand which of the hundreds of to-be e-services are needed the most.

Further highlighted areas to consider in the near future include the extent to which progressive Ket. and freedom of information acts are actually implemented and observed, the rate at which the public access network will be developed into **endpoints directly available for citizens**, and the level of availability of experts, such as IT mentors, who can act (also) as social intermediaries.

[16] See: http://www.magyarorszag.hu/english.

Information society and the economy: how to make headway?

Competitive disadvantage: digital illiterates still in majority

It is slowly becoming a sad commonplace that the digital "transition" in Hungary has only taken place in a narrow segment of society. In fact, the only digital skill the majority of Hungarians have learned is how to use their mobile phones. Representative surveys on computer and Internet usage reveal that approximately half of the Hungarian population shy away from PC use and consequently the use of the Internet or any other ICT equipment requiring interactive skills. In the short term voluntarist intervention cannot be an effective cure for this attitude of reservation and rejection. Projects facilitating the development of the human skill of PC usage can have a measurable, lasting effect only in the long term.

The lack (in skill and attitude) of equipment usage linked to information technology is a permanent obstacle in realising all those **objectives of the market players and the government** that are aimed at making Internet use and the use of various infocommunication services as widely accepted as possible.

Investments: infocommunication is not regarded as an asset

According to OECD Information Technology Outlook 2006, Hungary is in the 25th place out of the 26 countries examined in regard to the extent of **investments into infocommunication technology**. The expenditure of the national economy on hardware, software, computer services and telecommunication totalled $ 6.4 billion in 2005[17]. Czechia and Portugal rank higher than Hungary (Hungary only ranked higher than Slovakia). The OECD outlook points out that taking a 6-year comparison (2000-2005) the growth dynamics of ICT investments was approximately 13% in Hungary, and 16.5% in Czechia, despite the fact that the two countries were at a more or less equal level at the start.

It would be wrong to blame the Hungarian government and the population for this relatively poor IT investment mood, since similar problems can be seen in other areas. For example, in R+D spending the state remains the main financier with the **corporate sector spending very little on implementing innovations and carrying out research** (the proportion of spending was 70-30% in 2005, respectively).

ICT export: Hungary and Korea in the same league – but for how much longer?

The **overall** picture of **Hungarian exports** is more favourable, with the **proportion of ICT products being nearly as high as that in South Korea**. However, the overall export volume in South Korea is also outstanding, in dire contrast to that in Hungary.

While some figures of the Hungarian ICT industry are impressive, a low level of development can be seen in the public, the government and the corporate user markets. This is well exemplified by the fact that 91% of Hungarian businesses (employing a staff of at least 5) using computers and Internet penetration in this segment was 79% in June 2006[18], however, only 39% of these businesses had their own homepage (this figure is 50% for businesses with Internet connection) with most of these being rather static.

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[17] For comparison: in Germany almost 170 billion dollars was allocated to infocommunication technology in this same period, which means that in proportion to the population the Germans devote almost four times than the Hungarians to ICT tools and services.

[18] GKIeNET, 2006a.

Thus, the question arises: how long can this relatively dynamic development in ICT production be maintained without the parallel development of the domestic market and public ICT usage?

Human resources: a lot of engineers or too few?

In comparison with the data published in the OECD Outlook in 2004 **the proportion of Hungarian software engineers employed in Hungary improved in 2005-2006**. While previously 7 out of 10 engineers were employed abroad, this number has gone down to "only" 4 (although more engineers are trained now than before). It is no coincidence therefore that quite a few major businesses with interests in the ICT sector moved part of their R+D division to Hungary, primarily to the central Hungarian region. We can see positive examples; however, the less developed regions are proof that **development is disproportionately concentrated in Budapest**, which leads to an increasing gap and inequality (primarily compared with the Eastern regions of Hungary).

It represents a problem that the number of highly qualified engineers is generally low, which led to a significant increase in salaries and at the same time discourages international ICT companies when they make decisions about investments. Unfortunately, engineering and technical careers do not appeal to young people despite the high salaries, and most of them chose easier forms of tertiary education but then find it difficult to find a job.

Efforts made by the government: is there a viable system?

There are significant discrepancies regarding government infocommunication services. Through the operative programmes set out in National Development Plans **the government is making serious efforts to improve government services**. Despite some difficulties, the electronic tax payment system in Hungary is on a par with that in the EU15, but in regard to the development and regulation of electronic local government services, Hungary is seriously lagging behind. Unfortunately, development plans are most often **lacking an overall concept**. Instead of a unified strategy the allocation of finances is determined by local interests. As a consequence, problems with compatibility emerged on several occasions in 2006 when systems were "linked up", which can lead to more problems and higher costs in the long run. Basically, local governments should have dynamic systems that can be easily linked and developed further.

