Európai Unió
Európai Regionális Fejlesztési Alap
http://www.huro-cbc.eu

Két ország, egy cél, közös siker!
Jelen tanulmány tartalma nem feltétlenül tükrözi az Európai Unió hivatalos álláspontját.

FEASIBILITY STUDY

Introducing the succesful eCity Modell in the Hungarian-Romanian border

Development of Cross-Border Broadband Internet Infrastructure in the Hungarian-Romanian Cross-Border Area

Hungary - Romania
Cross-Border Co-operation
Programme 2007 - 2013

Lead Partner:
Homokkert Micro Region Integration Non-profit Ltd.

Mórahalom, December 2012

Table of contents

0 General data

Project title: Introducing the succesful eCity Modell in the Hungarian-Romanian border

Acronym: eCity Modell

Location of the project

We will establish an Ethernet connection using optical cable including the settlements of Makó, Kiszombor, Cenad, Sannicolau Mare. The project will be realised in more locations: on both sides of the border.

Kiszombor is a large village located in the South Great Plain, near the Romanian border. It's territory covers 65,81km^2. The population at the end of 2010 was 3840, which is 9,05% less than 10 years ago. The villages population density is 58,35 person per km^2. Considering the location of the town it is an important crossroad of trade routes. With the opening the border several new opportunities are revealed, since the trade route between Szeged and Timisoara leads trough it.

The regional relationships also have an important role in the life of the village, that are driven by the *Multipurpose Association* of *Makó* Micro *Region*.

The new type of co-operation has made the many public services more efficient and coordinates the supply, as well as the regional developments more effective. Kiszombor playes the most important rule after Makó and it is also the second largest town of the Association.

The city of **Makó** is also close to the Romanian border in Csongrád County, 32km from the county capital Szeged, and 20km away from the Nagylak border station. Because of the proximity to Romania and Serbia it is an important transport hub and it is often called as the south-east gate of Hungary. The border crossing point of Kiszombor is only about 5km away from the city center. The area of Makó is 22 923km^2. The population, at the end of the year of 2010, was 23 727, which means a decrease of 7,07% compared to 10 years ago. The population density is 103,51 person per km^2.

Cenad is situated on the left bank of the Mures by the Hungarian-Romanian border. The village covers 84,91km^2 of Timis County, the number of population is 4324.

Sannicolau More is a city in Timis County, located very close to the Hungarian-Romanian border. Due to the proximity of the border it is the county's fastest growing small town and a typical Great Plain settlement. According to preliminary data, the population of the city is 13298, of which 1209 people are of Hungarian citizenship. The area is 136,77km^2, the population density is 94 person per km^2. In the city there is a brewery and malt factory, as well as there are tannery, sandal and shoes factories, steam mill and oil factory.

Lead Partner data

Name of Lead Partner (LP) / EGTC	Homokkert Micro Region Integration Non-profit Ltd.	
Legal status	body governed by private law	
Official address	**Country**	Hungary
	County	Csongrád

	Address	6782 Mórahalom, Fesztivál köz 1.
	Telephone	+3662 280124
	Fax	+3662 280124
	E-mail	homokkert@morahalom.hu
Tax number	20695598-2-06	
Uniform statistical code	20695598 8299 572 06	
Name of the legal representative	Fodor Csaba	
Contact person	Ördögh Szilvia	
Contact details	**Address**	6782 Mórahalom, Fesztivál köz 1.
	Telephone	+3662 280124
	Fax	+3662 280124
	E-mail	szilvia@morahalom.hu
Homepage	www.homokkert.hu	

Introduction of the Lead Partner

The mission of the Homokkert Kft. is to enhance the agricultural structure of the region, strengthen the SMEs of the agricultural sector and to offer alternatives, proper qualification and the spread and gathering of information to those who got into a tight corner in the intense market competition.

Our activity concerns innovation, renewability and sustainability.

The Homokkert Kft. was founded on the 2nd of May, 2000 involving 9 new associations of the Subregion of Homokhát and the Government of Mórahalom. Until its profile change in 2004, it gathered secunder manufacturer and sales associations, the company stood for their interests on the market. The member associations contributed to the revenue of the company based on their financial returns. During the period, the returns of the member associations started to grow due to the implemented joint developments and the professional background of high standards.

The profile change in 2004 affected the operative activities and also the structure of owners. Two new stategic concepts emerged from the previous, mainly agricultural priorities, which now determine the present and the future of the company: the urge of activities concerning alternative incomes; researches, development, supply and spread of innovation services in connection with renewable energy sources. The idea of both strategic concepts is to contribute to the improvement of the life quality and financial relations of rural population and agricultural labourers. The development of an environmentally aware approach among the SMEs and agricultural labourers is a main priority in the company's activity. An integral part of this is to disseminate the opportunities offered by renewable energy sources.

Financial and intellectual resources:

The seat of the company, which is located in an Energetic and Informaional Centre established from a cross-border project, can be found in the city centre of Mórahalom. The company has further premises in the industrial park in the artistant's house which is located in the new district of Mórahalom. Here addicts are treated by diversified social services.

The Homokkert Kft. owns the optical network that connects Mórahalom and Szeged and connects the subregion's IT network to the national optical network.

After 2004, the present and the future of the Homokkert Micro Region Integration Non-profit Ltd. has been determined by the promotion of alternative income-generating activities, the support of research, development, and innovation of renewable resources, and the mediation of innovation services. The basic idea of both strategic directions is to help the people living from agriculture, and improve the rural population's living conditions, and the income situation.

The company supports the environmentally conscious approach in business.

The Homokkert Kft. currently employs 5 main employers, projectmanagers and besides this it has a wide outside team of experts. The company operates a Group of Controlling with 3 members.

The CEO of the complany, Fodor Csaba is an acclaimed regional developer, a creator and executive of several projects. He has management experience in national and EU projects too. He worked as an expert for several Ministries and other organisations.

He is a qualified Civil Engineer (with IT expertise) and furthermore he assisted the idea of the industrial park of Mórahalom from the beginning and he also gives professional advice to enterprises of the industrial park.

He assisted in the planning, the financing and implementing of the IT network in the Subregion of Homokhát.

The work of the company is assisted by experienced outside professionals, like: agricultural-economist professors, marketing expert, lawyer, environmental engineer, IT specialist, financial expert, architect, mechanical engineer, communications specialist, technical controller.

The previously mentioned professionals gathered useful experience throughout the years that will be utilized within the organisation of the Homokkert Kft. to implement and successfully achieve the goals of the project.

Previous developments

	Title and registration number of the project	Short presentation of the project's objective	Source of funding (programme, financial instrument)	Amount (EUR)
1	Survey and comperative analisysis of climate and environmental changes in water habital HURO/0901/207/ 2.2.2	The project is aimed at elucidating the general ecological status of two environmentally highly sensitive aquatic areas to assess the dynamics of processes governing the patterning of environmental parameters and the outcome of human induced alterations. From the side of the Lead Benficiary this system corresponds to the alkaline lake	Hungary-Romania Cross-Border Co-operation Programme 2007-2013	114 950

		of Nagyszéksós near Mórahalom. In case of the Romanian project partner this aquatic system represents the karstic hotwater sping lake of Püspökfürdő near Oradea. A newly developed environmental monitoring method complemented by modern and paleoecological investigations will provide a sound basis for the correct delineation of highly sensitive areas and making predictions on the trajectory of spread of certain contaminants, enabling quick action. This on the long run will contribute to a long-term sustainable exploitation of the referred aquatic habitats. The main innovative character of the project is the development of a brand new environmental monitoring approach, which is much more economical and faster than the presently utilized ones and yields more complex results.		
2	Alternative energy systems to encourage cross-border spread of regional and sub-regional building decentrums HURO0602/048	The Interreg Programme Mórahalom Csongrád County Government, led by the sub-region and the Mako exemplary alternative energy production systems, dissemination of the initiative. The Romanian partner in the Arad County Chamber of Commerce Industry and Agriculture. During the program, the sub-region Mórahalom renewable sources of electricity and thermal energy production facility construction will be presenting. The planned investment is part of a complex program, which is the area of renewable energy use to encourage innovative solutions, leveraging and dissemination of the micro-territorial and geographical conditions (sunlight, thermal, potential biomass weight) focuses on making better use. The program takes place within the	NDA Hungary, Romania and Hungary – Serbia and Montenegro	934 496

		framework of a Mórahalom Renewable Energy Centre, which, given the role as a location will function as an alternative energy demonstration. The project will take place during the construction of the center. A small region of Mako thermal energy for heating and hot water supported the establishment of production systems, and solar and heat pump installation would take place. The exemplary facilities and boosting innovation in the region (Csongrád, Békés, and Arad county) to modernize the energy, and reduce the emissions of the area as well. The opportunity to use a variety of alternative energy solutions, the best choice. The program takes place within the framework of a Mórahalom Renewable Energy Centre, which is functionally similar to showing the location of alternative energy work.During the project active and passive use of solar energy production during showing, the visitors center had been built for visitors. The planned investment is part of a complex program, which is the area of renewable energy use to encourage innovative solutions, leveraging and dissemination of the micro-territorial and geographical conditions (sunlight, thermal, potential biomass weight) focuses on making better use		

Project Partner1 data

Name of Project Partner (PP1)	INTEGRATIO Foundation	
Legal status	body governed by private law	
Official address	**Country**	Romania
	County	Timis
	Address	str. Vasile Alecsandri nr. 6 in Timişoara (Romania, 300078, jud. Timis)
	Telephone	+40 256 435504
	Fax	+40 256 435504
	E-mail	**integratio.foundation@gmail.com**
Tax number	16253778	
Name of the legal representative	Toro Tiberiu	
Contact person	Toro Tiberiu	
Contact details	**Address**	Dej, 23/B/10, 300637, Timisoara, Romania
	Telephone	+40 722 322839
	Fax	+40 256 445504
	E-mail	**toro.tibor@gmail.com**
Homepage	**www.integratio.ro**	

Project objectives

The general objective of the project is to increase competitiveness and standard of living by improving e-skills through development of joint cross-border broadband internet infrastructure in the Hungarian-Romanian cross-border region on the long term.

As a specific objective, we would like to carry out the development of broadband internet penetration by building up a joint cross-border broadband internet infrastructure based on the synergy between the cross-border partners.

Communities involved in the program are disadvantaged and rural areas and are located in the periphery, their geographical distance from developed western centers is significant. The geographical distance shortages can not be changed, but the virtual distance can be significantly reduced switching people, who are unable to do so under their own power, to the bloodstream of 21st century with broadband Internet connection. This problem knows no boundaries. In today's world, this cannot happen that certain social groups in disadvantaged areas are digitally illiterate. Two reasons can cause it: firstly the lack of broadband internet infrastructure, on the other hand, the lack of awareness of Internet-related target. This project aims to break both: on the one hand builds the cross-border Internet infrastructure and access for disadvantaged groups to the Internet. On the other hand with the help of awareness events and other tools tries to develop digital literacy.

