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The virtual dimension of higher education

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Motto: *"I believe that information technology will empower people of all ages, both inside and outside the classroom, to learn more easily, enjoyably, and successfully than ever before. (…) Improving education is the best investment we can make because downstream benefits flow to every part of society."*
Bill Gates*: The Road Ahead*

I. Introduction. The emerging virtual study environment.

Our time – the information and knowledge based society – offers new kinds of opportunities and challenges, especially since we have stepped into the 21st century, and we left behind the 20th century (both metaphorically and in reality). Due to the achievements of information society the sources and resources of knowledge and information has widened significantly. This has a significant effect on the way we learn, consequently this aspect is one of the most significant contextual factors of education in general (and of higher education – as the focus of our present discussion is that of higher education.)

Info-communication technologies are gaining a more and more important role in today's society, in almost all aspects of today's life. OECD in its year 2001 growth project report, speaks of "*ICT-driven productivity growth*"[1] as a characteristic feature of economic growth of developed world countries by the end of the 1990s. Thus the role and place of ICT in every sector can be considered as an outstanding dominant feature. When we say every sector, consequently (and emphatically) it includes education also.

Within the context of information society, education inhibits a very significant and emphatic place, as education is the unavoidable key factor to make people to be able to effectively participate in (and meet the challenges of) information society, and consequently contribute to the overall economic prosperity of their country. Information society's most characteristic feature – that of the widespread use of ICT at all spheres of lives – indicates a generic connection between ICT and education. This connection has two directions (rounding up in a circle): one is how ICT supports education, second is how education has to focus on teaching the use of ICT.

For Hungary, the revolutionary development of information technology – affecting almost all spheres of life –, the highly increased number of students in higher education, and furthermore the objective of aiming to conform to the expectations of the European Union all point toward the direction of the necessity of creating the **new model of learning** (specifically – considering the objectives of the present discussion – a new model of higher educational learning and consequently a new paradigm of education).

The present discussion aims to analyse the possibility of virtual higher education in Hungary in the context of information society and the Bologna process and in the context of

[1] OECD (2001): *Science, Technology and Industry Scoreboard: Towards a Knowledge-Based Economy*. 2001 Edition. OECD Paris 2001. pp.9.

the possibilities and tasks of Hungarian higher education in relation to informatics, eEurope and eLearning.

The interrelated nature of ICT and education results in a changing (and reforming) way of traditional educational methods and forms – at all levels of education. The changes radiate to all spheres of education: the institution, the student, the teacher, and education (the teaching process) itself change also. Jörn Witter points out the changing nature of schools and teachers in the new ICT environment: „What should schools do? Schools must teach how to use various media, even their own, in an active way, making sure not to exclude any form of media. School is the only atmosphere in which the *active and creative use of the media* can be tested and organised without pressure of time, without sanctions and without any external intention of utilization. This objective demands action-oriented forms of learning and teaching *that change the role and function of teachers*."[2]

II. Virtual study environment in higher education

Changes in the environment of education

In a changing world, in a changing society, the environment of education changes also. Factors affecting the educational context and environment include globalisation, information society and networked connections, demographic change (growth in population, and the growth of urbanisation) which contributes to the increased student number in higher education, the importance of lifelong learning. These factors, among others, constitute the context, that has an emphatic effect on higher education. As a consequence of the changed social and technological context, higher education in general and the higher educational institutions have new opportunities and challenges. Among the **opportunities and challenges**, emphatic places are given to those ones connected or **related to the use of ICT tools and ICT-, web-based technology and methodology**. As a consequence, the task of using and exploiting the possibilities offered by the ICT tools and the internet is given for the whole of the educational sphere. For higher education[3], the task of creating the model of new learning methods and of renewed pedagogy emerges.

The dimensions of *virtuality* in higher education. *The context of e-Learning, m-Learning and n-Learning*

The European Council meeting in Lisbon in the spring of 2000 accepted the ***eEurope*** initiative. This eEurope initiative and the related work-programme[4], put highlighted emphasis

[2] Witter, Jörn (2001-2002): "Media Change How Schools Instruct." In: *European Education* 2001-2002/ Winter. 10. p.10. (Cited by Czeizer Zoltán (2002): *Az oktatási intézmények informatikai helyzete és fejlesztési lehetőségei Magyarországon*. ("Informatics and the possibilities of develoipment at educatioanl insitutions.") Kutatás Közben füzetsorozat No. 237. Oktatáskutató Intézet, Budapest. p.25.)