One characteristic anomaly in Hungary is the situation of electronic signature. Hungary has several e-signature providers but – obviously due to size inefficiency – the service is expensive and in some cases difficult to use. The Client Gate (Ügyfélkapu) runs parallel to this, providing citizens that have no e-signature with the opportunity to see to their e-government affairs. The scale of the problem is well represented by the fact that the proportion of citizens within the entire population above 18 who use e-signature can be estimated at about 1.5%, so the number of actual users is about 125 thousand people. [19] E-signature is used for private purposes – almost without an exception for Internet banking – by 0.7% of the adult population, which is slightly less than half (48%, 60 thousand people) of the number of actual users. In contrast, in Sweden for example e-signature is used like an ID, to which citizens are entitled by law.

Fast forward: the need for a locally embedded ICT industry

The digital illiteracy of the Hungarian population is detrimental to the wide scale introduction of user-centred services. In this respect Hungary is much less developed than in the area of production. **In the future Hungary will have no choice but to move towards a "more value added" and locally more embedded ICT industry** since the current model, based predominantly on the import of parts and the export of

[19] GKIeNET, 2006b.

ready products, does not form part of the knowledge industry, is not integrated into the national economy and is extremely vulnerable. A comprehensive solution is only possible if this issue is addressed not at a central but rather at local levels, in co-operation with the local governments and with the help of local information society strategies and ICT industrial policies.

In light of the above, another thing worth reconsidering is the paradigms related to PC usage. It can be assumed that the development of equipment and services will make usage so much easier that even lay users will not find it difficult to access the Internet and use various applications. If this is achieved, a fast and efficient solution can be found to the problem since new markets will open up for ICT equipment and services and at the same time the labour market will see an increase in the number of more highly skilled people.

Digital culture: during the cultural shift business is as usual

Society: the digital third

Digital culture in Hungary is like a two-faced Janus with a widening digital divide manifesting itself. Sixty to seventy percent of the population is digitally illiterate with only a small part of the population participating in the online revolution. Most Hungarians are left out of the important changes despite the fact that in recent years some indicators have pointed towards a narrowing of the digital divide. For example, townships have started to bridge the gap.

Two parallel changes are taking place in Internet use, too. On the one hand, that part of society that has access to and uses the Internet is gradually increasing. On the other hand, within those with Internet access the number of those using modems is decreasing fast as a result of switching to broadband. Both these changes have a beneficial effect on the development of digital culture. **These positive changes can be clearly measured in the development of Hungarian Internet content and usage.**

The total number of Internet sites doubled in Hungary between 2004 and 2006. Similar growth took place recently: on 20th March 2007 the number of visitors to web pages audited by Medián exceeded 4 million, which was nearly double that in March 2006. **The growth rate has shown a significant increase in recent months.** The number of visitors exceeded 2.5 million at the end of November in 2006 and just a few months later it reached a record 4 million. Around the same time, on 19th March 2007, over one million visitors sought out the biggest Hungarian social networking portal called iWiW.

Data published by Webaudit also indicate growth in the scale of Hungarian online activity,[20] and shows the dominance of the leading Internet pages, Origo, Index and iWiW, which determine the Hungarian content market. The number of visitors to the biggest portals showed a 40% increase in the past year, except with the record growth (255%) in the case of iWiW. The average growth in the first 25 Hungarian portals is about 45%, which represents growth of almost 50% within a year.

The **media consumption** of Internet and non-Internet users is at variance primarily with respect to time spent in front of the television or the radio. **Despite the ongoing changes, public opinion about the importance of each medium has not changed in recent years.** Television remains the main source of information and entertainment, which is especially true for those that do not use the Internet. Among Internet users the Internet is fast becoming a determining source of information.

Web 2.0: what's the deal?

The profitability and real benefit of **web 2.0**, as well as **what is actually understood by it**, **is the subject of debate** both in Hungary and abroad. This debate also concerns the **actual value of user content**. For the business sector it is important that what is going on might actually be a **cultural shift**, but it is also possible that what we have here is merely a **bluff**. In any case, it is essential to be involved in web 2.0.