The EU goals especially convergent competitive communities regardless borders, regional heritages etc. We'll contribute to these goals by development of communication infrastructure, toolkit, knowledge and networks between Romania and Hungary.

The project will encourage and support developing and optimising social and business co-operations, development of ICT sector and its beneficiaries. We'll develop related knowledge directly and beyond. We'll exploit majority of advantages and eliminate disadvantages, asynchronous factors.

Project activities

Preparation of the project

Length: 1st of December, 2013 – 31st of January, 2014.

Quality preparation work is the basis of the development of a succesful project. Partners met several times on behalf of preparation of project. In the course of the meetings the principal problems were presented and development conception was outlined. Final conclusion of meetings was the decision on the development of common research project. Initially both partners identified the approach to be presented in the project novel and useful from the perspective of the further development of the programming area. The partners realised that a strategic approach is needed to ensure sustainability of the project results. A decision was made that this aspect will also be in the focus of the implementation.

Project management

Length: 1st of November, 2014 – 31st of October, 2016

The activity package aims to carry out the project management tasks related to the project and includes all the necessary activities in order to implement the content of the project undisturbed. During the implementation permanent contact shall be maintained between the management team of the Hungarian and the Romanian partner including several project team meetings. Financial administration, arranging of meetings, communication among the partners shall be carried out and managed by the project management. As joint management is planned, both Romanian and Hungarian partners are engaged with this activity. Further to the official and formal communication administrative and professional experts in the project team will maintain contact through e-mail and telephone in identical cases as well. Besides management staff and internal experts, special expertise will be employed for specific tasks during the implementation of the project.

Communication

Length: 1st of November, 2014 – 31st of October, 2016.

Information of Direct and Indirect target groups on the objectives of the project. Communication of project results and outputs towards the target groups and the general public. 1 opening conference is planned in Hungary and 1 closing one in Romania. One-one open day will be also organized in the both sides of the border. Approximately 70-70 participants are planned for all events. During the implementation period we will disseminate results and provide communication surface for the partners. Bi-lingual leaflets are also planned to present the necessity, the objectives and expected results of the project. We plan to publish paid articles and news in the online and media of the region. 1 article is planned in Hungary and 1 in Romania

Development of joint broadband internet infrastructure

Length: 1st of March, 2015 - 31th of December 2016.

This activity package contains all sub-activities in strong connection with the development of joint broadbant internet infrastructure: the investment and the content related equipments. It is required to prepare the building works properly, so the activity package will start with some foundation sub-activities: public procurement documentation shold be precisely compiled, public procurement procedure should be successfully carried out. After these sub-activities building activities should be carried out, the broadband ICT network should be installed. (For the detailed content of these works see Feasibility study chapter 4 and in the technical documentation). After finishing buliding works, pilot mode phase will follow, where possible errors will be exlored and corrected. At the end of this activity client tools will be installed.

Infrastructure utilization in disadvantageous micro-regions

Length: 1st of January, 2016. - 31st of October, 2016.

The project that will be implemented in two counties will contribute to the IT access and IT competence of communities and organizations of towns with a disadvantageous situation. With the development of IT infrastructure and the ensurance of internet-access, furthermore it contributes to professional collaborations of the same interests and joint developments with trainings and different programs.

The first step of the innovative content build-up is to make a survey of the current situation and demands, from which the partners can identify realistic problems. Based on this they will filter the online contents that will be availabe to the public without any charges and will determine the specifics of education.

The goal of the content build-up is to expose information about IT safety, e-services, best practises, organize target group-specific trainings, create printed and electronic bilingual brochures and informational devices, expose IT and EU organisational knowledge data and to transfer this knowledge.Inside and outside professionals will create these differentiated bilingual educational and informative documents based on the surveyed demands and wants.

These will be uploaded to the website of the project that will be constantly availabe and accessable online. The full-access free features – based on cooperational agreements – will be availabe to the following target groups: government and state institutions, and non-governmental organisations, unemployed and the handicapped. The filtered, public data will be available in the target location to all users without a charge.

Outputs, results

Finishing successfully this project the following results are expected by the participants and the target groups:

The most important result of the project is to establish joint broadband internet infrastructure in the cross-border area.

Through infrastructural networking and the strengthening of bilateral economic relations, the project contributes to the development of the region in general by ensuring broadband Internet-access and related services.

This can be an obtainable informational source that can attract enterprises, investors in the region. By assisting the spread of information, education, online contacts it urges the commercial activities between partners and offers the possibility of acquiring new markets regarding SMME's on the two sides of the border.

Thanks to this interactivity and the acquiring of these skills and information, new, virtual communities will come into existence that reach across the border, thus the results will be utilized by the population, the governments (and its institutions) and NGOs in a long-term on a regional, national and later on EU level.

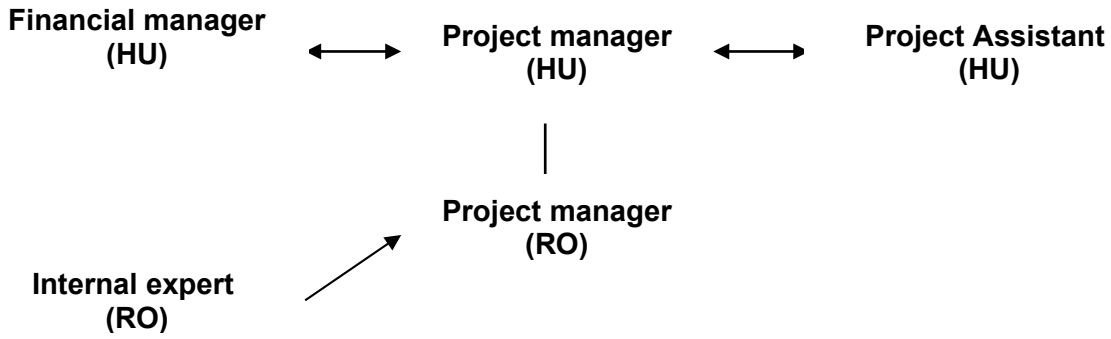
Project budget,

Project partner	Total
LP	379880,00
PP	270090,00
Total costs	649970,00

Presentation of the project management team

5 persons will directly participate in the implementation of the tasks of the project. The manager of the project is an internal project manager in Hungary and also in Romania. A project assistant will take part in the implementation of the project on the Hungarian side beside the project manager and a financial manager will help the work of the Hungarian project management. Their work will be supported by one expert responsible for the coordination of the operation of the infrastructures and the formation of the professional content of the activities.

Organogram of the project management



Project managers

The project managers will bare general responsibility for the project. They will also be responsible for managing organisational matters and for reaching the project results.

Their ***duties*** in the project

- Development of the project strategy
- Responsibility for the preparation of the project proposal, the implementation and progress of project
- Leading of the project management
- Preparation, supervision and coordination of accounts and reports
- Coordination of implementation of tasks
- Insuring that everything happens according the laws and legitimacy
- Maintaining contact with the Romanian partners
- Preparation of Progress Reports
- Updating Project Activity Plan

Project assistants

Their ***duties*** in the project:

- Assistance to the project manager
- Maintenance of the documentation system
- Technical and financial assistance in the preparation of reports
- Representation of the project partners in the management

Financial manager

Her duty in the project is

- Coordination of project resources and financial planning
- Handling contracts and receipts and administration of these documents in a separated database
- Full management and coordination of all related financial and accounting tasks, reports, project finances

Timeframe of the implementation

The implementation period of the project is 24 months. The expected date to start is on 1 November 2014, and the end is on 31 October 2016.

Period / Activities	Prepa-ration	1st year of project												2nd year of project											
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12
0. Preparation of the project																									
I. Project management																									
II. Communication																									
IV. Development of research infrastructure																									
V. Using of the joint research infrastructure																									

Inputs and sources used for the preparation of the study

The feasibility study was made by a professional project developer enterprise with the active participation of the project partners. For the elaboration of the project conception the project partners had project meetings in Szeged.

The preparation phase was a long period; the actual activity began in 2012.

The idea materialized in a project. A large-scale investment is crucial in achieving this project, however this cannot be executed without the financial sources of this application tender.

The elaboration of the Joint Feasibility Study informally started some months ago, before the development of the project. The process of partnership optimazing has been worked out considering the far-reaching effects of synergy. Hereby the Homokkert Kft became Lead Partner.

On the Romanian side, the Integratio Fondation became project partner.

The inputs of the study:

- Oral and written information, descriptions from partners
- Accessible general databases
- Specification of equipments to be procured
- Summaries of planned trainings and conferences
- Claim of costs of partners
- Data on the revenue and expenditure of the institutions

1 Executive summary

The lead partner of the project entitled "*Digital Microregion: Development of Cross-Border Broadband Internet Infrastructure in the Hungarian-Romanian Cross-Border Area*" Acronym: „*DIGIREGION*" is the **Homokkert Kft**; its cross-border partner is the **Integratio Fondation** from Timisoara. The cooperation of the two partners has already a history.

The general objective of the project is to increase competitiveness and standard of living by improving e-skills through development of joint cross-border broadband internet infrastructure in the Hungarian-Romanian cross-border region on the long term.

As a specific objective, we would like to carry out the development of broadband internet penetration by building up a joint cross-border broadband internet infrastructure based on the synergy between the cross-border partners.

In the cross-border region of Hungary and Romania, communities involved in the program are disadvantaged and rural areas and are located in the periphery, their geographical distance from developed western centers is significant. The geographical distance shortages can not be changed, but the virtual distance can be significantly reduced switching people, who are unable to do so under their own power, to the bloodstream of 21st century with broadband Internet connection. This problem knows no boundaries. In today's world, this cannot happen that certain social groups in disadvantaged areas are digitally illiterate. Two reasons can cause it: firstly the lack of broadband internet infrastructure, on the other hand, the lack of awareness of Internet-related target. This project aims to break both: on the one hand builds the cross-border Internet infrastructure and access for disadvantaged groups to the Internet. On the other hand with the help of awareness events and other tools tries to develop digital literacy.

The EU goals especially convergent competitive communities regardless borders, regional heritages etc. We'll contribute to these goals by development of communication infrastructure, toolkit, knowledge and networks between Romania and Hungary.

The project will encourage and support developing and optimising social and business co-operations, development of ICT sector and its beneficiaries. We'll develop related knowledge directly and beyond. We'll exploit majority of advantages and eliminate disadvantages, asynchronous factors.

The main objectives of the project concern main problems: the project aims to buld out a cross-border ICT network by developing cross-border broadband internet infrastructure. High quality IP based service environments are the future, the doorway to the new digital world which provides the base for sustainable future economic growth. Commercial carriers, incumbents, alternative or virtual network operators are renewing and deploy their broadband networks (expand their fast fiber access and increase the capacity of their transport networks) in densely populated areas where they experience the greatest demand, living less developed border regions unserviced, underdeveloped.