[3] The educational context of the virtual study environment is made up of the traditional university, the model of the traditional university, the tradition of distance and vocational learning and training, ICT based and supported learning and teaching, the notion of lifelong learning.

[4] eLearning initiative (2000) "The Commission launches the "eLearning" initiative to speed the adjustment of education and training in Europe to the digital age." Press release by Commission Press Room. IP/00/234. 9 March 2000.,
http://europa.eu.int/rapid/start/cgi/guesten.ksh?p_action.gettxt=gt&doc=IP/00/234|0|AGED&lg=EN.
downloaded: 22 Sept. 2003.; Commission of the European Communities (2000): *eLearning – Designing tomorrow's education.* Communication from the Commission. **COM (2000) 318 final.** Brussels, 24.5.2000.; Commission of the European Communities (2001a): *eLearning Action Plan. Designing tomorrow's education.* Communication from the Commission to the Council and the European Union. **COM (2001) 172 final**. Brussels,

on spreading and developing the technologies of the information society on the widest possible range on the European scene, and furthermore the eLearning Action Plan (2001) articulated the European Union objectives related to the use of new multimedia technologies and the Internet.

eLearning definitions. In the present discussion, eLearning is to be defined from within the context of the eEurope plan and the related eLearning actions. The definition in the 2001 eLearning Action plan provides the contextual and conceptual basis for the related line of actions on the European level – where the objective (and basic interest) of the accessing courtiers is to conform to these the most possible[5]. **eLearning** is "defined **as the use of new multimedia technologies and the Internet to improve the quality of learning by facilitating access to resources and services as well as remote exchanges and collaboration.**"[6] The mENU project defines eLearning according to the followings: "An e-Learning environment is defined as a **system for web-based learning which covers the total architecture for e-Learning, from the e-Learning system itself to administration and management of courses**."[7] These definitions have all the key words and elements (and consequently key components) of the eLearning context: *usage, multimedia, Internet, learning, access, resources, exchange*. (It is important to emphasise and define the interpretational area of eLearning, as the term is used widespread in several meanings. Thus we are to use its widest – EU defined – sense in our further discussion and analysis.)

The eLearning initiative and the Action plan defines three main areas of objectives, which are the followings[8]:

1. *Objectives for **infrastructure***
2. *Objectives for increasing people's level of **knowledge***
3. *Objectives for adapting **education and training system** to the knowledge-based society.*

For a deeper understanding of the context of the present analysis it is important to take a look at the four main lines of actions defined by the eLearning initiative and the Action plan[9]. The four main lines of action (which are further subcategorised) as defined are the followings:

1. *Infrastructure and Equipment*
2. *Training at all levels (New skills and eLearning; Training of teachers and trainers)*
3. *The development of good quality multimedia services and contents; innovation and development (Conductive environment; innovation and development)*

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28 March 2001.; Commission of the European Communities (2001b): *Annex: Guide to related programmes and instruments. eLearning Action Plan. Designing tomorrow's education.* Communication from the Commission to the Council and the European Union. SEC (2001) 526. Brussels, 28 March 2001; Commission of the European Communities (2002): *eLearning Programme. „Proposal for a Decision on the European Parliament and of the Council adopting a multi-annual programme (2004-2006) for the effective integration of Information and Communication Technologies (ICT) in education and training systems in Europe (eLearning Programme)."* **COM (2002) 751 final. 2002/0303 (COD)**. Brussels, 19 Dec. 2002.; Commission of the European Communities (2003): *eLearning: Designing Tomorrow's Education. A Mid-Term Report.* Commission Staff Working Paper. (As requested by the Council resolution of 13 July 2001.) SEC (2003) 905. Brussels, 30.7.2003.

[5] As the eLearning Action plan formulates this, "*the eLearning initiative is also of relevance for the candidate countries given the interest they have shown for the eEurope action plan*." (Commission of the European Communities (2001a), pp.2.)

[6] Commission of the European Communities (2001a). COM (2001) 172 final, pp.2.

