



Leonardo da Vinci WBT WORLD,  
RO/02/B/F/PP 141053



*WBT Need Analysis Report - Hungary*  
*Issued by: Infinity Ltd., Budapest*

## National WBT Needs Analysis Report





Leonardo da Vinci Pilot Project WBT WORLD, RO/02/B/F/PP 141053

**Infinity Ltd.**  
**Budapest, Hungary**

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## I. Analysis results in Hungary

Dr Ottó Hutter is a well-known representative of e-Learning in Hungary. His organizational activity exerted in the field is unique. It is under his leadership that the committee with the aim of endeavouring the standardization of e-learning was established. Similarly, the professional lecture-series introducing the developments in e-learning - in which Dennis Gábor College played an important part - is to be attributed to him. A recent result of Dr Hutter is the fresh publication of the first trade-book of the e-learning branch in Hungary, in Hungarian language, with the title „e-Learning 2005”. Publisher: Műszaki Könyvkiadó.

According to an interview with him by Checkpoint eLearning in the summer of 2005, he describes the trends, future and standardization of e-learning. In his opinion e-learning is more focused on the future than the present, and it is shifting more and more towards content development. Presently it is already the case in the vocational sector because the development of the infrastructure is concentrated on a few multinational suppliers of learning platforms. For the majority of the national suppliers of e-learning the introduction in the business sector can mean a limited business field, opposed to the content development. This may also lead to cooperation between international and national suppliers. At the present time all participants in the scene are just waiting for the already implemented learning platforms to be filled with content.

### 1. Interview with experts

Three experts of e-learning and web-based learning gave us interview:



- Andrea Balogh (AB), SZÁMALK
- Leslie Simonfalvi (LS), International Language School
- István Simonics (IS), MTA SZTAKI

#### 1.1. General Aspects

The experts stated that the **degree of development of e-learning** is medium and developed in Hungary.

All of them considered e-learning as a modern, interesting and a good possible direction of education. Mr. Simonfalvi wanted to add extra dimension to his students’ learning since many of them represent the gadgetophil student. In his opinion teacher can be the stumbling block in the students’ learning life, if e-learning cannot be built into the teachers’ practices. The driving forces are helping both the learning disabled student and the teaching disabled teacher. Mr. Simonics was interested in technology in education. He even teaches Education Technology. For the developing this type of education and learning he had good background of technical infrastructure.

As **best practices** they mentioned the following examples:

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LS: Net English: the best combination of learning in groups and learning online.  
Teacher Training: Training for the Diploma in TESOL (Teaching English for Speakers of Other Languages)

Training for EDSOL: Extension of Distance and Supported Open Learning.

AB: e-democracy in Estonia, where all the public sector is e-based. It is a useful idea for every country.

IS: As good examples he mentioned some higher educational institutions, such as : Széchenyi István University, Eötvös Loránd University of Sciences, Eszterházy Károly College, Kölcsey Ferenc College, Humán Fejlesztő és Módszertani..., ZMNE, Győr, Számalk, Gábor Dénes College

All of the experts expressed that e-learning is a good opportunity for disabled persons. According to Mr. Simonfalvi challenge is to combine joyful learning in groups with tailor-made e-learning for the Dyslexic, Dysgraphic, Dyscalculic, ADHD, hyperactive, Hypoactive, Concrete Child, Asperger Syndrome Student, Semantic-Pragmatic Syndrome Student, and the Physically Handicapped Student.

MTA SZTAKI had a group of distance disabled workers who were dealing with content development. Presently it is in commission.

The Hungarian Association of Disabled People is organising ECDL courses for the disabled.

As obstacles they mentioned financial constrains, standardization and even technical incompatibility in the different systems. Now this is not a problem any more.

According to **organizational issues** Mr Simonfalvi is working alone and he coordinates his project and the development of his business on himself. Miss Balogh emphasized that support from the leaders and the proper motivation of the employees (teachers) is very important in this issue. Mr. Simonics trust in an excellent team-work, where tasks are shared.

As for the **criteria used for on-line courses quality assurance** Mr. Simonfalvi answered that he uses External Examinations as tests for Quality and the 95 percent pass-rate is the best assurance of the quality. Miss Balogh's opinion is that for good quality assurance the teacher must at least once a day visit the course and give his/her help. On Forums questions can be forwarded to the teacher and he/she must answer them within 24 hours. According to Mr. Simonics the informatics expert has leading role: he gives rights to developers, teachers, and students. His tasks must always be well defined.

## 1.2. Content Elements



*Question 10:*

*Do you consider that in e-learning systems it comes out the tendency to develop relations among learners which are close and express emotions / have emotional intensity?*

LS: In e-learning the emotional attachment of trainees and tutors can be as intensive and as positive as in face-to-face learning of in real groups

AB: life on Forums is lively; it is a good tool of keeping in touch, as well as FAQ, which is also a search opportunity. It gives answers for both simple, and technical, administrative questions. Students like Forums more than chat.

IS: Usually strong relations are formed among students through chat-groups, forums. These can and must be moderated by the teacher

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*Question 11:*

*Do you consider the e-learning system develops creativity and critic spirit, or, by contrary, these characteristics are inhibited?*

LS: Creativity, Critical Thinking, and Innovation are all present in e-learning courses

AB: This type of e-learning demands active participation, it improves personality, needs inaugurate attitude. It offers an opportunity to improve people's lives. Personal motivation is of course fundamental.

IS: It surely gives critical approach. Traditional communication will decrease; b-learning can be a solution.

*Question 12:*

*Based on your experience, please describe if you noticed that the relations among learners were continued also after finishing the course? Had they developed a knowledge community?*

LS: Trainees frequently form SIGs [Special Interest Groups] both during and after their courses and tend to keep in touch with peers.

AB: has no insight in this issue. Perhaps it happens if the graduates form a web-page on a common field of research or interest.

IS: Good relations are very important, students' contact is useful during the course.

*Question 13:*

*Which of the following learner typology seems to dominate the e-learning system?*

- *People with interest in evolution, new achievements, modernity*
- *People with interest in developing social relations and in belonging to a closed group.*
- *People with interest in a degree achievement*
- *People who are frustrated by the real experiences and are looking for a space for creativity*
- *People for which the integration in the real space is difficult.*

LS: Students in the last three points dominate

AB: People in the first three points dominate

IS: Only the first type of students dominates.