T-Online initiated several purchases or co-operation projects related to the community and content industry, expressing its objective to gain dominance in this field. Several players doubted the rationality of this strategy. The purchase that attracted most criticism was the buying of iWiW, during which the above theory was degraded into a simple calculus exercise: can a community portal be worth as much as one billion forints for a Hungarian incumbent? The answer: in 2006 T-Online generated profits of more than 200 million forints just from the sale of iWiW's advertising surfaces. At the same time iWiW remained the number one portal even in the competition with the Hungarian clone providing dozens of social networking services. However, since the number of users

[20] Marketing & Media 2007.

will actually reach its maximum potential (all the Hungarian Internet users), future development can only be achieved by international expansion and connected services. Signs of the latter can already be seen.
2006 was also the **year of video sharin**g sites in Hungary. Although YouTube became known in Hungary it was only this year that similar Hungarian sites were launched in summer, such as Videa.hu, Videoplayer.hu, Freevlog.hu, Videobomb.hu, Stubes.net, etc. The question for all these sites is whether it can be turned into a profitable service and if it can, what kind of business model can support it? The good news is that Hungarians are not the only ones pondering this question. The major international service providers are also **facing the challenge of finding a sustainable business model**, which is a kind of philosopher's stone when it comes to web 2.0. All in all, the renewal of digital culture in 2006 definitely energised the business sector.

Digitalising cultural heritage: at the beginning of a long hard road

The user generated content and online media is growing in leaps and bounds; however, this cannot be seen at all in the **digitalisation of cultural heritage**, despite the fact that it is the "flagship" initiative among the European Union's information society strategies. **Projects related to this area are few and far between in Hungary**, even the ones available are determined by the tender announcements and are somewhat haphazard. What is more, the material to be digitalised is enormous.

The number of electronic documents and records accessible from the **National Digital Data Archives** (NDDA)[21] is around 360 thousand. In 2006 the **National Audiovisual Archives** (NAVA)[22] saw significant development with 275 so-called NAVA-points being established along with nearly 35 thousand hours of recordings archived.

In regard to the setting up of online digital libraries, Hungary is pre-eminent and was actually one of the founders in the establishment of the European Digital Library. Furthermore, Hungarian projects serve as best practice for many international initiatives.

Hungary has the expertise and willingness, and a quantitative leap in the amount of material to be digitalised is expected in the coming one or two years; however, it will be **essential for the digitalised cultural heritage to be built into the well-known Hungarian online contents**.

Digital broadcasting: top-down revolution

A paradigm shift is taking place in the areas of communications and **media regulation**. Media, communications and informatics are converging, which resulted in the need to revise regulatory action in order to close the gap between the currently sharply separated regulation of the media and that of communications. There is no redeeming regulatory practice that Hungary could adopt. Furthermore, local current affairs and difficulties of legislation only add fuel to the problems pertaining to regulation. The various debates – theoretical and practical – over legal regulation definitely do a disfavour to the market as well as to the proliferation of a number of technologies. Therefore, a serious step forward in this area of development should be taken by Hungary not only under pressure from the EU but also because it in the country's own interests.

Similarly to many other countries of the world, **Hungary is going to switch to digital television broadcasting** in 2012. **The main social challenge regarding the transition from analogue to digital broadcasting is that an old technology will be switched off before society is ready to use the new one at its own pace.** This change entails a crucial communication process over a long period of time that the Hungarian government should start to communicate as soon as possible. Governments

[21] See: http://www.nda.hu
[22] See: http://www.nava.hu

and the competitive sector rarely take on the task of launching a full-scale communication campaign. Increased quality is in the focus of the communication, however, **it will most probably not be convincing enough for cost-sensitive Hungarian consumers**. In the United Kingdom the government and the industrial sector have been working in co-operation since 2001 to make the digital transition successful. Digital terrestrial broadcasting has a considerable past in the UK but even on this strong foundation it took six years to realise the switch in three quarters of households. **Hungary can rely on a far weaker foundation and does not have six years until the target date of going digital.**

IPTV: among the first ones

After the test periods the **first commercial IPTV service** called T-Home TV **was launched in Hungary in autumn 2006, and was one of the first launches worldwide**. The service is owned by T-Online and offers 53 TV channels and 3 radio stations. In the promotion campaign great emphasis was laid on providing information about the new opportunities the service provides, such as its menu system, the pausing and skipping back functions, etc.