[7] *mENU Model for a European Networked University Report* (2004). (eLearning Initiative: no 2002-0510-001EDU-ELEARN) (on-line source: www.hsh.no/menu; downloaded: 3 April 2004) p.31.

[8] Commission of the European Communities (2000). COM (2000) 318 final, pp.6-7.

[9] Commission of the European Communities (2000). COM (2000) 318 final, pp.7-9.; Commission of the European Communities (2001a). COM (2001) 172 final, pp.8-18.

4. *The development and networking of centres for acquiring knowledge; cooperation and dialogue (virtual cooperation platform; reinforcing the European education and training networks)*

The **eLearning program plan** of the EU relevant **for the period of 2004-2006** sets – among others – the following objectives and priorities with relevance to higher education: „Universities and higher education institutions. The priority here is better integration of the **virtual dimension** in physical mobility, quality assurance and the mutual recognition schemes of the Bologna Process. The objective is to encourage the development of new organisational models for European universities (**virtual campus**) and for European exchange and sharing schemes (**virtual mobility**), building on existing European co-operation frameworks (Erasmus programme, Bologna process), and providing an **"e-learning dimension"** to their operational tools (ECTS, European Masters; quality assurance; mobility)."[10]

This program plan defines 4 main operative objectives, among which the second one is connected to the realisation and implementation of **European Virtual Campus model.** The main lines of action within this operative area are the followings[11]:

"2.1. Development of e-learning aspects of the Bologna process;
2.2. Funding of pilot projects for trans-national campuses;
2.3. Development of the new roles of universities in a lifelong paradigm;
2.4. Networking virtual campuses initiative."

Virtual University - a working definition (+ the scale of *virtuality*)

As the various ways of eLearning definition and the various approaches to eLearning already showed, on the realm of ICT and web-based teaching and learning a definition ambiguity exist, as the interpretation spectrum of the term is quite wide. The same applies to the notion of Virtual University. In the related discourse, one can find the use of the term 'Virtual University' moving on a wide scale also, consequently we can speak of the scale of virtuality (in higher education). The scale is wide (and is in accordance with the ICT support and methodology): the scale of Virtual University starts from **the level of the courses**, from electronic, ICT-based (or digitalised) study materials. (e.g. One can consider already one e-course, or a course with digitalised course material accessible on-line as a Virtual University example. This is one end of the scale.) The scale then goes through **the level of administrative (and tutorial) support** to students. Then the scale goes to the higher **level of the fully e-based courses and programs**, where the whole educational process is based on and dependent on ICT tools and ICT based methodology.

For the present discussion, it is important to give **a working definition of virtual university** and that of the virtual dimension in higher education. In the present discussion the term '*Virtual university*' is to be used in its widest sense, namely as referring to *'new possibilities in higher education deriving from the use of ICT tools and from the use of pedagogical methodology based on ICT.'*

Objectives and initiatives on the international scene (related to new technologies and to the virtual dimension of higher education) – some examples:

Initiatives on the EU scene:

- **eLearning Action Plan**

[10] Commission of the European Communities (2002). COM (2002) 751 final, pp.11
[11] Commission of the European Communities (2002). COM (2002) 751 final, pp.44.

- **mENU** project[12] (=**Model for European Networked University for e-learning**) is an EU project (financed under the eLearning Initiative) with the cooperative participation of 11 Universities form 7 EU countries. The goal of the project is the creation of ENU, the European Networked University. As the project closing report formulates, "ENU is envisaged to be a well-defined virtual network among existing traditional Universities that will provide on-line courses that are part of degree programmes."[13]

Initiatives on the global scene:

- UNESCO (1995):. Objective set in UNESCO's **1995** "*Policy Paper for Change and Development in Higher Education*":

> "Higher education institutions should make greater use of the advantages offered by the advancement of communication technologies. It is now possible, for example to integrate distance learning into more traditional study programmes without loss of quality. As a result of such developments, the distinction between distance and traditional education is becoming blurred. Alternative delivery systems are becoming an increasingly viable element in a forward-looking blueprint for higher education, especially in opening up to a new clientele and creating flexible strategies in order to overcome the disadvantages associated with the traditional organisation of studies. Co-operation with either public and/or private organisation and associations should be fostered in this respect."[14]

- UNESCO (2003-2004) – Virtual University Forum[15] (**2004**) – initiative for international cooperation.
- **GUS (Global University System)**[16] – is an initiative for coordination on the global level.