*Question 14:*

*Have you noticed (Please explain) the process of developing the rules among the learners in e-learning system?*



LS: We start the cooperating by creating Ground Rules that apply both for Trainees and Tutors.

AB: question not understood

IS: There are belongings to the system. These are for example: developing curricula, navigation. These are improving.

*Question 15:*

*Have you been in the situation to follow the professional line of the persons who graduated e-learning system?*

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LS: Many of them have become colleagues over the years

AB: In case if they have website, or they are an organisation within an organisation, or if students will become teachers, or they have active university life

IS: It is now beginning to formulate officially. Presently Students' Interest Groups play important part in it.

*Q16:*

*Considering the comparison between the traditional and e-learning system, do you consider that the professional success is correlated with the system type that was firstly graduated?*

LS: No.

AB: There is no coherence between the two. E-learning is not really wide-spread in Hungary.

IS: Acceptance of e-learning – except for Denes Gabor College – is not at good levels. National Committee of Trainings is not interested where one acquired his/her diploma. That is why b-learning is good solution.

### **1.3. Institutional Aspects**

*Question 17:*

*Have you been involved in transnational collaborations for developing / implementing an e-learning system? If yes, please explain problems you were confronted.*

LS: Yes. We have had no more problems than at home in Hungary. The key to success is a very clear rule in communication

AB: Introducing the system ILIAS, a German development in Hungary due to translation, lack of Hungarian language learning materials, etc.)

IS: There were more Leonardo programmes in which we participated. Partner-relationship, trust and respect of each other are the three main important points in international cooperation.

*Question 18:*

*Do you consider that there are differences among countries concerning the e-learning system approach? Please exemplify and explain such differences.*

LS: I have no insight into this problem

AB: Yes, there are differences. Estonians: take it seriously, USA: e-learning gives university diploma



IS: Yes, there are. Greece has problems with wideband Internet and accessibility at home. It depends on what is technology circumstances does a country have.

*Question 19:*

*Please assess the e-learning development in EU. Please describe the directions for the e-learning development in EU.*

LS: I have limited experience and have only recently formed a 5-nation Consortium. Only the future can tell

AB: EU gives support for this

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IS? Development is quick: directions like syllable-compatibility, tools, mobile-learning, Ubiquitous-, Integrated –Mobile- and Technology-learning are developing.

*Question 20:*

*Please exemplify if there are legislative aspects influencing the e-learning system.*

LS: We have experienced discrimination but mainly about Courses of Foreign Origin rather than discrimination against e-learning.

AB: Copyright does have effect on e-learning. Teachers don't want to make their learning materials published. It should be regulated in employment contracts.

IS: Property rights, copyright of learning materials. Databases for learning materials would be important.

*Question 21:*

*Do you consider as necessary launching legislative initiatives at European level meant for driving an integrated public policy for the e-learning issue.*

LS: I think that it is absolutely necessary.



AB: It is useful. "The content is king." SCORM is a tool for standardization and for compatibility.

IS: It already exists: I-2010.

## **2. Results of the poll on web-based trainers' needs and competences**

Regarding pedagogical competencies most WBTs agreed with the model and chose E-tutoring as the most relevant area, as it is the real bottle-neck and it is a very new area in Hungary; teachers have little experience in leading a course, they need to get accustomed to this new form of education. They consider both IT competencies (use multimedia equipment in communication and Develop interactive multimedia content as less relevant issues. The reason is that software for developing content, especially SCORM compatible content is very expensive. Also, teachers have to cooperate with developers, which is a time consuming task. On the other hand, this field develops and ages so fast that today's high-tech will be a collectors' item tomorrow. As other elements to be involved here they suggest compensation plan, as teachers usually don't take up this enormous amount of extra work for free, they need to be paid somehow (e.g. tutoring hours as classroom hours). Others put heavier emphasis on the group –factor (i.e. socio-psycho-dynamics), and also on the equisition – horizontal learning.

Of Instructional design experts' opinions are different: some of them consider Designing the course syllabus as most relevant element, as it is important how the existing material can be inserted in an e-learning framework, others think Training needs analyses is the most important, however it is by no means complete. A complete client mapping is needed. Trainee's wants have to be known besides the needs. First wants must be recognized then needs must be served. Training needs analysis is also considered as less relevant, as it is obvious what needs to be taught. Others votes for Designing the instructional strategy as less

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important, since it is totally dependent on the trainees' present learning strategies to start with, and even later it is partly dependent on the trainees' development areas in learning strategies.

Experts agree that the model of the Development of the web-based course, however, their opinion is different also different: Course maintenance is considered as most relevant, and teachers need to learn how to manage the course and the students, and they also have to do it on a regular basis, checking the course at least every other day, answering the questions if there is a forum. Others think Developing the course content is highly competitive field and the half-life of most fields of instruction/learning is getting extremely short. Here course maintenance is considered as less relevant as it is a relatively static element. Often maintenance is the opposite of development. Also, Designing the course content is less relevant since it already exists.

In Evaluation System there were opposite expressions too. Meta-evaluation caused problem in understanding. Web-based course evaluation is both important, as it requires quite a lot of work, creating the tests, defining the grades, percentages, and it is also not important, but due to the different character of the organisations mostly. Evaluation design is considered as important element and within it individual trends are considered stronger rather than across-the-board comparison of different trainees.



In E-tutoring Virtual group management and Facilitating learning are considered as most relevant components. The former one because both the teachers and the students have to get accustomed to this new way of learning, the latter plus Facilitating the development of the students' personality are because these are strongly needed in e-learning. WBTs mostly agree that Developing own career is important but not in this context. It is not part of the E-tutoring competency.

In developing interactive multimedia content due to creating digital content especially SCORM-compatible content is time consuming and expensive Text and data processing and multimedia processing are the most important as well as course implementation, since a great deal depends on it, e.g. the trainees' satisfaction and/or mental-spiritual comfort. Programming is considered as less relevant, as it can be best delegated to other experts, and for a WBT it is not needed.

Experts agree that both Hardware equipment use and the use of Internet tools for communication are important compounds the model of the Use the multimedia equipment in communication. They cannot make a ranking here.