The two major **obstacles** hindering the spread of IPTV services **include an inflexible TV market and the inadequacy of the applicable regulations**. Added to this is the **growing success of online video sharing community portals**. The 1.65-billion-dollar purchase of YouTube caused a stir on the IPTV market as well. Among others, IPTV service providers need to respond to these free video sharing portals by working out the appropriate business model since the easily useable and accessible free contents (although of dubious legal standing) are available via an already well-known and used platform. It is therefore expected that this issue will remain a hot potato in 2007, too.

The content industry: a utopia or a driving force?

The Hungarian digital content industry may well become crucially important in the economy. The Hungarian Patent Office annual report (the only one so far) reveals that the aggregate gross added value from copyright-based industries amounted to HUF 987 billion, equalling 6.67% of the gross added value of the national economy, back in 2002. This analysis does not extend to the entire digital industry (partly due to matters of the legal regulation), even though this is the area that shows a significant increase. **No accurate surveys have been conducted about the content industry and despite the co-operation within the industry (designing strategies, organising conferences) government support is non-existent in regard to financing and legislation.**

Hungarian digital content achieved its greatest successes in the area of providing mobile content services. The rate of growth here was 40%. Hungarian mobile content providers are already working on foreign markets; however, it is important to mention that Hungarian consumers spend an outstandingly large amount on mobile contents compared to other Eastern Europeans, an average of 15 Euros per person annually.

Education: from Sulinet Expressz to the interactive classroom boards

No more SEx

Sulinet Expressz, the program designed to support digital equipment**, ended in 2006.** We can say that the programme was a failure in that it did not realise its objective of contributing to a significant increase in digital literacy through supporting the purchase of digital equipment. Most of the purchases were made by people already in possession of ICT equipment. The circle of buyers did not expand even after changes were made to the programme; however, the range of purchasable products had been cut. Thus, the sources were primarily used to upgrade the already existing equipment. The first items taken off the list of supported products included those only loosely connected to computer use (digital cameras, camcorders, printers). Then no computer parts could be bought within the programme, only ready-made configurations. Along with this, the initial practice of refunding the whole purchase price was replaced by the introduction of co-payment as a condition for getting support.

A strange anomaly came into being: despite the supposedly fierce competition in the market, products available within the Sulinet programme actually cost more than their price would have been outside the programme. An additional obstacle in realising the programme's primary goal was that the support could only be received in the form of tax reimbursement, thus the groups that would have needed this support the most (e.g. the unemployed, those living on tax-free minimum salary) were practically excluded from the programme. As a last blow, Sulinet Expressz imposed a huge administrative burden on dealers.

The termination of the Sulinet programme marks **the end of attempts made by the ministry in charge of education to support ICT use outside the classroom**. It was also made clear that the creation of a government programme to support the mass purchase of equipment, modelled after a Scandinavian project, did not meet expectations.

Will the interactive whiteboard make a revolution?

Ever since the second half of the nineties, setting up a computer park and Internet connections have been of strategic importance in Hungarian public education, however, continuous modernisation still causes serious difficulties. The **appropriation of hardware and software financed from the normative support provided for ICT in schools** was launched in the previous school term by the previous minister of education. As the minister had hoped, this solution was not supposed to create greater bureaucracy and interfere with market competition. The aim of "ICT Development Programme in Public Education" launched in 2005 included the setting up of the ICT infrastructure in institutions of public education, the modernisation of the already existing equipment park, as well as the introduction of school administration and management software. In 2005 schools already purchased high-priced equipment worth HUF 6.2 billion financed from the aforementioned funds.

School administration and management software (together with the appropriate hardware environment) must satisfy a certain standard, and nowadays they need to be accredited. One part of the normative support for schools is specifically set aside to facilitate the introduction of such software. Another initiative was launched by the *CleanSoftware Programme*, making some free applications available for institutions of public education.[23]

[23] At present this is restricted almost exclusively to Microsoft products (with the exception of Sun Star Office 6.0) and as a result the project has drawn continuous criticism. For more information see: http://www.tisztaszoftver.hu/.

The programme entitled *Information Technology in Primary Schools* (ITPS) provided additional funds accessible through tenders. In the future the *Social Renewal Operative Programme* (SROP) and the *Social Infrastructure OP* will provide development projects to modernise technology and methodology in schools. After distributing so-called digital trolleys and digital suitcases (mobile multimedia tools) the government is planning to give out **interactive whiteboards** as part of the *21st-century School* programme of SROP. According to plans, 40 thousand boards will be provided for 62 thousand classrooms by 2010. Despite these efforts, **the overall level of IT equipment in schools is becoming increasingly obsolete, while in many institutions the available hardware and software is stored in boxes or is barely used.**

As announced by the government, information technology is not merely a school subject but it must be given a part in the development tasks and activities of all subjects. Still, existing research findings show only a very slow rate of development in the area. The *Study of School Achievement* (2005) reveals that despite the vast number of often freely provided IT training, computers are rarely used by non-IT teachers, who have a rather poor user competence and make hardly any progress in this respect.