> "The Global University System (GUS) is a worldwide initiative to create satellite/wireless telecommunications infrastructure and educational resources across national and cultural boundaries for global peace."[17] "GUS aims to have its own curriculum and degree plans, but will act as an educational broker of specific courses from existing prominent universities. GUS thus benefits from not having to maintain a faculty and facilities, and the partner universities benefit from gaining international influence and access to a worldwide pool of students that is otherwise unavailable. Partner institutions thus act as regional knowledge centers to combat poverty, poor health, and socio-political isolation."[18]

International examples of Virtual University – models, model structures

Main institutional types (classification based on the UNESCO VU Forum classification[19] and Guri-Rosenblit's classification[20]):

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[12] For more details, see the mENU web site www.hsh.no/menu

[13] *mENU Model for a European Networked University Report* (2004). (eLearning Initiative: no 2002-0510-001EDU-ELEARN) (on-line source: www.hsh.no/menu; downloaded: 3 April 2004) p.3.

[14] UNESCO (1995): *Policy Paper for Change and Development in Higher Education*. Division of Higher Education, Paris. Paragraph No.76. p.28-29. (www.unesdoc.unesco.org)

[15] UNESCO (2003): *The Virtual University. Models and messages. Lessons from case studies.* (ed.) UNESCO International Institute for Educational Planning. (http://www.unesco.org/iiep/virtualuniversity)

[16] For more information, see *Global Peace Through The Global University System.* (2003) Ed.: T. Varis, T. Utsumi, W.R. Kelmm. University of Tampere, Hammeenlinna, Finland. GUS is now still in the preparatory phase, after years of planning and world-wide testing of communications technology, GUS is now ready to begin planning for academic administration. To accelerate implementation, a workshop is planned for early 2005.

[17] Utsumi, Taksehi – Varis, P. Tapio – W.R. Klemm (2003) : "Creating Global University System". In: *Global Peace Through The Global University System.* (2003) Ed.: T. Varis, T. Utsumi, W.R. Kelmm. University of Tampere, Hammeenlinna, Finland.

[18] GUS (2004): Workshop proposal.

[19] D'Antoni, Susan (2003a): *"The Virtual University. Models and messages. Lessons from case studies. Introduction."* In: UNESCO 2003. (http://www.unesco.org/iiep/virtualuniversity)

[20] Guri-Rosenblit, Sarah (2001): "Virtual Universities: Current Models and Future Trends." In: *Higher Education in Europe*, Vol. XXVI, No. 4, 2001. p.487-499.

Type	Example
• Newly created institution operating as a virtual university. New technology-based university;	• UNITAR Univeristi Tun Abdul Razak (Malaysia)
• Open universities; Single-mode distance teaching university;	• Athabasca University (Canada); • Open University (UK)
• Evolution of an existing institution, with a unit or arm offering virtual education. Dual- and mixed-mode universities;	• Universidad Virtual de Quilmes, UVQ (Argentina)
• Extension systems;	• *(American model – extension division of American Universities: courses for adults, courses mainly in the domain of continuing education and professional upgrade) (USA)*
• Consortium of partners constituted to develop and/or offer virtual education. Consortia type ventures;	• L'Université Virtuelle en Pays de la Loire (France) • Finnish Virtual University (Finnlnad)
• Commercial enterprise offering online education.	• NetVarsity (India)

Virtual University – key issues and key questions

- Quality assurance
- Accreditation
- Digital study material, Digital library and resources, Digital content
- The issue of language, the issue of crossing borders

- The issues of creation, coordination, operation
- The issue of financing
- Cooperation (at national, regional and international levels)

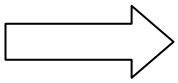
- The technological, IT infrastructure and background
- Open source
- The issue of standardisation

- New pedagogical paradigm
- The methodology of individual learning
- The limits and obstacles of virtual education
- The personal presence, face-to-face contact (blended models)[21]