The scope of the investment is to deploy a cross-border broadband network infrastructure that is capable of connecting two distribution points and their subsequent networks within the territory of two neighboring settlements within the eligible border area of each country.

Such cross-border broadband internet infrastructure as base for cross border communication users can get access to a large number of services.

The cross-border character of the project is clear: In the past two decades the role of digital information flow has significantly increased both to private and business sectors, the amount of data available and the quality is increasing. These opportunities are opening up new

perspectives and quality of life for the users, like management of municipal affairs and internet banking, e-learning, interactive TV, VOD - Video on Demand, IPTV Internet Protocol Television, VoIP - Voice over IP, etc.. However, residents of disadvantaged regions - where Internet service providers based on the calculations of return decides not to establish appropriate networks – left behind in exploiting the opportunities offered by cyberspace, so both private people and businesses are at a disadvantage. The great advantage of this project is not only transmitting the broadband internet access in disadvantaged areas for the inhabitants and thus eliminating the geographical distance, reducing their isolation, but beyond that the development connects people both sides of the border, and through project events it equalizes e-skills of population of the two sides. For this reason, the most important cross-border impact of the project is that it stresses the connecting role of borders instead of separating countries. The project awakens and strengthens the idea in actors on the two sides of the border that cooperation with each other and with innovators is determined by natural processes, not frontiers.

These important challenges cannot be treated just by the individual efforts of the partners in Hungary and Romania therefore our groups are interdependent. For this reason, the most important cross-border impact of the project is that **it stresses the connecting role of borders instead of separating countries** in the field of cooperation on protection of nature and natural values to make the renewable energy sector a real pull sector of the border region. The project awakens and strengthens the idea in actors on the two sides of the border that cooperation with each other and with innovators is determined by natural processes, not frontiers.

The implementation of the project is executed among joint structural and financial conditions; the partners help each other in the definition and management of risks. The objective of the partnership is the establishment of a long-term cooperation between the parties. The cross-border cooperation will be realized in Csongrád County of Hungary and Timis County of Romania.

The partners have commissioned project management team members for implementation. The main selection criteria were competence, experience and commitment towards the project.

2 Applied methodology

The preparation phase was a long period; the actual activity began in September 2011. Independently from the invite tenders the partners agreed on and declared that they wish to cooperate further on in the future, relying on the extant collaborations of the past years.

This idea materialized in a project that wants to contribute in improvement of the key conditions of joint, sustainable development of the co-operation area. A large-scale investment is crucial in achieving this project, however this cannot be executed without the financial sources of this application tender.

The elaboration of the Joint Feasibility Study informally started some months ago, before the development of the project. This process has been worked out considering the far-reaching effects of synergy. Hereby the **Homokkert Kft** became Lead Partner. On the Romanian side, the project has one partner: the **Integratio Fondation**

After the appearance of the HURO/1101 tender, the events started to speed up. The project partners initiated the formal execution of the Joint Feasibility Study with an outside expert.

The goal of the Joint Feasibility Study is to appoint the frame of the project and to expose all circumstances during the planning phase that may affect the execution of the project. Furthermore an accentuated goal is to consider the budget and financial sustainability of the project, thus partners can be obvious about the liabilities of the smooth project execution.

During the elaboration of the Joint Feasibility Study, there were constant pre-test phases in which all partners were involved via e-mail, Skype and phone connection. The outside experts who wrote the study coordinated the work-phase got the Homokkert Kft, the colleagues of Cross Border Development Association (ATPD) actively involved.

The present project is in line with the regional development policies regarding the microregions. By the implementation of this project, a functional optical fiber telecommunication network shall be achieved, whose beneficiaries can be the State institutions, non-governmental associations, not for profit associations, the population of the localities and the interconnection of this network to the telecommunication network in Hungary

Implicitly the involvement of further external experts was necessary. On the both sides of the border, an infrastructure development will take place. A subcontractor, with whom constant reconciliation was necessary towards the adequacy of the documentation regarding the project tender, created the full engineering documentation.

An important input of the Joint Feasibility Study was the consideration, the planning of the necessary assets, furthermore an offer from subcontractors, which occurred without problems in the preparation phase.

Practical elements of the project-making:

During the making of the study, the experts get thoroughly familiar with the topic, namely with environmental pollution, protection, renewable energy sources, green energy, information centers. The partners provided the required information for the makers of the study, and a secondary set of data was made available as well.

The inputs of the study:

- Oral and written information, descriptions from partners

- Accessible general databases
- Technical description made by the planner
- Specification of equipments to be procured
- Summaries of planned trainings and conferences
- Claim of costs of partners
- Data on the revenue and expenditure of the institutions

3 Project description

3.1 Project background, location

Csongrád County, Hungary

Csongrád County is an average-sized, 4,300-km^2 county covering 4.6% of Hungary's area. The county consists of 60 settlements, which is 1.9% of the total Hungarian and 23.6% of the South Great Plain settlements. According to preliminary data, the population of the county on January 1, 2007 was 423,000, meaning a decrease of population of 1% compared to the same period of the previous year, and of 2.3% compared to the census of 2001. 4.2% of Hungary's population and 31.4% of the South Great Plain's population live in Csongrád

County. The population density of the county is 99.4 persons per km^2, which is higher than the South Great Plain's average (73.5), but lower than the national average (108.3). The county is part of the Danube-Kris-Mures-Tisza Euroregion (DKMT).

According to regional data of 2005, the value of the gross domestic product (GDP) produced in Csongrád County was HUF 708.1 billion on purchase price, which is the national GDP's 3.2%. This is HUF 1,669,000 per person, HUF 517,000 less than the national average. Based on the GDP data per capita, Csongrád County is eighth on the development ranking of the country's 19 counties and the capital, and the seventh among the counties. In regional level the value of production, (1 488 894 million HUF) was the second lowest in the country, just overtaking Southern Transdanubia. Csongrád county with its 555 061 million HUF output reached second place in the regional contest, after Bács-Kiskun.

The performance value of the investments of economic organizations was 46 097 Million HUF, three times higher value than in the same period of the previous year. With this figure Csongrád is ranked second in the region's counties.

The Gross Added Value in 2009 equaled 682 801 Million HUF, while the GDP reached 807 827 million Forints. GDP per capita was 1 907 thousand HUF in the same year, slightly lower than in the previous (1 959 thousand HUF).

The town of Kiszombor

Kiszombor is a large village located in the South Great Plain, near the Romanian border. It's territory covers 65,81km^2. The population at the end of 2010 was 3840, which is 9,05% less than 10 years ago. The villages population density is 58,35 person per km^2.

Considering the location of the town it is an important crossroad of trade routes. With the opening the border several new opportunities are revealed, since the trade route between Szeged and Timisoara leads trough it.

The regional relationships also have an important role in the life of the village, that are driven by the *Multipurpose Association* of *Makó* Micro *Region*.

The new type of co-operation has made the many public services more efficient and coordinates the supply, as well as the regional developments more effective. Kiszombor playes the most important rule after Makó and it is also the second largest town of the Association.

The city of Makó

The city of Makó is also close to the Romanian border in Csongrád County, 32km from the county capital Szeged, and 20km away from the Nagylak border station. Because of the proximity to Romania and Serbia it is an important transport hub and it is often called as the south-east gate of Hungary. The border crossing point of Kiszombor is only about 5km away from the city center.

The area of Makó is 22 923km^2. The population, at the end of the year of 2010, was 23 727, which means a decrease of 7,07% compared to 10 years ago. The population density is 103,51 person per km^2.

Timis County, Romania

Timis County is part of the historic Banat region, and got its name from the Timis River. The county is part of the Danube-Kris-Mures-Tisza Euroregion (DKMT). Its municipality is Timisoara with a population of 307,347 persons. It covers a territory of 8697 km² (it is Romania's largest county). Its western part is flatland, the relief gradually rises towards east, the Poiana Ruscai Mountains can be found at its eastern part. Its highest point is the Padesu Peak at 1347 metres.

The census in 2002 showed that from the population of 677 926 persons 565 639 were Romanians, 50 556 Hungarians, 14 174 Germans, 16 084 Roma, 13 273 Serbian, 7 321 Ukrainians, 5 562 Bulgarians, 1 908 Slovaks, 441 Jews, 371 Croatians, 283 Czechs and 47 557 of other nationalities. In 2007 the county had 666 866 inhabitants, the population density was 76.7 persons/km².

Timiş County has one of the most dynamic economies in Romania, being a region with among the highest ratings of foreign investment due to its tradition and its position. The predominant industries are mechanical manufacturing, food, chemicals, textiles, electronic components, wood.

Timis was part of the Hungarian Kingdom for centuries. It was established in the 11th century, and was the most blooming part of South Hungary before the Turkish invasion. It was occupied by the Ottoman Empire in the 16th century and attached to the province of Timisoara.

In the 18th century, the Banat region was under the jurisdiction of the Habsburg Empire, the later county became part of the Timis banovina, which ended in 1779, and got back under the jurisdiction of the Hungarian Kingdom. In 1920, one part was annexed to Romania; other territories became part of the Serbian-Croatian-Slovenian Kingdom.

Cenad

Cenad is situated on the left bank of the Mures by the Hungarian-Romanian border. The village covers 84,91km² of Timis County, the number of population is 4324.

Sannicolau More

Sannicolau More is a city in Timis County, located very close to the Hungarian-Romanian border. Due to the proximity of the border it is the county's fastest growing small town and a typical Great Plain settlement. According to preliminary data, the population of the city is 13298, of which 1209 people are of Hungarian citizenship. The area is 136,77km^2, the population density is 94 person per km^2.

In th city there is a brewery and malt factory, as well as there are tannery, sandal and shoe factories, steam mill and oil factory.

Synergy with development strategies and plans

Our project with its overall aims is in compliance with several regional and national level strategic documents.

The **New Széchenyi Plan** starting on the 15th of January, 2011 defines seven break-out points one of which several break-out points are in strong connection with our project: the housing program, the enterprise development program, and the science and innovation program cover the main goals of our project.n

The contribution of our project to the strategies and programmes mentioned above is clear: the project contributes to the goals of the Lisbon strategy, the EU2020 strategy, the Innovation Union Program, the Community Strategic Guidelines, and of course to the goals of the National Strategic Reference Framework and OP-s of both countries.

The project contributes in a long term to the prevention of a „digital gap's" evolution in one hand, between the wealthier EU regions and the EU's poorer, often distant territories that access to internet and new digital services harder, and on the other hand, among certain member countries.

The Lisbon Strategy also defines objectives concerning the infocommunication's development, to which the project is connected by the development of innovative IT applications, and the establishment of new community and availability points. Furthermore the project matches to the program of Digital Renewal Action Plan 2010-2014 announced by the Government.