The level at which Hungarian schools are equipped with computers is almost as high as the EU25 average. Hungary is only slightly behind in regard to Internet access too. What is more: the Hungarian level of broadband access at 77% is above the average, with the EU25 and EU15 average is 67% and 72%, respectively. At the same time, the lack of Internet access in the lowest level of education (primary school) occurs the most frequently in Latvia and right after that in Hungary. There is Internet access in 58% of PCs in Latvia and 61% in Hungary, while the EU average is 88%. The average percentage of teachers without any or minimal ICT competence is 7% in Europe, while it is 15% in Hungary. ICT use in lessons is extremely poor: **if we consider classroom teaching, ICT is used in only 18.5 % of schools. The integration of ICT tools into pedagogical work is inadequate**. All this might hint at the potential failure of the previously mentioned introduction of interactive classroom boards, unless teachers and schools can be motivated to use these tools in their day to day teaching.

E-learning: no interest in the market

The **Sulinet Digital Knowledge Base (SDKB) was piloted** in the 2005-2006 school year. The first open education contents provided by SDKB were understandably received with mixed reactions and need to be improved in many subject areas. As part of the SDKB the **evaluation system of digital teaching materials** is being developed. Since the SDKB does not provide a concrete syllabus but contents and content design options, it has become ever more important for schools to try course management systems along with the teaching materials. It is good news indeed that **Moodle**, a free, open source course management software proved to be a success. Its **popularity rose significantly** in 2006, and the first *Moodle Moot Conference* was organised in Hungary.

With the exception of the public education sector, there is little data available to analyse the entire range of formal education. It can be perceived that **Hungarian companies are becoming more willing to invest into their employees' education**. The market is growing, however, but **completely traditional forms of training**, not exploiting ICTs at all or hardly at all, **show an overwhelming dominance** (over 90%) **over e-learning**. E-learning and blended learning[24] is frequently predominantly in training programmes won through tenders.

[24] "Blended learning": e-learning, combined with traditional classroom teaching.

Summary: Hungary's place in an international context

As is well known, **Hungary is not among the pre-eminent countries of Europe in regard to building an information society**. **Our performance is rather mediocre** even in CEE or compared with the new entrants to the EU.

According to the analysis of meeting the Lisbon objectives (becoming a competitive knowledge-based economy) of the World Economic Forum (WEF), out of all areas examined **Hungary's performance is the weakest** in regard to **the information society** (ranking at 23rd place). Only Poland performed worse in the region in this regard. The league of tables is similar in other areas, too. Overall, **for nearly one decade, balancing on the verge of falling behind and catching up, Hungary has been taking the usual middle field among countries following the leaders of the pack**.

Based on what was said in the previous chapters, by international comparison Hungary's performance in each field seems to confirm this ***on-the-verge position***:

Areas in which there is no reason for concern (above average or average performance in 2006-2007)

- Mobile and landline telephone penetration.
- Proportion of broadband connections within all Internet connections.
- Price of broadband Internet connection ("raw" price).[25]
- Successful first phase of e-administration reform and catching up with Europe.
- Share of the ICT industry within the country's exports.
- Emergence of Hungarian copycats of web 2.0 services, e.g. blog service providers, video sharing etc., joining the revolution of collaborative media.
- Setting up and maintaining online digital libraries.
- Launch of commercial IPTV service, and being among the first in the world.
- Mobile content industry with Hungarian companies working for international markets.

Areas where we need to catch up (under average performance in 2006-2007)

- PC and Internet penetration in homes.
- Number of broadband Internet connections in proportion to the population.
- Average speed of broadband connections still low.
- Digital exclusion based on age, education and race/ethnicity.
- Basic provision of schools with ICT equipment (e.g. connecting computers in primary schools to the Internet).

Areas that need to be accelerated ASAP: what was neglected in 2006-2007

- Broadband infrastructure is not accessible in 1,000 settlements.
- The information society has a low priority in politics; co-operation between particular players with a determining role in developments is not satisfactory; unlike in the EU, in Hungary the area is not handled as a general development framework but as an information technology (ICT) policy issue.
- The level of digital literacy needs to be increased: the ratio of one third of the population being active while two thirds are passive should be reversed.
- The awareness of the population needs to be increased, e.g. the population should be encouraged to use e-government services.