As WBT's attitude could be supplemented with pro-activity and initiative to use the new technology; as well as empathy and emotional resilience. Experts consider sympathy to the others is not so important. It can only serve as a starting point of empathy, which is much more important.

Experts say a 60-100 hour facilitator-mentor training brings out both the scopes and the limits of the e-tutor. They consider it is necessary to test the WBT's attitude.

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## 2.1. Questionnaire of web-based trainers' needs

### E-learning experience

Web-based trainers participating in the survey have rich experience in the field of e-learning with 3-12 years.

They would share their experience in the fields below:

- Pedagogic competencies
- E-tutoring competencies
- Managerial competencies for implementing a new e-learning system
- Plus: Teacher training

### E-learning difficulties

As difficulties they named administrative, technical, legal, cultural, didactic/pedagogic problem completed with time management issues for the trainees and financial problems for the training agent.

Within administrative problems they had difficulties in the lack of interest regarding e-learning education and the human resources strategy.

Within technical problems non-proficient equipments and hardware-software incompatibility means difficulty.

As legal problem they named juridical aspects regarding the copyright.

Among cultural aspects they mostly have differences in the representation differences among cultures, regarding educational aims and learning process and the teacher-student relation.

In pedagogical aspects they confronted problems in understanding the terms and use the specific language, in applying knowledge into practice, and passing from traditional pedagogy to e-learning pedagogy.



## 2.2. Educational needs: thematic areas

### Instructional design

WBTs expressed their opinion as identifying constraints and risks regarding web-based courses, establishing the objectives of the web-based course, establishing the instructional strategies specific to e-learning, integrating evaluation in the course scheme, plus taking the trainees' learning strategies into consideration.

### Web course design

WBTs in Hungary would like to be detailed in structuring and organizing the scientific content, developing and integrating all the elements (information, applications, self-evaluation, and multimedia) in an educational unit and presenting the same message in different forms.

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### **Evaluation system**

They would be more detailed in establishing the evaluation aim and the learning objectives to be evaluated, developing the items to evaluate the learning results, analyzing the results of the different aspects of the evaluation, plus: evaluating individual trends aim development rather than across the board comparison of trainees.

### **E-tutoring**

WBTs chose the virtual group management, facilitating learning, and facilitating the development of the students' personality, plus: Emotional resilience of both the tutor and the trainees.

### **Developing multimedia interactive resources**

Using specialized software for text and data processing, multimedia processing (creating graphic elements, audio-video, animation), implementing web based course, plus: considering the special needs of the LD trainees (learning disabled – learning difficulty – learning difference), SCORM learning material structuring software are the most demanded fields.

### **Using multimedia equipment in communication**

Experts would be more informed in using communication tools, using hardware and software equipments for data transmission.

### **Educational needs: training**

WBTs would improve themselves in pedagogy of differences, tutoring, pedagogy for e-learning, the psycho-pedagogy of special needs people, plus: socio-psycho dynamics of virtual groups.

Within these they are interested in Information technology in education, using the Internet and web-site management, graphic and animation tool, educational software and the use of weblogs in education.

### **Educational needs: training in related fields**

Most of the experts think it is necessary to approach other fields like intercultural communication, organization and management theory and the virtual community functioning.



They are highly interested in the web based training of disabled persons, and would like to be more detailed in disabled persons and their needs, specific training methods, socialisation of handicapped and LD trainees.

### **Virtual community**

Most of the persons asked are members of a virtual community, and use each communication tool listed in the questionnaire.

Most of them prefer English for the e-learning activity.



### **Information needs**

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In general they would be informed on best-practice e-learning and knowing the tendencies in e-learning, while they are interested in Educational software, studies, articles, research, synthesis, conferences/scientific congresses as specific pieces of information.

**Attitudes**

They think each of the listed attitudes defines a WBT.

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## II. Policies and initiatives for supporting e-Learning in Hungary

According to Mr. Hutter, only few big e-learning projects can be found in business education. The government supports big projects for content development but because of a complicated process of grant and substantial administrative costs few companies are able to take them up. The smaller companies can access those project orders only as a sub-supplier in a very limited, special area at dumping prices.

It is said that governmental projects set irrational regulations, and also the extremely extended decision-making phases are problematic for the suppliers.

Regarding standardization in Hungary standardized content development is emphasized strongly. So specialized forums, as well as practice-oriented projects especially focus their attention on the SCORM compatibility. Apart from some Hungarian learning platforms, the biggest part of the learning platforms used in Hungary is SCORM-compatible. In the commission of the Ministry for Information and Communication, a professional recommendation for the use of e-learning standards has been elaborated, and after the relevant democratic processes have been exercised, a governmental guideline is expected to be evolved.

For the university sector there is already a central content pool where the universities and colleges can collect their own SCORM compatible contents within an NIIF (National Information Infrastructure) Development Project.

On the webpage of the Ministry of Informatics and Communications the Hungarian programmes are published:



Over five thousand end points have been installed as a result of the **"Közháló" (Civil network) program, the total value of investment being HUF 4 billion.**

In the **eHungary** programme 2004 communal endpoints have been installed by 01, May 2004.

### 1. Strategic Areas of the Development of the Information Society - "e-programmes"

The vision of an effective and competitive Hungary requires the electronization of the economy, culture, communal services, major supply systems and the other spheres of society. In addition to the electronization of contents and services, this requires adequate knowledge and an infrastructure that is capable of providing the underlying services.

For the purposes of improving the country's competitiveness in the area of information communication, through the elimination of regional differences in the entire territory of the country, the number of communal access points have been increased, and by utilizing the results of the information society the development of a truly service providing state that equally serves the disadvantaged strata of society was promoted.

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In the following, firstly the most important **general and social tasks** are presented regarding the creation of an information society in Hungary, that determine the **sectoral responsibilities** essential for the attainment of this objective, and shall finally summarize the **most important objectives** to be achieved by 2006.

## 2. Social Responsibilities

### *e*World

This term refers to a combination of the two perhaps most important areas of transformation, the economy and culture. No competitive and efficient economy can exist today without the rapid, mass, day-to-day utilization of information and the wide-spread availability of IT equipment and services. However, as has been proven in a number of countries around the world, in addition to the pace of economic transformation, the success of transition towards the information society greatly depends on the extent to which a society is prepared culturally and the experiences on the basis of which the vision of the information society evolves in public thinking.