[21] For example a UK research on students' experience in studying in a virtual campus program concluded, that „students (…) reveal a continuing desire for face-to-face contact so a skilful mixture of open learning, distance learning and face-to-face contact and tutorial support would seem an important proviso in the progression to further use of ICT in HE [Higher Education]." [Research conducted at Sheffield Hallam University, UK] (Monteith, Moira – Smith, Jan (2001): "Learning in a Virtual Campus: The Pedagogical Implications of Students' Experiences." In: *Innovations in Education and Teaching International*. Vol. 38, No. 2. (May 2001) p126.. Another example can be presented in this respect from the case of UNITAR, Malaysia's newly created, on-line university (created in 1995), where one of the most important lessons learned is that "a virtual university need not be without a 'campus'. Social interaction is necessary for students." (Alhabsi, Syed Othman – Hakim, Hasnan (2003): "University Tun Abdul Razak (UNITAR), Malaysia." Case study. p.33. In: UNESCO 2003. (http://www.unesco.org/iiep/virtualuniversity))

Changes & shifts:

- Technology, infrastructure
- Content
- Methodology (of education and of learning)
- Educational structure



Paradigm shift (new pedagogical paradigm)

III. Hungarian context

Hungarian higher education has gone through a **major re-structuring and fundamental changes** since the political changes of 1989. There have been major changes both in institutional structure and in the number of students participating in the educational programs of higher educational institutions.

Growing number of students is one of the most significant feature of Hungarian higher education. Since 1989/1990 the number of higher educational students have more than tripled. While **108.376** students were enrolled in higher education in the year of 1989/1990, this number grew to more than 400 thousand (to **409.572**) by the year of 2003/2004[22]. This enormous growth in student number has a fundamental effect on all levels and spheres of higher education (from structural, organisational till financial elements). This trend in higher education is called the *'massification'*[23] *of higher education*.[24]

Given the present state of Hungarian higher education (with mass number of students in HE, with a high percentage of students being enrolled not in the traditional full-time education,[25] and HE institutions struggling with dealing with the mass number of students, it follows that infrastructural support is need for these mass numbers. One of the solutions for higher education in general if the virtual dimension of higher education is created and strengthened. For the virtual dimension ICT supported study places are necessary for students (either at their homes, or in learning centres). Such places shall be considered places from where students (emphatically those not in the full-time educational form) could communicate with their institutions and where the ICT based study process might also take place. If the

[22] Ministry of Education (2003): "Gyorsjelentés a 2003/2004 tanév statisztikai adataiból. 2003. dec. 5." ("Preliminary report on the educational statistical data of the year 2003/2004.") (www.om.hu)

[23] When using the word 'massification', the connotations of Alvin Toffler's famous work (The Third Wave) is applied, in which he uses the word 'de-massifying', when speaking for example of „De-massifying the Media". (Toffler, Alvin (2001): *A harmadik hullám*. Információs társadalom A-tól Z-ig. (transl.: András Rohonyi). Typotex Kiadó, Budapest.)

[24] On the 'massification' of higher education see: Conference lectures and professional debates at the III. Hungarian National Pedagogical Conference at the Hungarian Academy of Sciences, October 2003. (Abstracts in Buda, András – Holik, Ildikó (ed.) (2003): Az európai tanulási tér és a magyar neveléstudomány. III. Országos Neveléstudományi Konferencia. October 2003. Abstracts. Hungarian Academy of Sciences, Budapest. ("The European learning area and the Hungarian pedagogy. The III. Hungarian National Pedagogical Conference.")); Barakonyi Károly (2002a): „Bologna folyamat és modernizáció: Miért szükséges a felsőoktatási rendszerváltás?" Manuscript. „Az alapképzési és szakirányú továbbképzési szakok képesítési követelményeinek és az alapképzési szakok indításának elveiről" c. kutatás II. szakaszának zárójelentése. 2002. October. http://ttk.unideb.hu Downloaded: 17. Sept. 2003.; Hrubos, Ildikó – Szentannai Ágota – Veroszta Zsuzsanna (2003): A "bolognai" folymat. Az európai felsőokatási térség gondolatának megjelenése és a megvalósítás esélyei. Oktatáskuatató Intézet és Új Mandátum Könyvkiadó, Budapest.; Dinya László (2002): Egységes európai felsőoktatási tér: cél vagy eszköz? I. rész. In: Magyar Felsőoktatás. 2002.09. p.23-25.; Lukács Péter (2002): Tömeges felőoktatás – globális versenyben. In: Magyar Felsőoktatás. 2002.1-2. p.27-28.; Font Mária (2000): A Magyar felőoktatás és Európa. In: Magyar Felsőoktatás. 2000.10. p8-9.