According to the Operational Program of Hungary-Romania Cross-border Co-operation Program 2007-2013, the program focuses on 5 specific fields, one of them is in strong connection with our project: "Reduction of isolation through improved access to transport, information and communication networks and services" The SWOT of the OP enhances the "Low level of ICT and broadband Internet usage". Our project aims to negligate this weakness. Our project is also close to the OP's Specific objective No. 2: Better flow of information on joint opportunities within the border area. The project suits completelly to the Priority Axis 1: Improve the key conditions of joint, sustainable development of the cooperation area (Improvement of cross-border transport, communication and environmental protection).

The **South Great Plain Region Operational Programme** focuses on BAT technologies stressing that among others, the action plan will contain the application of BAT (Best Available Techniques) for the purpose of connectivity..

In Romania the **Regional Operational Programme** also focuses on internet infrastructure, as the key factor of connectivity to each other. Accordint to the Operational Programme, indicatiove opereations will focus on cabling, broadband internet networks.

The present project is in line with the regional development policies regarding the microregions. By the implementation of this project, a functional optical fiber telecommunication network shall be achieved, whose beneficiaries can be the State

institutions, non-governmental associations, not for profit associations, the population of the localities Cenad, Tomnatic, Lovrin and Sannicolaul Mare and the interconnection of this network to the telecommunication network in Hungary

The indirect target groups, actually the beneficiaries are those who pursue the widening of their personal approaches and views, are open to new challenges and solutions, want to improve their competitive edge on the labour-market and want to obtain information about the system of the EU which can be applicable in practise. The project is based on the wants and demands of the direct and indirect target groups, which are measured at the begining of the project. The planned actions help the preperations for the future challenges in a complex and integrated way.

The detailed exposure of the broadband internet access, the related trainings and programs and the EU research and development programs will unfold in a long-term in a diversified way. The program will directly reach the target groups, and indirectly their families, friends, communities, so the practical knowledge will be utilized even more widely. The spread of knowledge based on infocommunication will assure the paradigm shift of the upgrowing generation. The project contributes to the development of the Romanian-Hungarian cross-border region in general by the strengthening of their connections and relation, furthermore it can be a source of information about the region and the active organisations, entreprises that can attract investors and people from other places as well.

3.2 Assessment of needs and possible alternatives

High quality IP based service environments are the future, they are doorway to the new digital world which provides the base for a sustainable economic growth. Cross border broadband internet infrastructure ensuring shared digital service environment is necessary for a competitive, inclusive and sustainable society.

This view is fully supported by the action areas of the *Digital Agenda* aimed for the next programming period after 2013 in order to deliver sustainable economic and social benefits from a digital single market based on fast and ultra fast internet and interoperable applications. Key actions proposed by 2012 support seamless cross-border digital services (eGovernment, eEnvironment, eProcurement etc.) in a single market through the Competitiveness and Innovation Programme (CIP) and Interoperability Solutions for European Public Administrations (ISA)

In the same manner cross border broad band network (Internet) is a significant goal of the proposed action plan within the framework of the *European Union Strategy for the Danube Region* approved by EU Member States.

The importance of access to cross border broadband internet infrastructure and relevant high quality, inclusive IP services are detailed din several highlighted areas of the Strategy's third pillar "Building prosperity in the Danube region", such as the "Development of a knowledge based society through research, education and ICT" or the "Support for the competitiveness of enterprises, including cluster development"

International and multi-stakeholder co-operation on cross-border Internet is also an important issue of the Directorate General of Human Rights and Legal Affairs of the Council of Europe. DGHR is setting the shared and mutual responsibilities of member states in ensuring that critical Internet resources are managed in the public interest and as a public asset, ensuring delivery of the public service value to which all persons under their jurisdiction are entitled. Their aim is to preserve and reinforce the protection of openness and neutrality of the cross border flow of Internet traffic, international co-ordination and co-operation in the area of Internet stability and resilience.

On 23 December 2010, the Digital Renewal Action Plan (Digitális Megújulás Cselekvési Terv) for 2010-2014 was unveiled by the Ministry of National Development (Nemzeti Fejlesztési Minisztérium) in Hungary. This represents the most recent IT action plan; one of its four main objectives is to ensure equal opportunities for citizens, and to expand and deepen their knowledge of ICT.

The Hungarian Information Society Strategy (Magyar Információs Társadalom Stratégia, MITS), 2003, was the first official comprehensive strategy that explicitly discussed eInclusion as a priority. The strategy itself was performed by the former Ministry of Informatics and Communications and had a long horizon (10-15 years), even though its programmes were designed for shorter two-year terms. One of its aims was to employ ICT tools and services so as to reduce traditional social exclusion, realise a much wider social integration and create equal opportunities. MITS placed emphasis in areas where social disadvantages stemmed from living conditions or arose for regional or linguistic reasons. The strategy stated that the digital divide could be reduced by the provision of equal opportunities in the access to and the use of info-communication tools. Target groups were:

- the elderly, constituting one third of the population, with increasing tendencies;
- the disabled, constituting more than 6 % population;
- those with a wide range of specific disabilities;
- the Roma, constituting approximately 5 % of the population, and being the single most disadvantaged group regarding education, employment and dwelling.

The Strategy outlined a plan to develop a network of social workers with highly trained informatics skills, called the IT-mentor network, in order to address the specific needs of these disadvantaged groups. This is one successful example of how a public policy, with the appropriate and careful use of funding (in this case including the EQUAL initiative, managed by DG Employment, Social Affairs and Equal Opportunities), can trigger the creation and ensure the sustainability of hundreds of local agents supporting digital inclusion.

The Strategy formulated the ambitious aim of ensuring that by 2006 the target groups were to achieve half of the national average on the Internet usage index.

Specific projects under the Strategy were:

- free online eEducation for the disabled;
- introduction of the Hungarian standard of Braille writing;
- the spreading of best practices among civil organisations;
- free access for disadvantaged groups to community Internet points.

It is important to stress that MITS represents not only a strategy but a long term framework programme, whose policy principles will remain valid for at least up to the end of 2013

The New Hungary Development Plan was elaborated under the National Strategic Reference Framework of Hungary (NSRF) for 2007 - 2013 and was approved by a decision of the European Commission in May 2007. The NSRF is co-financed by the European Regional Development Fund, the European Social Fund and the Cohesion Fund. Planning, management and implementation is done by the National Development Agency (Nemzeti Fejlesztési Ügynökség, NFU), in co-operation with the ministries concerned and the development regions. Unlike the previous plan covering 2004 - 2006, the new plan has placed more emphasis on the information society and inclusion. Priority 6 supports the 'promotion of an information society for all'. 'Social Renewal' is one of the priorities of the new

plan, which stipulates the need for social integration of those with a disadvantaged background, amongst others the Roma, the old, the poor and the disabled. These groups are by the plan considered as being also digitally excluded, along with other groups such as women, the least educated, the unskilled, the unemployed and those living in poorly developed regions and municipalities. To this end, particular attention has been paid to the promotion of active social participation and to equal access to a barrier-free environment facilitating communication. The significance of ensuring access to information and the information society has been laid down as a horizontal priority action.

Specific reference is made in page 106 to enhance participation by eliminating physical and 'infocommunication obstacles'. eInclusion is seen as the support of access to and the use of infocommunication equipment and online services.

The aim of the government, as expressed in the most recent Digital Renewal Action Plan (Digitális Megújulás Cselekvési Terv) for 2010 - 2014, is the achievement of full broadband coverage. The main broadband policy document is the National Broadband Strategy (Nemzeti Szélessávú Stratégia), which covers the period 2005 - 2013 and which set the aim of increasing broadband access with a target of 90 % residential broadband coverage by the end of 2008 and full coverage by the end of 2010. Offering more relevant content and providing the preconditions for equal opportunities (eInclusion) for the disadvantaged groups were stated as other priorities, realised via specific objectives, such as:

- digital illiteracy targets, set to a drop below 50 % by 2008 and below 33 % by 2013;
- IT equipment for the visually impaired;
- support for procurement of IT equipment to be used for education, including minorities;
- promotion of the use of Internet among children;
- creation of 'e-work' jobs.

In fact, the strategy document states that should the issue of equal opportunities not be handled as a priority, the spread of broadband communications might deepen the digital divide among disadvantaged groups. This, in turn, might lessen the opportunities and might further deteriorate their quality of life, with implications affecting the integrity of the entire society. The broadband strategy was accompanied by a 'Broadband Action Plan' (2007), which further specified actions towards achieving the targets of the strategy. Examples of such actions are projects like the ‘eHungary Programme (eMagyarország Program) with the 'eCounselor' (eTanácsadó) training service.

Presentation of the development problem and needs (analysis of demand-supply):

This is not usual in the world to increase internet penetration with different instruments for various (not jus business) reasons in rather-rural areas like one the project focuses on. Internet access was intended to propose to be human right (that might be a radical solution), but it is wide-known, that it is essential in our century, definitely in the heart of Europe.

According to the Eurostat database, in terms of the majority of indicators Hungary is on the level of EU27 average (lagged behind from the developed countries), but the data of Romania are far away from the Hungarian data. For example individuals who have carried out 3 or 4 of the related Internet activities as a percentage of individuals aged 16 to 74, the EU average was 31%, Hungary 35%, Romania only 17%. The ratio is increasing from year to year.

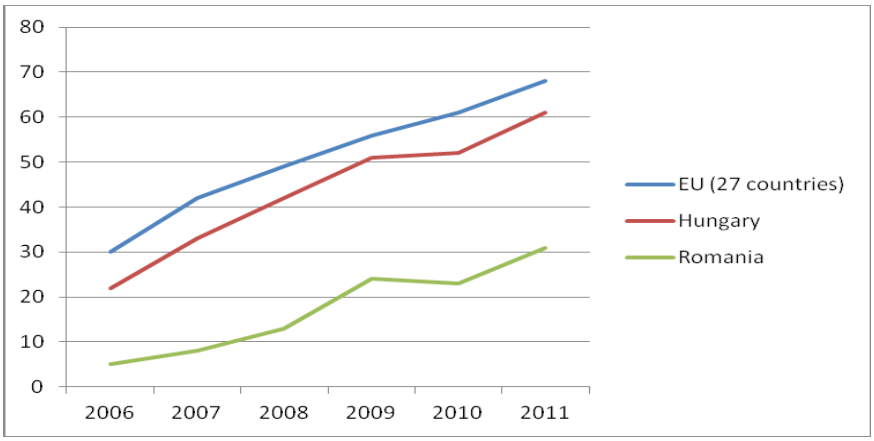
Individuals who have carried out 3 or 4 of the related Internet activities Percentage of individuals aged 16 to 74

geo\time	2005	2006	2007	2010	2011
EU (27 countries)	17	19	23	30	31
Hungary	16	19	24	31	35
Romania	:	7	10	:	17

Source: own construction based on Eurostat (2012)

When focusing on households with broadband access we can recognize a quick increase in terms of this data, but it should be emphasized, that the Romanian data is lagged behind the EU average and the Hungarian data, and its growth rate is slower than the Hungarian rate.