By European standards, the lack of knowledge and trust in relation to the Internet and the resulting lack of interest are particularly significant in Hungary. During the period to come, the Government will have to take organized, coordinated and manifold measures to convince society of the benefits of the information society and electronic services and of the impact of information communication technology on living standards and the day-to-day life of various social groups and localities. A social strategy conveying a highly coordinated, extensive and coherent message alone is capable of presenting an attractive and clear vision of the future: Hungary wishes to join the “winning team” through the successful construction of the information society, and the smaller communities, localities, families and individuals, too, must grasp this opportunity.



The Hungarian information society is a human and inclusive e-world which offers a chance to everyone. It offers new means for human communication and minimizes the restrictions imposed by distance, time and money. The successful implementation of e-programmes also depends on whether we succeed in communicating to society this human face of the eWorld and the related positive expectations.

## 3. Incorporating the individual sectoral strategies, HISS serves to promote this objective.

### *e*Democracy

*e*Democracy means a politically advanced Hungary which is attainable through the electronization of the state and local government institutions and communal services.

Once transferred to an electronic space, the transparency, controllability and accountability of democratic institutions will increase considerably. Our objective is to ensure that the work of the democratically elected bodies is based on the information communication structure and

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the knowledge afforded by the structure, as a result of which their work may become more effective and their decisions more professional.

The required infrastructure is partially available in the area of state administration, however, there is a lot to make up for in the field of contents and services. The basis of eDemocracy is unrestricted access to public information and the possibility of continuously tracking the work of the government, local government and other democratic bodies.

By way of electronic communication, an interactive relationship may evolve between the political elite and the public interested in politics. Referenda and various forums may help the work of the elected representatives in local matters. It would be possible to view documents, to keep track of the decision-making process and to enforce various civic initiatives. The implementation of the objectives set in this area is not primarily a problem of a technical nature but is almost exclusively a matter of authenticity and security.

**The wide-spread application of electronic signature has therefore become an urgent matter for citizens and organizations. Finding a solution to the reliable verification of the quality and security of networks and IT applications can no longer be delayed either.**

#### **eChance**

The opportunities offered by the information society offer an unparalleled chance for creating new social justice through which the former injustices of a structural origin could be reduced.



The information society may only become reality if the digital gap stemming from the differences dividing society on the basis of regional, ethnic, age, gender and status categories is reduced and social cohesion is reinforced. In the interest of bridging the “digital gap”, the State must launch programmes through which every one of its citizens may acquire IT knowledge; may learn to use computers, may acquire the skills necessary for the application of software and may become capable of using the opportunities offered by access to information (and in particular, information accessible via the Internet).

Manifold and determined efforts must be made to enable the Romas and other disadvantaged, isolated or handicapped social groups to reduce their handicap by using the opportunities offered by the information society. They need special means, the acquisition and operation of which requires not only training but also ongoing financial support.

**To this end, a plan of action must be formulated to help social groups that are disadvantaged from an informatics point of view and are falling behind from the respect of the information society with catching up, and to reduce the digital gap.**

#### **eGeneration**

The implementation of the information society’s strategy fundamentally depends on the affinity of the various generations towards informatics which, in turn, primarily depends on their knowledge of informatics. It is therefore no coincidence that the information society is often characterized as being “knowledge-based”.

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A great deal depends on the generation just beginning their adult life or just entering the labour market. The infrastructure of information communication and the knowledge conveyed by the new medium are natural to them. From the kindergarten all the way to higher education, every pupil and every student must be given a chance to acquire digital literacy and thereby become a value creating citizen that forms part of and actively contributes to the digital culture. In this area which will greatly influence the future of the nation, attainment of the EU average is the minimum goal.

In schools, as part of the Sulinet Express scheme, teachers, pupils and students must be empowered to use the full range of digital media and to form and be part of an educational and methodological culture to the highest global standards. This should also be achieved in teacher training within the shortest possible time.

Institutions of higher education must offer on-line courses which will also serve further training. Universities and research institutes must enter into cooperation schemes supported by computer technology.

While giving young generations the support they need must be a top priority, the Government should also launch programmes which will make the use of information technology attractive for today's middle generations and the elderly and will help them acquire the required skills.

In addition, it is also necessary to even out the generational differences in knowledge between social groups. To this end, the opportunities offered by the popular science programmes of the public service media should be utilized. While popularizing informatics, the fears that people may have towards informatics should be dispelled and the conditions for the acquisition of a general level of technical skills should be created.



**In the interest of the implementation of these objectives, the part-strategy of education and training must be formulated and incorporated into HISS as a top priority area.**

#### **4. Sectoral responsibilities**

The Hungarian Information Society Strategy, as the Government's strategy with an impact on the whole of society, requires the cooperation of all sectors. It is necessary for every sector to have its own strategy in response to the challenges of the new economy and information society. In the following, we shall select a number of particularly important areas in order to demonstrate this, however, we wish to stress that the formulation of HISS requires the cooperation of all sectors and ministries.

##### **eState Administration**

A key issue to creating a service providing state is placing the mechanisms of state administration onto a digital platform, both within and between the offices and in the relationship between the offices and their customers. This will place the customer into the centre, will increase the effectiveness, transparency and fairness of administration and will enhance trust between the State and its citizens.

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In the next three years, both citizens and business organizations will have to be provided with access to round-the-clock electronic administration in several areas where possible. Citizens must become capable of proceeding in the following tasks electronically: job hunting, processing income tax returns, administration related to social security and identity cards, reporting of changes in residential addresses, enrolment in public libraries, extension of borrowing, application for courses in institutions of higher education, motor vehicle registration, requests for and reporting to the police of birth certificate details, and applications for building licences and property sheets. The following services must be made electronically accessible to business organizations: VAT and corporation tax returns, company registration, submission of customs declarations, disclosure of statistical information, participation in public procurement, obtaining of environmental licences, etc.

We must reach a level of development where anybody may use electronic signature for the purposes of the interactive and transactive processing of official matters. In respect of issues related to citizenship, health care and pension services, local and central taxes, etc. and matters requiring identification, adequately protected, confidential and safe technologies must be used.

*e*Policing should be regarded as a special area of *e*State Administration. It includes the electronic services which may be provided by the police and other law enforcement agencies. Clients need to be able to request or to provide data or information.