[25] Considering purchasing power parity, the Internet is still much more expensive in Hungary than in Western Europe; however, it would be wrong to link the low wage levels in Hungary with the level of information society development.

- ICT investments and R+D – among OECD member states Hungary is lagging behind in regard to the former area.
- Harmonised e-government services need to be designed and operated.
- Use of e-signature needs to be made more widespread.
- Modern communications and media regulatory systems to meet the challenges of the 21st century need to be drawn up.
- ICT tools in schools need to be integrated into education; teachers need to be motivated to use ICTs.

All in all, **in order for Hungary to make a move in a positive direction by international comparison, an above average rate of improvement is necessary**, for which co-operation and joint projects are essential – *Recommendations*, the last chapter of the BLUE PAPER calls attention to the importance of this.

Recommendations – the most important tasks in 2007, or The information society is ours and we are building it for ourselves!

As described in the previous pages, significant progress was made in Hungary in the past year in regard to developing the information society; however, we cannot allow ourselves to view this with complacency. There is still much to be done, so Hungary should make sure that it does not exclusively look to the government to solve problems. Local governments, state and local government institutions (e.g. schools, kindergartens, hospitals, etc.), businesses, civil organisations, and even individual citizens can do a lot to use information technology in a carefully considered way so that it can improve competitiveness and the quality of life. Therefore, it is best if each of us initiate change in our immediate environment.

The following section looks at those areas where changes through co-operation are needed as soon as possible to ensure greater progress:

Internet access, infrastructure, broadband:

- Broadband Internet should be made accessible for those 1,000 settlements that are currently excluded from it.
- The digital divide across age groups, levels of education and race/ethnicity should be reduced.
- Internet penetration in Hungary must be further increased.
- Taking the example of the Bóly development project and exploiting the competences of the Broadband Roundtable, broadband model projects utilising fibre optics and made available for the greater part of the population should be launched and the right environment must be provided for anyone to build broadband fibre optic infrastructure.

Politics:

- Ministries should work out an efficient model to jointly manage and finance the information society development process.
- New projects demonstrating the feasibility of the new government philosophy should be launched.
- Partners from the business-, civil-, and academic sectors, as well as anyone affected, need to be involved in IT-based modernisation processes, such as the healthcare reform, the educational reform, and the reform of administrative systems.

E-administration:

- The reform of public administration should be continued and made into a driving force demonstrating the advantages of the information society for both the state and those using the services offered by the state.
- Partners are needed in public administration to implement reform; also needed are a critical but well intentioned media as well as proactive citizens and companies able to express their administrative needs and able to use the services of the new administrative system regularly.

Economy:

- It is inevitable that the needs of the labour market – and thus those of the whole country – be more seriously considered at public and higher education levels than before. Significantly more state support should be allocated to technical courses as opposed to communications and humanities courses that represent considerably lower added value for the national economy.

- Steps must be taken to curtail the spread of digital illiteracy. This would not only be beneficial to the market but also to the national economy, since it would increase competitiveness and the value of human resources while also facilitating equal opportunity.
- A locally as well as nationally better embedded ICT industry needs to be supported; dependence on multinational companies should be reduced and the production structure should be made strong and viable for SMS businesses.

Digital culture:

- The currently limiting media regulation must be changed. The current system was not only criticised by the EU but it actually obstructs the implementation of developments in Hungary, leading to inner conflicts since it has been made outdated as a result of convergence in services and technology. Its significance points beyond the area of (digital) broadcasting – it concerns Internet regulation and even the legal practice of how contents are managed in the information society.
- The digital switchover requires the active participation of the government, the business players with an interest in programme broadcasting, civil players in the media as well as the population. An ill designed shift can do far more harm than good; thus, in order to achieve success the population must be provided with comprehensive information.

Education:

- A quantum leap is needed in Hungarian education. IT must be freed from the "ghetto of the IT labs", which can only be realised with a continuously upgraded equipment park, tested teaching materials as well as committed and open-minded teachers and instructors.
- Pupils unable to graduate from primary or secondary school and those with a disadvantaged background are mostly lacking adequate IT literacy. The reproduction of digital illiteracy in the younger age groups must be prevented since a user level IT competence will be essential for their day to day lives and competitiveness on the labour market in the long term.

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