Households with broadband access Percentage of households with at least one member aged 16 to 74.



Source: own construction based on Eurostat (2012)

Very important statements can be done when exploring data, which tries to measure the internet using attitude of the population. Do peple know all possibilities offering the internet? When focusing on the data “individuals using the Internet for ordering goods or services as ercentage of individuals aged 16 to 74” we can see, that the Hungarian data (which are often very close to EU average) are far lagged behind from the EU27 average. Only half of the peple using internet for ordering goods or services in Hungary than in the EU. The Romanian data is very low in terms of this indicator.

individuals using the Internet for ordering goods or services as percentage of individuals aged 16 to 74

geo\time	2006	2007	2008	2009	2010	2011
EU (27 countries)	26	30	32	37	40	43
Hungary	7	11	14	16	18	22
Romania	1	3	4	2	4	6

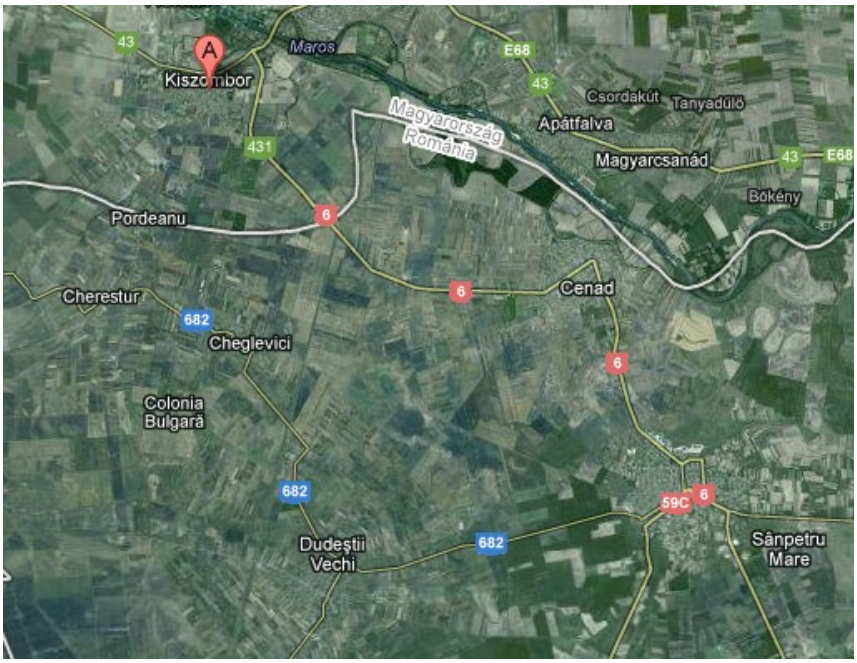
Source: own construction based on Eurostat (2012)

ICT surely contributes to rural social life and economic progress, this is the instrument to reduce disadvantages that are caused by peripheral (our territories in Southern-Hungary and Western-Romania, along the border, far from the centre) and rural situation. Every class in both countries can be equal part of information society, but it depends on several factors,

one is the existence or lack of internet infrastructure. If exist, a robust part is over-stepped, but in parallel, the spread of digital literacy and use of the infrastructure shall be created. Being the part of the information society can support the small communities and small settlements keep the population that is big problem in our (micro)region(s).

The broadband penetration is only about or a bit less than the half of EU average in country- and region-wide, while Romania has the second fastest Internet speeds on the world at 15.27 Mbps ("Which Country Has the World's Fastest Internet?" September 23, 2011.), based on Pando networks content delivery service released (September 2011). Hungary's broadband internet usage is at about the same level, and it is mainly concentrated in urban areas. With ICT tools, rural areas can be to attract more social and cultural activities, as well as business and economy.

The Digital Agenda for Europe is a flagship initiative of the Europe 2020 strategy with the objective is to bring "basic broadband" to all Europeans by 2013 and by 2020, access to 30 Mbit/s or higher internet speed and 100 Mbit/s to half of the European households.



from Google Maps

There are several options to reach impressive results, projects all over the world has been proved it ('Tegola', 'from Cwmbran to Clydebank' or 'Broadband for Rural Nova Scotia'). The demand in communities, of persons, institutes of governments like schools, libraries grows higher in line with the growth of possible applications and development possibilities, from e-government, through e-commerce to intercultural activities. As our micro-regions are culturally and ethnically mixed and belong together geographically and topographically, it seems to have the perspective to strengthen the cross-border formal and informal connection of population, institutes and organizations. As broadband penetration is treated as a key economic indicator, the development of it can possibly be instrument to struggle against the global and local economic crisis.

On the other hand, both microregions are economically active that must be reserved. As Sannicolau Mare (with the communes) possesses negative unemployment indicators owing to previous and continuous investments for industrial activity with high human resource need, it assumes to upgrade the background with infrastructure and digital literacy level. The Makó

Region is also very active, and it appoints the same demands from both the investors and inhabitants' point of view.

These ideas and visions are in line with the national broadband strategies in both countries and the key factors for the starting of implementation of imperious ITC, internet infrastructure and e-service developments in local, regional, national and EU levels, finally to improve life quality.

Improving key conditions for joint, sustainable development will bring significant cross border effect in line with the objectives and aims of Priority axes of the HURO Programme.

Presentation and justification of the cross-border need and effect of the planned investment

The economically active micro-regions with perspective despite the semi-peripheral situation (border-side that is rather a barrier in development considerations) with cross-border internet infrastructure will take more chances for the common regional development over the border. This shall be an advantage in the manner of sociology and economy, as well as of culture or security.

The rather cost-effective and niche investment for local governance with the institutional networks and for local communities will be a giant leap towards the information society can strengthen the position of the micro-region with the perspective of attractive investment environment, educated labour and human resource, possibility of the equal development and probable link of e-services, intensification of cultural cooperation.

Cross-border broadband internet infrastructure is the foundation for users to get access to a high number of services, not only access, but internet-based business services (shared informational sessions, e-health services, e-education possibilities, etc.), and relevant public institutions can cooperate across the border by the network.

Industrial parks, institutional initiatives for incubation via broadband can solidify their strategies to support micro-regional economy with cost-effective development instead of waiting for the commercial internet service providers investments that are unsure as the focus is mainly on densely populated areas, the access is limited and/or with high price and rather not-affordable for local population and institutions.

With the project implementation, some very important services can accessible for communities that are demanded for a modern information society, like:

- VoIP network of local government institutes,
- e-government services
- information points and kiosks for public use
- e-health and telemedicine services that can strengthen cross-border health cooperation
- the increase of remote work capacity to support the development of possible knowledge-based sectors
- joint disaster prevention system and cooperation
- joint environmental protection system and cooperation
- e-education in primary and secondary education
- e-commerce and e-business solutions
- etc.

To force and ensure competitiveness in any manner, especially in border regions are easier in contribution of partners in the different side of the border, instead of the realization of uncoordinated and alternative solutions.

The scope of the investment in the project is in strong compliance with those regional and national development strategies that aims at bridging the gap between urban and rural areas and links the border-side communities in order to provide broadband Internet access for public use and profit.

Presentation, analysis and comparison of the possible alternatives, strategies aimed at the solution of the problem:

Of course, the ideas, missions and visions are on one hand and the realities are on the other, but there it is possible to approximate them by the proper alternative of implementation. There are some advantages and disadvantages, and derived from them we can draw some statements regarding the development issues of the project.

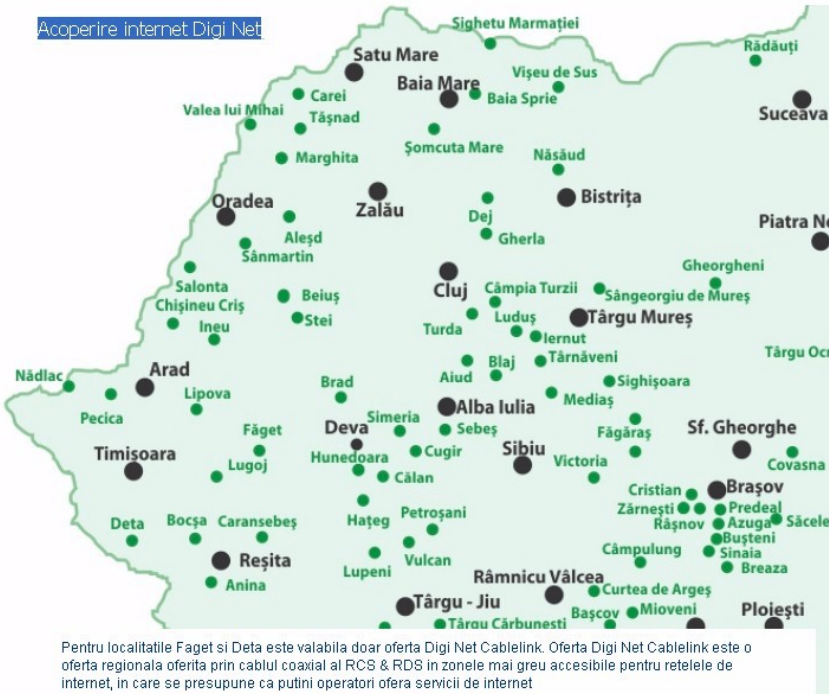
Romania's Telecom services Industry is top of the class worldwide, ranking among the first in terms of Internet Broadband Connectivity with highly competitive end user prices for voice and data.
Broadband commercial Internet services are widely available and are in growing use in urban areas. The Mobile Internet market is still expanding while fixed telecom services are being consolidated. New compelling services to residential and business customers are developed and delivered.

Based on a recent report by Pando Network Services on country based download speed performance "Global Download Report Jan 2011 through June 2011" (measured in average download speeds in the country), Romania ranked Nr.2 (15.27 Mbps /1,909 KBps) second only to South Korea (17.62 Mbps / 2,202 KBps) and way ahead of Hungary. Faster speeds generally results in higher download completion rates as well as it enables users to access broadband IP based services.

The new challenges facing the regulatory environment in order for keeping up with sustainable development is catching up with back-country developments in the very socio-economic environment of our project.

Commercial carriers, incumbents, alternative or virtual network operators are renewing and deploy their broadband networks (expand their fast fiber access and increase the capacity of their transport networks) in densely populated areas where they experience the greatest demand, living less developed border regions un serviced, underdeveloped.

Digi Net, internetul prin retea terestra cu cea mai mare viteza de transfer - pana la 100 Mbps, este disponibil in acest moment in orasele de pe harta de mai jos.



This results in border regions (in both countries as a matter of fact) with limited performance.