[25] According to data from the Ministry of Education, considering the whole student population in higher education, more than 45% of students is enrolled not in full time education. In the freshman year, – according to the preliminary data of Y2003/2004 – 44% of the students are enrolled to non-full-time higher educational forms.

new, emergent (ICT and web-based) forms of higher educational participation is supported and encouraged (e.g. distance learning, eLearning, virtual universities, etc.), then not only the educational form from the side of the educational institution should be created, but the infrastructural needs and necessities emerging on students' side should be significantly taken into account.

IV. The possibility and objective of virtual higher education in Hungary

eCampus Research Centre

eCampus Research Centre – governmental initiative, program coordination on the national level
(eCampus Research Centre, as the coordinator of the Hungarian eCampus Program initiated in 2004 by the Ministry of Education and by the Ministry of Informatics and Telecommunication)

- The eCampus Research Centre – on the field of higher educational IT & ICT application – **conducts general national (nation-wide) research programs**[26] **and initiates, co-ordinates nation-wide projects**, and furthermore supports the general and wide-spread domestication of ICT based learning and teaching culture, of the **new pedagogical paradigm.**
- In the course of its research and project coordination activities, the eCampus Centre opens towards further, related themes, and initiates further research and coordination programs in these themes also.
- With the results of its activities, eCampus Research Centre supports the whole of Hungarian higher education in integrating into the information society, into the European Higher Educational and Research Area and furthermore into the global higher educational context.

eCampus Research Centre. Objectives in relation to ICT and higher education (on the national level, in Hungary)

- Supporting and encouraging the exploitation of the possibilities offered by ICT and the general and wider usage of ICT in Hungarian higher education – a goal being generically connected to the European Union eEurope and eLearning objectives and programs (and furthermore connected to the Hungarian higher educational credit system, to the results of the development process of the intelligent student ID card and to the goals of the Hungarian higher educational reform program).
- Creating the possibility for the emergence of ICT based best practices, and supporting the wider usage and application of these best practices (on the European Union and the global international scene as well).

[26] "ICT is having a marked impact on the way higher education is delivered. (…) It provides the scope to improve quality and to reduce costs in the future and the potential is great, but implementation requires investment is terms of time, thought and resources in the short term," thus theoretical, research based foundation and continuous support for such a national program is necessary for reaching the objectives. This is important thought to be considered when drafting the steps and strategy of bringing the virtual dimension of the Hungarian higher education to full potential. The citation comes from Viviane Reding, member of the European Commission, responsible for Education and culture. (Reding, Vivane (2003): "The Global University System and the European Union." In: *Global Peace Through The Global University System.* (2003) Ed.: T. Varis, T. Utsumi, W.R. Kelmm. University of Tampere, Hammeenlinna, Finland.)

- Conduction of research and program co-ordination related to how existing Hungarian universities might operate as Virtual Universities (as digital, virtual campuses) and furthermore supporting and encouraging the creation of a regulatory administrative system which makes possible that higher educational institutions might operate as eCampuses and the courses are accredited similarly to traditional courses.
- In the course of its research and project coordination activities, the eCampus Centre builds upon the results and experiences of the already existing and previous initiatives and programs. *(For example on the already existing Virtual University initiative in Hungary, the UNIWORLD project (started in Hungary in 1997) as a virtual university initiative, which now operates as an open university and is run by the 'Institute for Philosophical Research (of the Hungarian Academy of Sciences)'.)*

Main areas of activities of the eCampus Research Centre (research and project-coordination) are the following:
(I.) Research: (1) Higher educational pedagogy and ICT applications. ICT based learning and educational culture, as a new pedagogical paradigm (in Higher education). Nation-wide data collection analysis and research. (2) Research targeting a more generic and wider use of ICT in higher education and scientific research. (3) Continuous monitoring data collection (and the analysis of the data) regarding the use of ICT in higher education and the physical ICT infrastructure.
(II.) Project-coordination: (1) Digitalisation of higher educational study materials. (2) „Central and Eastern European Clearinghouse for Educational Software". (3) eLearning and distance learning in higher education (research and development of study material). (4) Information culture – a new higher educational subject (modules). (5) The Hungarian Virtual University.