### ***e*Local Governments**

By the end of 2003, all local governments operating in Hungary will be equipped with the means of information communication necessary for their work and will be linked to a network.



There is immense potential in the citizen-friendly local governments linked to a network: in cooperation with civil society, a great deal of useful public information may become accessible to everyone, and while links with the local communities may be forged even closer, local governments may obtain other tangible benefits from their “virtual appearance” on the global market (tourism, investments, etc.). Besides the required equipment, those concerned should also be helped with development facilitating administration and training.

### ***e*Health Care**

The work of health care institutions and their personnel requires more and more information. IT applications play an increasingly important role in treatment, diagnostics and therapy. The financial needs in health care are on the increase continuously. While the costs of treatment rise incessantly, there is an increasing number of patients suffering from chronic diseases.

Through electronization, we wish to extend the possibilities of medical consultations and intend to avoid any superfluous parallel examinations and unnecessary, time-consuming waiting.

By organizing the strategic points of medical activities into a virtual network (home, general practitioner’s surgery, specialized surgeries, hospitals), it would be possible to achieve more accurate coordination, better cooperation and a more effective flow of information and to

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provide physicians with access to the fullest possible range of information necessary for medical treatment.

The virtual web should be developed into the medium of patients and their family members enquiring about medical and health care information through which everybody may have access to information on healthy lifestyles, may obtain information on the factors posing a risk to their health and on medicines, may request consultation in connection with their test results and may receive information support regarding the preservation of their health or remedy to their illness.

### **eJustice**

The work of courts must be electronized in a way as to ensure that the communication opportunities offered by the information society are fully utilized in the delivery of summonses, court notices and decisions, administration of cases, and archiving.

Measures should be taken to ensure that the profession, students and citizens that may be interested have easy and prompt, if possible, free-of-charge, access to the legislative material in force.

Electronic services must be provided which can guide the layperson through the labyrinth of legal problems with clear and simply-worded advice.

### **eCulture**

It is the duty of the Hungarian State to preserve our national and minority cultural heritage also through the digitalization of our values. The standardized archiving of any newly generated cultural contents and the provision of access to such contents for activities serving public education and research should become basic electronic services.



To this end, digital data libraries should be created (electronic museum, archives, library) which, if the relevant technical and search standards are observed, may become a common platform for all institutions and organizations intending to develop cultural and scientific contents. The digitalization of minority cultures enables the integration and cohesion of cultural communities, reduces the isolation of diaspora communities and contributes to the enhancement of national identity, whether in the case of majority or minority national groups.

The new type of national publicity opened up by the infrastructure and media of eCulture creates new opportunities for the popularization of science, as well as for little-known provincial museums and public collections.

### **eEconomy**

#### ***Full and comprehensive IT transformation of the economy***

In the interest of enhancing competitiveness, increasing efficiency and promoting integration into the international economic processes, we shall make every effort in the next few years to “permeate” every sector of the economy with the culture of informatics, which has

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revolutionized the process of sales, business liaison and company management. This equally applies to inter-company and user relations and to the activities of producers and service providers.

Creating the conditions for safe transactions in the interest of the acquisition of reliable information and consumer protection is a task of the highest priority. We must establish the means of electronic administration of public procurement proceedings.

We must pay particular attention to the development of informatics in the agricultural sector to help farmers and agricultural businesses retain their positions in the market.

In addition to the availability of computer equipment, a precondition of this is that the market players, sellers/buyers and producers/consumers, have the skills and trust necessary for the management of the systems. The process may be enhanced through the creation of an adequate advisory and service provider background.

Major results may be expected from wide-spread recourse to remote employment as well.

### ***IT and knowledge industry turned into leading sectors***

The IT industry and the information and knowledge economy are becoming an increasingly determining part of the world economy. In order for us to have successful export companies that are able to find their niche in the market, a number of steps will have to be taken in the next few years. These steps will have to aim at raising the value of creativity, innovation, basic and applied research and continuous development. This is how knowledge may generate value.



### ***A competition-neutral and market-friendly strategy***

In formulating HISS, we must bear these two criteria in mind throughout. Any essential state interventions must be planned in a way as to ensure that they use the opportunities inherent in the operation of the market and competition on the market to the fullest possible extent. This should also apply to measures taken in the form of state subsidies.

### ***eTransport***

Our objective is to attain sustainable mobility, to achieve higher standards in the services provided and to create economical and environmentally friendly transport systems. The intelligent transport systems of the future are integrated systems which provide accessible traffic and transport information everywhere and at all times for both road operators and road users with the aid of user-friendly devices and information equipment.

We attribute particular importance to a comprehensive service in the area of travel information which contains dynamic and static data, traffic data and map information and is able to transmit the required information to drivers via various media (such as, for instance, radio, telephone, fax, SMS, Internet), in addition to network access. It is necessary to improve inter-modality and to encourage the public's preference for public transport in the area of city transport/communal transport. A further strategically important field in transport is the

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introduction of smart cards which is primarily necessary in the formulation of a standard ticket system in public transport.

## 5. Objectives and Tasks

The strategy serves one purpose fundamentally: informatics should be an efficient means for the Government in implementing its objectives set with regard to the creation of a knowledge-based information society. These objectives may be set along two basic value groups:

- individual values for the improvement of people's quality of life
- communal values for the improvement of society's quality of life.

The Government must facilitate the informatics-centred transformation of the processes and activities taking place in society and, through this, their modernization, with direct and indirect means.



Main objectives and tasks to be fulfilled by 2005:

- A Public Web reaching every locality and public administration institution in Hungary must be created;
- Public data and services must be made accessible via the web;
- The range of public or communal access facilities must be continuously extended (post offices, schools, libraries, digital culture centres, telecommunication centres, Internet cafés, etc.);
- Through a network of public or communal access points, electronic services must be made accessible to everyone;
- One quarter of households should have access to the worldwide web;
- There should be quality Internet access in all schools;
- The number of small and medium-sized enterprises using the web should double;
- The ratio of those in remote employment should reach 3%;
- In the interest of maintaining long-term competitiveness, a broad-band research network which serves the purposes of research, higher education and public collections and is independent of the public network must be developed on an ongoing basis.