Typical performance limiters in the eligible border area of both countries are the small international bandwidth local ISPs have (in spite of their usually much better connection to the local exchange points) and high RTT. This is a very serious problem since transit providers might peer at other side of Europe, living RTTs of higher than 50 msec to the neighboring country not uncommon. With packets traveling more than 5000 km, tune TCP stacks of all servers and users becomes impossible.
Specialists argue that, same to every terrestrial transport routes that uses the shortest path (roads, railways, power distribution etc.) IP networks should also aim for it since neighboring NRENs are already there and usually have some POP quite close to the border. Short (fiber of radio) connections are enough to link them and avoid “international circuit” pricing and delays. Studies have been conducted and show drastically lowered IP transit costs (EUR/Mbps/month) for cross border connections. For example 120 km of dark fiber runs at approx. 4000 EUR/month. With GE it’s 4 EUR/Mbps/month and with 10GE it would be 0.4 EUR/Mbps/month - significantly lower costs for much better service that allows also for the possibility for IP transit / backup.

Other countries experiences (ie. the Check Republic – Slovakia CBC links) shows much higher than expected cross border traffic after implementation due to the fact that both local and regional users learn and prefer fast resources. The spread of new services is also encouraged, while external traffic is split into more links, ensuring a better redundancy.
These CBC examples show us that by converting IP transit traffic to “peerings” and improving competition in the IP transit market, such developments are also feasible from an economic standpoint.

The scope of our investment is in compliance with the regional and national development strategies, namely the Romanian National Broadband Strategy that aims at bridging the gap between urban and rural areas in order to provide Internet access to the public.

The solution proposed in this project deploys a cross-border broadband network infrastructure that is capable of connecting two distribution points and their subsequent networks within the territory of two neighboring settlements within the eligible border area of each country.

When designing the connections we kept in mind their openness, interoperability, their end-to-end nature (basic nature of the Internet) as well as the principle of network neutrality (understood as non-discriminatory and universal access to Internet resources and choice of content, applications and services by the end users).

Such cross-border broadband internet infrastructure as base for cross border communication users in these settlements of the Hungarian-Romanian border area as well as other users in both countries, can get access to a large number of services (not only voice and internet access, but also internet-based business services such as shared informational sessions, access to know-how and shared solutions library, database centered services, videoconferencing, tele-diagnostics and video-on-demand) while relevant public institutions that cooperate across the border may also employ the network.
By directly aiming at improving some of the key conditions for joint, sustainable development in the cooperation area this jointly developed, financed and staffed project is planned to have significant impact, to carry a remarkable cross border effect, while in line with the objectives and the Priority axes of the HURO CB Program.

inner factors	external factors
strengths	**weaknesses**
– geographical and topographical simulation of the micro-regions – existing natural connections along the border – previous common infrastructural and other type of developments – intensive (cross-border) cooperation between partner areas in several issues – similar living standards and quality perspectives	– semi-peripheral situation – different development perspectives owing to different strategies – small interests for ISPs to deploy broadband network in the near future – lack of digital literacy obstacles e-services – small resources to develop information society and support the spread of digital literacy
opportunities	**threats**
– connecting the micro-region can accelerate the strengthen the evolution of information society at/to the same level – possible sustainable long-term solution for broadband internet infrastructure – within the EU initiatives and agendas, external sources are available	– global economy crisis – modest financial instruments – lack of will to develop the region internet infrastructure in decision level

Interoperability, sustainability, and network neutrality were in mind in planning the project, to support having broadband access for public and communities.
The appropriate alternative has been decided regarding the future possibilities, the present situation by HURO infrastructure programme, the available technical solutions considering cost, implementation period, and sustainability with acceptable compromises.

3.3 Organisational plan

The size, the ownership structure and the own capital of the Lead Partner

The seat of the company, which is located in an Energetic and Informaional Centre established from a cross-border project, can be found in the city centre of Mórahalom. The company has further premises in the industrial park in the artistant's house which is located in the new district of Mórahalom. Here addicts are treated by diversified social services.

The Homokkert Kft. owns the optical network that connects Mórahalom and Szeged and connects the subregion's IT network to the national optical network.

The Homokkert Kft. currently employs 5 main employers, projectmanagers and besides this it has a wide outside team of experts. The company operates a Group of Controlling with 3 members.

The CEO of the complany, Fodor Csaba is an acclaimed regional developer, a creator and executive of several projects. He has management experience in national and EU projects too. He worked as an expert for several Ministries and other organisations.
He is a qualified Civil Engineer (with IT expertise) and furthermore he assisted the idea of the industrial park of Mórahalom from the beginning and he also gives professional advice to enterprises of the industrial park.
He assisted in the planning, the financing and implementing of the IT network in the Subregion of Homokhát.

The work of the company is assisted by experienced outside professionals, like: agricultural-economist professors, marketing expert, lawyer, environmental engineer, IT specialist, financial expert, architect, mechanical engineer, communications specialist, technical controller.
The previously mentioned professionals gathered useful experience throughout the years that will be utilized within the organisation of the Homokkert Kft. to implement and successfully achieve the goals of the project.

The specification of the employees of Homokkert Kft.

Job title	Number of persons filling in the job title
Manager	1
Project team	3
Other contractual persons	2

The specification of chief executives of the Homokkert Kft:

Name	Qualification	Position	Number of years in management
Fodor Csaba	Civil engineer	Executive	8
Nagy Gábor	Environmental engineer	Projectmanager	4
Dr Nyilas Tünde	Chemist	Research	6

Name	Qualification	Position	Number of years in management
		manager	

The competency, skills and capacity of the management

The Homokkert Kft. has a great experience regarding the implementing of projects. The management of the projects is ensured by a well-qualified team of experts. So far they have not had any problems with the management, the accounting, nor the supervision or inquiry activities of the organizaton which announces the tender.

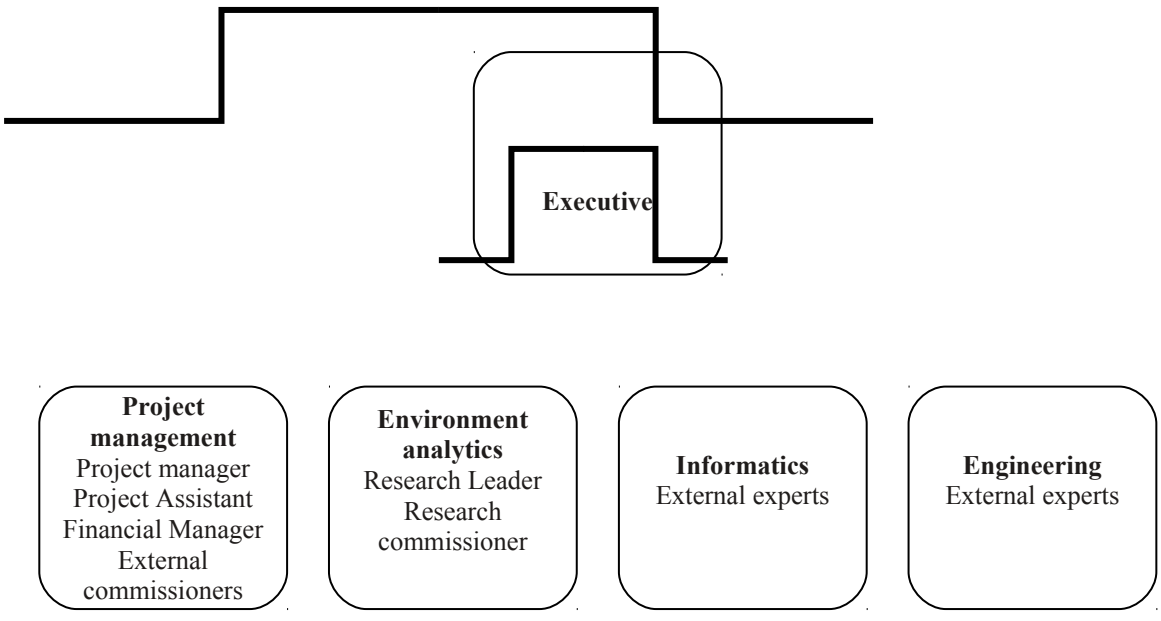
Key operative tasks can be defined as follow:

a. Maintaining contact with the Romanian partners
b. Preparation of Progress Reports
c. Updating Project Activity Plan

Strategic level activities are as follow:

d. Definition of strategic objectives
e. Maintaining control on the operative management
f. Maintaining contact with the Romanian strategic decision makers

The organisation structure is shown in the following organogram. As it can be seen the organization has a classical horizontal structure..



Participants at the Lead Partner

The Homokkert Micro Region Integration Non-profit Ltd. (LP) is experienced in project management mostly on the area of alternative income-generating activities, and on the areas of research, development, and innovation of renewable resources, as well as innovation services.

Interreg experiences:

1. "Analysis of climate and enviromental changes" (HURO/0901/207/2.2.2 – 114.950EUR). The project was aimed at elucidating the general ecological status of two environmentally highly sensitive aquatic areas to assess the dynamics of processes governing the patterning of environmental parameters and the outcome of human induced alterations.
2. HURO0602/048 – 261.658.772HUF. In the framework of the program a presenting facility producing electricity and thermal energy from renewable energy resources was constructed in the sub-region of Morahalom

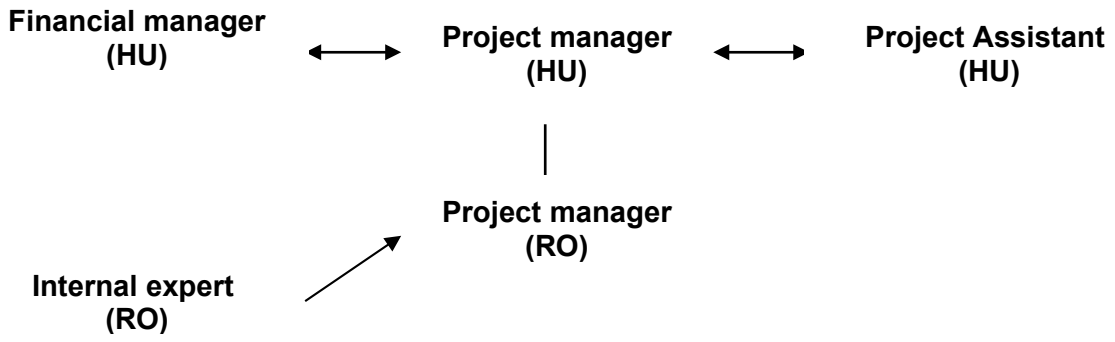
The people delegated to project management were chosen with the following criteria: that they possess the necessary knowledge, abilities and experience necessary for the implementation of the project, and that they know their own organization.

The project manager, Csaba Fodor (VP) possesses the necessary experience to co–ordinate the project's completion, and he also deals with smoothly running the financial management of the project, while the control of professional tasks and the assistance related to the project is covered by Szilvia Ördög, the project assistant.