One of the important objectives of the eCampus Research Centre is the participation in the realisation of (certain action areas and specific objectives of) **eEurope** and **eLearning action plans**. The first of the four main lines of action in the eLearning actions (as analysed above) is related to infrastructure and equipment. Some of the measure drawn by the EU in these fields provide an opportunity for eCampus Program to develop these areas and to become a possible pattern (or model) embodiment of these measures. Within this line of actions, the following areas are the ones where eCampus focuses its activity and sets its objectives:

1. **"*Research into, testing of and forward studies on new learning environment.*"**[27] Fostering the realisation and implementation of the new learning environment. The opportunity lines in blossoming of this concept within the context of Hungarian HE.
2. **"*Virtual models. The concept of virtual campus; the new prospects for European universities; (…) virtual networks for cooperation and collaboration.*"**[28]. eCampus may have the potential to coordinate the development and the implementation of the Hungarian Virtual University model and program and furthermore the participation in international network projects and programs.
3. **"*Taking account of individual differences in learning, and special needs education. (…) To help disadvantaged people use ICT to learn (e-Inclusion).*"**[29] The concept of equal chance inhibits and important place in the founding

[27] Commission of the European Communities (2000). COM (2000) 318 final, pp.9.
[28] Commission of the European Communities (2000). COM (2000) 318 final, pp.9.
[29] Commission of the European Communities (2000). COM (2000) 318 final, pp.9-10.

philosophical principles of eCampus. There is already a lot done on this filed (for example special software developed for blind and vision disabled people) to provide the ICT based services for disabled students also. The opportunity – with respect to this measure - lies in both spreading the idea (the model) for other educational institutions and in exploiting this possibility further.

An institutional example (HIK)

Farkas Kempelen Student Information and Resource Centre (HIK)[30] is an important **Hungarian ICT based learning centre example**. One of the uniqueness of this ICT based learning centre lies in the fact that it is not an institution of one of the universities, but it was set up (and is financed) by the government, by the Ministry of Education. One of the underlying ideas is to give support to all higher educational students, regardless of their field of study or of their institution.

HIK is a new[31], high-tech service centre for Hungarian higher education, a new centre for higher educational scientific and research activities, providing wide range of Info-Communication Technologies (ICT) based services (and as such is to be used as a testing and exploratory field for emerging topics in relation with the role of ICT in education and especially in higher education). **New genre of institution with innovative feature and profile.** The 'genre' of HIK can not be easily and unambiguously defined, as this type of institution was previously non-existent in the Hungarian higher educational institutional texture. Even though fully similar institutions are non-existent in the EU and in the US (in the sense that such an institution serves all participants of higher education regardless of their fields of study and of their institution), but one can find similar institutions (service centres)[32] connected to one or the other specific, individual universities or colleges – mostly based on (or deriving from) modern technology based libraries.

The objective of the institute is to promote to the introduction and spreading of the **ICT based learning** in Hungarian higher education. As such, the institute aims to take on a pioneering role in the formation of the **new learning environment**. Important objective of the institute is to introduce and 'domesticate' **the parallel and equal use of paper based and digital sources and resources in the course of learning and research**. At HIK, higher education students (professors and researchers) have the possibility for acquiring the skills and competencies related to digital literacy and to the effective usage of new ICT, and they also have the possibility for discovering the internet as a new medium for learning.

HIK has the potential to serve as a model institution with many respects: for example for providing solution to the 'massification' of higher education (e.g. background support for students in part-time, distance education, etc.): As the structure of higher education has been changing with a shift away from traditional full time education being significantly dominant, and with the appearance of mass number of students in higher education, higher education institutions struggle with these mass numbers. HIK shall provide background support for students in part-time, distance education, etc. HIK has the potential to become a model for new learning environment (suitable for the challenges of 21st century).

[30] For more information, see www.hik.hu.
[31] The institution opened in January 2003.
[32] The **City Learning Centres** (Excellence in Cities (EiCs) program) in Britain, **Open Learning Centres** in the Netherlands or **Learning Café** (Glasgow Caledonian University in Scotland, www.realcaledonian.ac.uk) can be considered as something (remotely) similar or resembling to the concept of HIK.