**In the interest of clarifying these sectoral objectives and integrating them into the Hungarian Information Society Strategy, the sectors concerned must formulate their part-strategies pursuant to the recommendations of the Ministry of Informatics and Telecommunication, together with the related plans of action.**

Next year 2,4 billion HUF will be spent on the content service project (**National Digital Archives, National Audiovisual Archives**).

Applications of the Ministry of Informatics and Communications will be renewed and new applications in the value of HUF 4 billion will be available principally in the field of **equal opportunity research and development**.

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Next year, the Ministry intends to assign a prominent role to the **eLocalGovernment programme through which local governments' services will gradually be available through the net, too.**

Within the frame of the National Development Plan in the **e-economy** programme, the portfolio aimed at obtaining HUF 4,5 billion resources from the EU for 2004.

**Regulations:**

Act C of 2003 on Electronic Communications - [http://en.ihm.gov.hu/data/25087/eht\\_eng.pdf](http://en.ihm.gov.hu/data/25087/eht_eng.pdf)

Act XC of 2005 on the Freedom of Information by Electronic Means - [http://en.ihm.gov.hu/data/75436/act\\_xc\\_of\\_2005\\_on\\_the\\_freedom\\_of\\_information\\_by\\_electronic\\_means.pdf](http://en.ihm.gov.hu/data/75436/act_xc_of_2005_on_the_freedom_of_information_by_electronic_means.pdf)

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### **III. Degree of application and spreading of web-based learning in Hungary**

Mr. István Simonics, a well-known professional in the field of e-learning prepared a survey among e-learning experts to research general data and the daily use of ICT, the knowledge of e-learning and the knowledge of standards and portability.

91 experts filled in the questionnaire, the average expert in the survey met the following criteria:

- 31-50 aged person with higher education diploma
- works in educational institute as an employee, has more than 15 years experience in ICT
- switches his computer at home every day
- has used e-learning materials,
- prefers internet versus CD-ROM
- prefers blended learning
- would like to try exams via web,
- knows e-learning standards but does not use
- knows e-learning website
- theoretically supports the broad application of e-learning

#### General data and ICT application



The gender was 30.8 % women and 69,2 % men of answering experts. 44 % of people work in educational institution, 24 % in SMEs, 13 % in state own big companies. Relatively high, 34 % of the experts questioned were directors, as the poll was made at the 5<sup>th</sup> E-learning Forum, where strategic questions and practical experiences were of high importance to discuss at managerial level. 22% of the answerers were educators, 23 % represented the experts and 16 % as developers took part in the poll.

#### Knowledge and application of e-learning

The majority of the questioned had already used e-learning material. 48 % prefers the Internet as carrier, 24 % choose CD-ROMs, 12 % didn't know, and 16% did not answer. Those who selected the Internet, emphasized the importance of the updated material. CD-ROMs had been chosen due to security reasons.

There are several Learning Management Systems – LMS -, in existence in the e-learning market. In many cases the problem is that developed learning material cannot be applied in the LMS system the user owns. In this case dissemination is difficult.

Regarding the knowledge of LMSs the answerers proved any kind of level of knowledge. Most of them voted for Eduweb, which is a Hungarian Learning Management System developed especially for schools. 26 people named another LMS which was not listed. 23 answerers selected Coedu – also a Hungarian LMS and IBM Lotus Learning Space. 23 experts know the ORACLE iLearning system. There were less than 20 catch for the multinational ICT companies: 18 for SAP Learning Solution, 16 for Web CT and 15 for Cisco. Sabedu Knowledge Linker Enterprise and Lapoda also Hungarian developed systems were on

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the same level. Moodle is an open source LMS is known by 12 experts. Interestingly Microsoft Learning Gateway is the least known system in Hungary, only 11 experts named this system. More than half of the experts use any of LMS from the list. Two thirds of them were involved into training material development.

Simonics examined the future of e-learning in the coming 5 years. 57 % stated the importance of e-learning application and 85 % selected the blended learning technology. 84 % of expert supported the possibilities of examination via internet.

#### Knowledge of standards and portability

In this chapter the author presents the analysis of possibilities of broader dissemination of e-learning training materials. 85 % of experts have positive opinion. They think the portability of training materials is important. Concerning the knowledge of standards, 58 % indicated the knowledge of SCORM. This high result can be thanked because of e-Learning Forum organised annually in Hungary. 29 experts have heard about AICC standard. The knowledge of IEEE, IMS and Dublin Core were almost on the same level. More than 40 % applies some of standard.



81 % of experts has a definite opinion about the constrains of portability.

55 experts told about “Lack of information flow”. 32-30 indicated the “Property right” and “Lack of technical knowledge”. 20 experts named other reasons.

Whether the questioned persons would offer their developed material for common use, 25 % did not answer, only 4 % indicated negative answer 71 % agreed upon it, out of which sixth would request money, and only one sixth would offer it free.

The most important conclusion is that generally the expert group was relatively well-informed, enthusiastic for supporting the e-learning application, but they were careful in the real solutions.

*(Simonics – Radoslav Pavlov – Tatiana Urbanova: Technology-enhanced learning with ubiquitous Applications of Integrated Web, Digital TV and Mobile Technologies – Hubuska Open Workshop, 6<sup>th</sup> E-learning Forum, 9-10, June, 2005 - Proceedings)*

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## IV. Best practices applied in education using web-based learning

### 1. EuroSME



The Romanian Foundation for Small and medium-sized enterprises (CRIMM) as coordinator worked out a joint project of a 7-membered consortium for establishing a professional homepage for serving information, learning materials, useful links to Small and Medium-sized Enterprises in 2003. This project came true in 2005, when the information and four e-learning modules is freely accessible on the website [www.eurosmes.org](http://www.eurosmes.org). The four modules (E-business, Wood-processing, Basics of waters supply and Heat from water and earth) contain the learning material, tests and practical, 3D tasks.

### 2. Pepsi Americas: E-learning in the Middle-Eastern Group of Pepsi Americas

The initiative in the autumn of 2002 aimed to facilitate the access of four languages and 1500 users with common learning management system and learning material content accessible in four languages already at the start in Hungary (as centre of the region), Poland, Czech Republic and Slovakia. As regional project it could only be a solution that is web-based, centralized and doesn't need local setup. Pepsi Americas chose Oracle iLearning-learning system, that owns an very flexible structure. With proper bandwidth the learning material server can also be completely centralized, but if it is necessary, it can be placed to local offices as well. The project started in 2003 with five learning materials, like training on the PASPORT system, the most important issues about Pepsi Americas, a communications-techniques as well as a training on Macromedia Authorware 6.5 electronic learning material developing product

The company uses e-learning for the reason of applying the available budget in the most effective way. This was the harmony of learning in the classroom and e-learning. Another point was the in-house development of learning material, for collecting, transforming to training and dissemination of the knowledge in this region. Following up and assessing the learning progress was also important for the aims to be achieved through electronic learning.