The organization of the project management

5 persons will directly participate in the implementation of the tasks of the project. The manager of the project is an internal project manager in Hungary and also in Romania. A project assistant will take part in the implementation of the project on the Hungarian side beside the project manager and a financial manager will help the work of the Hungarian project management. Their work will be supported by one expert responsible for the coordination of the operation of the infrastructures and the formation of the professional content of the activities.

Organogram of the project management



Project managers

The project manager will bare general responsibility for the project. He will also be responsible for managing organisational matters and for reaching the project results.

Their ***duties*** in the project

- Development of the project strategy
- Responsibility for the preparation of the project proposal, the implementation and progress of project
- Leading of the project management
- Preparation, supervision and coordination of accounts and reports
- Coordination of implementation of tasks
- Insuring that everything happens according the laws and legitimacy
- Maintaining contact with the Romanian partners
- Preparation of Progress Reports
- Updating Project Activity Plan

Project assistants

Their ***duties*** in the project:

- Assistance to the project manager
- Maintenance of the documentation system
- Technical and financial assistance in the preparation of reports
- Representation of the project partners in the management

Financial manager

Her duty in the project is

- Coordination of project resources and financial planning
- Handling contracts and receipts and administration of these documents in a separated database
- Full management and coordination of all related financial and accounting tasks, reports, project finances

Internal experts

To reach high level in the professional work while implementing the project there are 30 colleagues in the prject employed as internal experts.

Their ***duties*** in the project:

- Providing professional advice and support to the work of the project manager
- Continouos control and management of the architectural investment and the purchased items and their effectiveness

4 Technical implementation

The following part of the Feasibility Study is about the technical implementation of ‘e-City Cross-Border Broadband Internet Infrastructure in the Hungarian-Romanian Cross-Border Area

The Project area meets the territorial eligibility criteria as it is the counties of Csongrád and Timis in Hungary and Romania, with the settlements of Makó, Kiszombor and Cenad, Sannicolau Mare,, Tomnatic.

We will establish an Ethernet connection using optical cable including the settlements of Makó, Kiszombor, Cenad, Sannicolau Mare, Tomnatic and. The completed system will contain optical devices capable of 1Gbit/sec bandwidth.

The optical backbone network under development will connect to MVM optical network at the Makó substation. During the project we would receive 200M broadband connectivity for 5 years from MVM, one of the most reliable partners in the market. Installation is also the responsibility of MVM. In addition we would also receive 100 fixed IP addresses.

One Point Multipoint (PMP) base-station will be installed on the 20-metre-high antenna mast at the Makó substation, which will cover the town with two sector-transmitters.

Optical line	km	dB
Makó – Kiszombor	7,5 km	2.25
Kiszombor – Kiszombor border	7.1	2.13

Attenuation calculations

The locations of the connected endpoint units and the WI-FI hotspot connected to one of the endpoint can be determined in consultation with the local government.

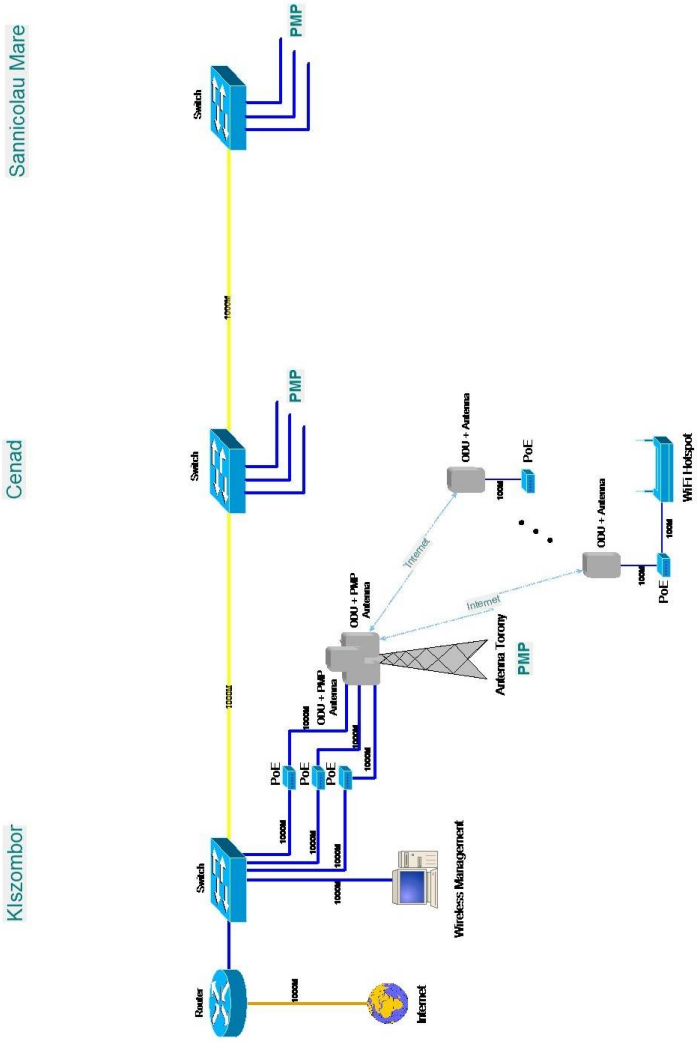
The incoming and outgoing optical network will be connected to a router included in the base-station.

We will install a non-metallic optical overhead cable on the pylons of the 20 kV power line, which will be used to reach the .4 kV network at Kiszombor and then the parcel owned by the local government.

The optical network will arrive from Makó into the local government owned parcel in the centre of Kiszombor. By using the existing 20kV DÉMÁSZ power line pylons, it can also be legalised as an optical cable installed on existing overhead network after installation. The PMP base-station will be installed in Kiszombor on a 20-metre-high pylon located in a parcel owned by the local government.

From Kiszombor we reach the border using an optical cable installed on the existing 20 kV network, where it will connect to a substation unit within the network being developed by the Romanian partner. From here the Romanian partner will build the network and provide the connectivity to the internet endpoints.

The completed optical backbone network, which connects to MVM network through the border will enable the provision of any optical cable based services. Among the involved settlements, including ones reached by MVM (e. g. Makó, Szeged, Kiskunhalas, Paks, Százhalombatta, Budapest) any kind the communication service can be established following an agreement of the parties.



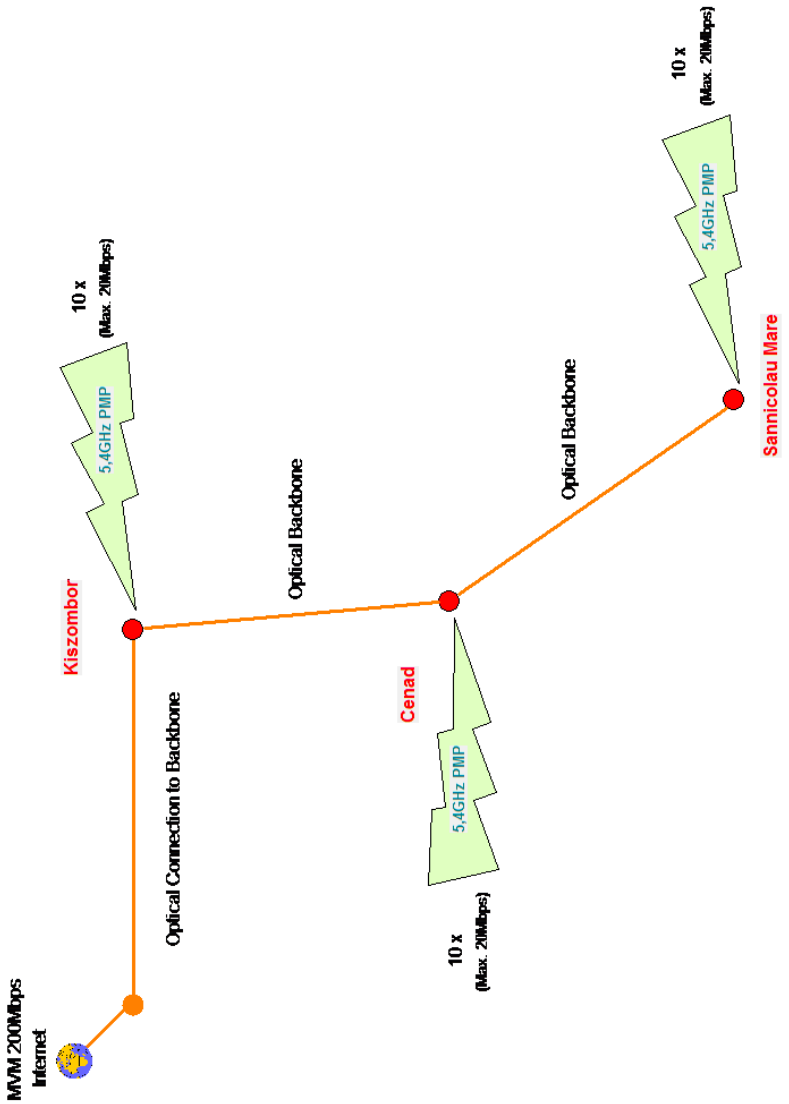
System technology

During planning and implementation the regulations set forth in “High Voltage and Non-metallic Communications Networks on Common Pylons” directive, whose rules must be strictly observed in implementation. The pylon-based transformer stations may not be used to install overhead optical cables. The distance of the optical cable must be measured at the point between the lowest point under voltage of the power-cable installed on the given structure and the highest point of the equipment holding the optical cable. Every metallic structure must be brought to equipotential on the commonly used pylons.

On pylons without grounding outside of settlement built-up areas it is not necessary to provide separate grounding for the optical network.

Review of groundings and designing new ones may be required.

The pylons must be uniquely identifiable.



Logical network model

Wireless broadband backbone and network access technologies

Point to Point (P2P) microwave connection:

Microwave P2P connections are widely used to provide communications among surface based stations. One of its most important area of use is connecting the various radio base-stations into the backbone network, where this solution is more advantageous compared to the optical connection.

Such advantages are that microwave devices can be installed quicker and easier than cable connections, and they are also cheaper, but the cost reduction is caused by a lower maximum bandwidth and the lesser reliability of the transfer medium.

Microwave P2P connections can have several speed ratings, e. g. E1/E3/E4 (2, 34 and 140 Mbit/sec) PDH as well as STM-1/4 (155, 622 Mbit/sec) are available.

WLAN technologies - wireless local area networks (e. g. WI-FI):

A wireless local area network (WLAN) is a local network solution which uses electromagnetic waves to transfer data within a given distance instead of traditional cables. Because of their low distance range WLAN solutions are frequently used for extending already existing wired broadband connections, the so-called “last 100 metres”. WLAN is also gaining momentum as a broadband internet solution for rural communities.