Grouping of the students can be done by pre-assessment tests before the courses and individual learning supplements the course. New employees' training is good example for this, as after their individual study and successful test they can acquire the topic deeper with the help of an experienced colleague. It has been proven very time-saving as there is no need for giving the lecture and travelling for new pieces of information. This time can be spent rather for personal assistance of sales representatives or developing new learning material. E-learning is also cost-saving, as organising classroom trainings would have cost much more in this issue.

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### 3. T-Mobile: e-learning – A better world with You!

T-Mobile Hungary recognized that beside the traditional services Mobile Multimedia plays bigger and bigger role. T-Mobile set the aim of introducing new generation information transfer services as a strategy in 2001. Its main reason was that continuous training plays important role in sales activity: Clients are more satisfied and client service colleagues are more effective if they are able to give professional assistance.

The most important requirement for e-learning system was the reducing the time of introducing new services into the market. It was a fundamental demand that trainers of T-Mobile could set the learning material easily and could deliver it to the colleagues dealing with clients in every corner of the country.

HP Hungary introduced Centra Symposium, which is a virtual classroom, and Questionmark Perception, a testing and examination system. The former one makes possible to leave out travelling, and so reduces the working time dropping out. The latter one facilitates the colleagues' continual follow-up and further motivation. It includes examination tests, daily logon-tests, knowledge-assessing tests and other questionnaires for self-use.

The third tool of e-learning of T-Mobile was an interactive content developer programme, x.hlp, that helps educating self-developed applications mainly. The always accessible simulations make possible to practice the work phases to do, practical knowledge can be checked and examined self-directed.

With the help of these innovations 1500 colleagues learned the functions of CRM.

Based on experience, the following factors can insure the success of e-learning within a company:



- Managerial support
- Cost- or other efficiency analysis
- Appropriate IT-support
- Time dedicated to learning
- Agreed and applied training method, or solution within a company
- E-learning expertise (methodologic and IT), with which quick and expert reaction can be provided for the training needs at the company
- Possibility accessible for everyone
- Acceptance the culture of e-learning

### 4. Eszterházy Károly College – Advanced distance learning

The college transformed the printed learning material of the faculty of IT specialist - Librarian into distance learning books and web-based materials. Establishing a Virtual Centre supporting self-learning was an important objective in 2001. In this new system the teachers' main role is to give personal help to students, coordinate students' activity, tutor the learning process and give feedback of their work.

Distance learning projects can be characterized by student-centred training aspects which demand the following tasks:

- Informing on the target group
- Setting training aims

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- Working out the model for the course
- Establishing the modular part of the training content
- Adapting the sample material to the target group
- Setting tutorial and tele-tutorial tasks
- Advising effective information-giving methods
- Introducing the establishment of learners' interactivity, and the circumstances of application
- Carrying out continual quality management

The different distance learning projects are supported by a Virtual Campus, that is an organisational unit with distance learning, informatics, logistics units, videoconference service and multimedia research laboratory.

## 5. Gábor Dénes College (GDF): E-learning for achieving distance-learning

GDF uses the frame-system ILIAS developed by German government support. In integrated system, on web-browser surface it makes possible the development, structure and delivery of materials to the students. Its main characteristics:

- It is developed directly for higher educational institutions, free, open-source system, 51 colleges and universities of 12 countries in Europe use it.
- The learning environment is personally constructed: it contains worksheet, test, glossary, printing function, search engine and download opportunity
- It contains course management module with role-based rights
- It has intra-mailing system, forums and chats, teamwork opportunity for participants in the education and learning material development.
- Object-oriented material handling, with metadata to learning material elements
- Different (18) system languages Hungarian is prospective

Electronic Distance Learning System of GDF provided the following important services for students and teachers in 2004-2005.:

Web-based distance learning services on GDF learning materials and relevant supplementing data at any corner of the world

Multimedia, interactive, training programmes, web-based courses

Electronic learning materials on CD

Electronic learning material development with the help of computer

Common electronic communication among teachers and students

Electronic informatic glossaries

ILIAS facilitates the development and delivery of materials for students. Its characteristics:

Role Based Access Control (RBAC)



The learning circumstances can be personalized

The central learning tool store contains every learning materials, workgroups, forums, Glossaries that the students can choose on the worksheet.

Intra-mailing system, forums, opportunities of teamwork

Integrated learning-material environment (establishing learning modules or digital books)

<http://ilias3.gdf-ri.hu>

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## 6. ITTK: E-learning applications in the Information Society Training and Research Groups

These groups aimed to establish learning materials organised in network in the field of information society and carry out cooperative researches with universities. One part of this research went on about the establishment of the e-learning environment of the university network. Three open source, integrated platform were tested: ILIAS, Claroline, Moodle. The latter was chosen and installed. (<http://moodle.ktk.nyme.hu>)

This is such a free software, that makes flexible, dynamic development of learning material possible, cooperative, making teachers and students active in knowledge-management, the common work and tutoring of seminar groups of various distances, establishment of databases, common use and valorization of tasks.

## V. Experiences in developing qualitative evaluation systems of the web-based courses



E-learning and standardization are indispensable. There are *de jure* – legally accepted rule – and *de facto* – accepted and used in practice, but not introduced legally. Every creative teacher team insists strictly on a domestic standard. The advantages of widespread, global standards of e-learning cannot be used by adults, technology-developers, or content-developers. The requirements of standard of e-learning are the following:

- To establish data structure and protocol
- Prefer compatible solutions opposed to individual solutions
- Implement the use of content in any frame-system
- Facilitate the matching of end-products, the accessibility to recyclable development solutions, and so reducing the development costs
- Put quality and use in the foreground
- Provide the transferability between different systems.

Importance of the standards is big; however, these will not define the quality or efficiency of of e-learning products. The most important factor, how the developers and deliverers implement the standards. There is a kind of chaos in this field, but it is temporary. The disorder is not harmful due to a simple phenomenon: as standards are published and implemented, they become invisible, the natural part of the product.

The life cycle of a standard can be described as follows:



There is a perceived demand, which is followed by some development concepts. These are defined with draft specifications. The accepted specifications will be examined in laboratories and testing environments. Draft specifications are brought to the market to see their commercial effects. The proven, functional test results are sent further in the form of reference models to standardization body that test them and accredit them as outsider. A global standardization body (e.g. ISO) can make it possible that an already accredited standard become an accepted international standard.

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Standardization bodies:

AICC  
 IMS Global Learning Consortium  
 IEEE  
 ADL  
 ARIADNE  
 PROMETEUS  
 DCFI  
 LOM

The SCORM is the most generally accepted de facto e-learning standard. Not only producers of LMSs, author, e-learning or other applications adopt it in their products, but the non-profit sector, and developers of higher education institutions prefer it. The reason of its popularity is that the integrating character of the standard-group dominates. The owner of the standard, ADL's activity and services provided for the wider community also play a big role.

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## VI. Conclusions

Examining the results of the survey it can be concluded that e-learning wins more and more emphasise and importance in the Hungarian education. This type of education is preferably combined with traditional teaching, in form of e-learning. Hungarian experts agree that traditional education cannot give place only for e-learning in Hungary. They consider b-learning as optimal solution. Researches are being executed also in m-learning, u-learning, i-learning.

Hungarian experts are open, interested in all those issues that our programme, WBT World provides and the consortium of developers are searching. Experts put large emphasise on the social aspects. It is important to prepare a complete client mapping to get to know the students' attitudes, requirements and directions. Empathy is as important in web-based training as in the traditional teaching methods. Sympathy itself is not enough.

Standardization, accrediting, technical obstacles in households are considered as difficulties in introducing and extending e-learning. These problems can be solved with proper government measures. The government has complete programme for extending computers and internet among the population that is the base of electronic and web-based learning.

In educational institutions the research and change to this type of learning have already started. More institutions develop e-learning materials than organising e-learning courses. These materials are used in companies for in-house trainings for their personnel. High schools and colleges offer several e-learning courses year by year, that is good facility for further education for those working.

E-learning and web-based training is a real demand in Hungary from both the teachers' and from the populations' side. In Hungary it has won proof that research and development in this field of education is by no means baseless.

## VII. Database with institutions involved in Internet-based learning

Institution	website	Description
Arvato Systems Hungary Kft.	<a href="http://www.arvato-systems.hu">www.arvato-systems.hu</a>	They focus on the assurance of informatical routine and the development of informatical culture during their trainings. They offer their services both to individual enquirers and organizations who treat informatical development as a strategic field.
Biodigit: Lapoda Education	<a href="http://Medem.biodigit.hu">Medem.biodigit.hu</a> , <a href="http://www.lapoda.hu">www.lapoda.hu</a>	BioDigit Ltd. Established a multimedia-structuring programme that is simple and easy to use. With this programme biodigit developed several publications with wide scale facilities of multimedia.
COEDU Tudásháló learning	<a href="http://www.coedu.hu">www.coedu.hu</a> , <a href="http://www.en.coedu.hu">www.en.coedu.hu</a>	Services: Distance learning consultancy, LMS sales, System Deployment, Learning material development, Multimedia development, training
EDU-NET	<a href="http://www.edunet.hu">www.edunet.hu</a>	Professional training portal for teachers, students and parents, offering lots fo services.
EDU-WEB	<a href="http://www.eduweb.hu">www.eduweb.hu</a>	Eduweb Multimedia Technology and Distance Learning Co's activity is based on the work of two business branches. The Distance Learning Business Branch offers a full-scale e-Learning service. The Technology Business Branch creates (plans, implements and operates) analogue and digital program broadcasting systems.
e-Lea Systems Kft.	<a href="http://Www.tudas.hu">Www.tudas.hu</a>	eLea-Systems Ltd. operates a web-based distance learning system, which fulfils the training and information needs for institutions and companies effectively and economically.
Eszterházy Károly Főiskola	<a href="http://www.ektf.hu">www.ektf.hu</a>	This college offers distance learning courses in several faculties.
National Institute for Public Education	<a href="http://www.oki.hu">www.oki.hu</a>	Offers search facilities and links to e-learning instiutions
Humántréner	<a href="http://www.humantrener.hu">www.humantrener.hu</a>	Consultancy, training, e-learning facilities
IQConsulting	<a href="http://www.iqconsulting.hu">www.iqconsulting.hu</a>	The name me-Learning™ ("management e-learning") is the summarizing name for the series of electronic educational materials on management / organization, developed by IQ ConsultinG Ltd.
Mimoza Communications	<a href="http://www.mimoza.hu">www.mimoza.hu</a>	The company develops multimedia and e-learning materials and softwares.
Mongoose Technologies Kft.	<a href="http://www.mongooseotech.hu">www.mongooseotech.hu</a>	They deliver web-based distance learning solutions.
MTA SZTAKI	<a href="http://www.sztaki.hu">www.sztaki.hu</a>	Expert in research and development of several types of distance and e-learning.
Oracle iLearning System	<a href="http://www.oracle.hu">www.oracle.hu</a>	Delivers e-learning solutions

Institution	website	Description
PTE-TTK	English.pte.hu	Offers e-learning solutions in some faculties
Régens Informatikai Rt.	<a href="http://www.regens.hu">www.regens.hu</a>	eLearning systems: assessing needs and installing the suitable learning system, Project management, Establishing hardware and software infrastructure, Customisation, development of unique functions, User training  Learning content development: project management, needs assessment, methodology, writing scenarios, developing learning content according to SCORM standard, training
SAP Learning Solution	<a href="http://www.sap.com/hungary">www.sap.com/hungary</a>	Offers e-learning solutions
Számalk-Gábor Dénes	<a href="http://www.szamalk.hu">www.szamalk.hu</a>	Offers several e-learning course, carry out R&D in e-learning
Sabedu	<a href="http://www.sabedu.hu">www.sabedu.hu</a>	Develops electronic learning materials
Tudásnet	<a href="http://www.tudasnet.hu">www.tudasnet.hu</a>	Develops electronic learning materials