The 802.11b (WI-FI - Wireless Fidelity) the most widespread IEEE WLAN standard which operates on the 2.4 GHz frequency band. The physical layer is based on Direct Sequence Spread Spectrum (DSSS). The data transfer rate can be as high as 11 Mbit/sec (typically 5-6 Mbit/sec per user) within a range of 100 metres. Since WI-FI is installed at locations with a fluctuating number of users (conference, hotel, airport, community centre) it is difficult to scale in advance, availability can become intermittent.

There are some vendor-specific solutions which are capable of communicating within the free-to-use frequency range with devices at longer distances or covering larger areas. In such cases the users require special endpoint devices.

Cost calculation (1)

Phase	item	piece	EUR
Makó-Kiszombor	MVM input	1	128 333
	PMP station	1	17 093
	WI-FI station	1	3 300
	Optical network (7.5 km)	1	56 667
Kiszombor	20 m tower	1	5 880
	PMP station	1	17 093
	WI-FI station	1	3 300
Kiszombor to border	Optical network (7.1 km)	1	54 000
		SUM:	**285 667**

ROMANIAN LOCATION:

Segment 1: Timis Co., Vama Cenad – loc. Cenad – loc. Sannicolau Mare
Segment 2: Timis Co., Loc. Tomnatic - loc. Sannicolau Mare

Necessity and opportunity of the investment:
Optical fiber cables show transmission capacities and qualities clearly superior to those of the classical copper-based systems. Data transmissions using these cables are not influenced /affected by electric currents (whatever the voltage and amperage) or other urban installations.
Current situation: The telecommunication system in the localities Cenad, Tomnatic and Sannicolaul Mare is hardly developed; there is no functional fiber network between all these localities.

Opportunity of the investment:
The present project is in line with the regional development policies regarding the microregions. By the implementation of this project, a functional optical fiber telecommunication network shall be achieved, whose beneficiaries can be the State institutions, non-governmental associations, not for profit associations, the population of the localities Cenad, Tomnatic and Sannicolaul Mare and the interconnection of this network to the telecommunication network in Hungary.
Elements based on which the documentation has been elaborated:
-the beneficiary's order
-data collected from the field
-norms in force

DESCRIPTION OF THE WORKS

2.1. Location: Land belonging to the public domain along the road DN6.
Segment 1: Vama Cenad – loc. Cenad – loc. Sannicolaul Mare (DN 6);
Segment 2: Loc. Tomnatic – loc. Sannicolaul Mare (DN6)

2.2. Topography:
- Land in the built-in area and out of the built-in area, Timis co.
- Pollution degree: I (according to NTE 001/03/00)
- Average altitude: approx. 100 m
- Trajectory of the work: the location of the work shall be delivered by the project designer to the constructor and the beneficiary upon the completion thereof
- Access ways: DN6

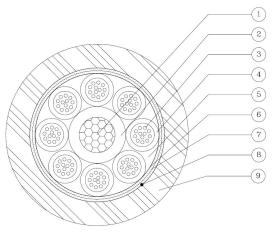
2.3. Specific climate and natural phenomena:
- Climatic area: according to PE 106/2003 and NTE003/04/00 the investment is in the meteorological area A
- Yearly average temperature is of 8.9 Celsius degrees.
- Hoarfrost scum D < 22 mm

2.4. Geology and seismic regime:
- Seismic load: Ks=0, 16 g (according to P100-92)
- Seismic area for calculation: D (according to P100-92)
- Corner period: Tc=1.0 s (according to P100-92)

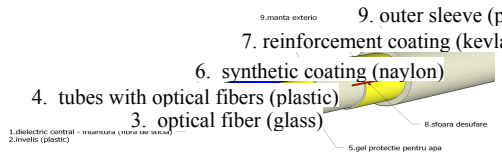
2.5. Category of importance of the objective: Constructions that are the subject of the present documentation according to the Romanian Government Decision 766/97 fall within the category C "normal" and according to P100-96 in the importance class "III".

2.6. Legal situation of the land: The work is to be achieved on the land belonging to the public domain, the optical fiber cable being installed by burial in the protection area of the national road DN6. The chosen trajectory aims at the interconnecting of the localities Cenad, Tomnatic to the locality of Sannicolaul Mare and the connection to the telecommunication network of Hungary

2.7. Memo according to the specialties.
2.7.1. Features of the optical fiber cable
2.7.1.1. Physical features
<u>ADSS- code: ADSS Prysmian FAL4/KS</u>
no. of pipes– 4



no. of fibers /pipe– 12
fiber type – Single Mode Optical Fibers
outer diameter– 10,5 mm
nominal weight– 90 kg/km
standard length – 4 km
breaking force– 1500 N/100mm
maximal force upon installation– 1.5 x W x 9.81 N
impact force – 5 N.m
bending radius: - dynamic – 20 x cable diameter
- static – 15 x cable diameter
operating temperature – between -30ºC and +60ºC
installation temperature – between -10ºC and +50ºC



4. blind tubes (plastic)

8. guiding wire

1. central dielectric - reinforcement (fiberglass)
2. coating (plastic)

5. protection gel for water

Optical fiber cable without electric conductor – ADSS: All Dielectric Self-supporting

2.7.1.2. Optical features

ADSS- code: ADSS Prysmian FAL4/KS
transmission performance
1310nm - maximal attenuation – 0,38 dB/km
- Dispersion ≤ 3,5 ps/nm x km
1550nm - maximal attenuation – 0,25 dB/km
- Dispersion ≤ 18 ps/nm x km

2.7.2.Civil engineering works.
Designed underground trajectory:
Underground line for optical fiber cable type ADSS Prysmian FAL4/KS
Trajectory 1. Connexion Ungaria - Vama Cenad – loc. Cenad – loc. Sannicolaul Mare
The optical fiber cable type ADSS Prysmian FAL4/KS shall be located in the excavated ditch at the connection with telecommunication network in Hungary at the Cenad Customs Office, along the national road DN6 up to the locality Cenad. The length of the underground trajectory is of 7.92 km of optical fiber cable. Within the built-in area of the locality Cenad, the telecommunication network shall be designed underground on the streets of the locality by the public domain belonging to the City Hall of Cenad. The length of the underground trajectory is of 3.35 km. The trajectory out of the built-in area of the loc. Cenad – loc. Sannicolaul Mare is done underground, the trajectory following the national road DN6, for the

length of 4.54 km. Within the built-in area of the locality Sannicolaul Mare, the telecommunication network shall be designed underground on the streets of the locality by the public domain belonging to the City Hall of Sannicolau Mare. The length of the underground trajectory is of 3.2 km. Optical fiber cable reserves shall be available at the designed junctions (30m), and at the designed chambers (30 m). The total length of the optical fiber cable for the designed underground trajectory is of 19.01 km. along the trajectory; in the excavated ditch a system of HDPE Ø40 mm monotubes shall be installed. The ditch shall be 1.2 m deep. The HDPE Ø40 mm monotubes shall be on the base of the ditch and covered with a 15cm thick layer of fine soil, sieved, without tough elements. 30 cm above them, a 30 cm wide PVC warning sheet shall be laid and it shall be marked "ATTENTION OPTICAL CABLE".
The total land surface affected by the works shall be of 3.8 km^2 underground.

Description of the designed trajectory Designed underground trajectory		OF installed underground [km]	OF installed above ground [m]	OF placed in the existing pipes [m]	OF above ground reserves [m]	OF under-ground reserves n [m]	TOTAL optical fiber cable [km]
START	END						
Vama Cenad	Sannicolaul Mare	19.01				500	20.51

The necessary endorsements shall be applied for from all competent authorities, according to the urbanism certificate. The land affected by the works shall be brought back to the initial condition.
Trajectory 2. Loc. Tomnatic – loc. Sannicolaul Mare
The optical fiber cable type ADSS Prysmian FAL4/KS shall be placed in the excavation in the center of the locality Tomnatic along the national road DN 6 up to the locality Sannicolaul Mare. The length of the underground trajectory is of 10.16 km of optical fiber cable. In the built-in area of the locality Sannicolaul Mare, the telecommunication network shall be designed underground on the streets of the locality by the public domain belonging to the City Hall of Sanicolau Mare. The length of the underground trajectory is of 3 km. Reserves of optical fiber cable shall be available at the designed junctions (30m), and the designed chambers (30 m). The total length of optical fiber cable for the designed underground trajectory is of 13.16 km. along the trajectory, a system of HDPE Ø40 mm monotubes shall be mounted in the excavated ditch according to situation plan. The ditch shall be 1.2 m deep. The HDPE Ø40 mm monotubes shall be on the base of the ditch and covered with a 15cm thick layer of fine soil, sieved, without tough elements. 30 cm above them, a 30 cm wide PVC warning sheet shall be laid and it shall be marked "ATTENTION OPTICAL CABLE".
The total land surface affected by the works shall be 2.63 km^2 underground.

Description of the designed trajectory Designed underground trajectory		OF installed underground [km]	OF installed above ground [m]	OF placed in the existing pipes [m]	OF above ground reserves [m]	OF under-ground reserves n [m]	TOTAL optical fiber cable [km]
START	END						

Loc. Tomnatic	Sannicolaul Mare	13.16				500	21.66

The necessary endorsements shall be applied for from all competent authorities, according to the urbanism certificate. The land affected by the works shall be brought back to the initial condition.
The total length of all designed trajectories shall be of L = 32.17 km.

2.7.3. Deviations and protections of affected utilities: in case the optical fiber cable intersects in the underground with various networks of water supply, gas, thermal agent, or telecommunications the norms in force shall be complied with

2.7.4. The sources of water, electricity, gas, and communications for definitive and temporary works: for the works defined by their nature it is not necessary to provide such utilities. In case such utilities become necessary during the execution of the works, the constructor shall assure them from his own sources (e.g.: movable generator group, water tanks etc).

DURATION OF IMPLEMENTATION AND MAIN PHASES

CRT. NO.	Name of the activity	Year 1 + Year 2		
		Semester 1	Semester 2	Semester 3
1	Tender for design services	x		
2	Design	x		
3	Tender for execution services	x		
4	Execution		x	x
5	Reception of the works			x

ESTIMATE INVESTMENT COSTS

CRT. NO.	Name of the activity	Year 1 + Year 2		
		Semester 1	Semester 2	Semester 3
1	Tender for design services	0		
2	Design	9.98%		
3	Tender for execution services	0		
4	Execution		44%	44%
5	Reception of the works			2.02%

INVESTMENT FUNDING SOURCES
Value of the investment (INV/C+M) = 886834 lei (VAT included)
Value of the investment (INV/C+M) = 243039 euro (VAT included)

ESTIMATES REGARDING THE WORK FORCE OCCUPIED WITH THE ACHIEVEMENT OF THE INVESTMENT
For the achievement of the investment “E-City” a team consisting of 8 persons would be necessary.
For the exploitation of the Telecommunication Network a team of 2 persons shall be necessary. These persons shall also be in charge of network maintenance. One should also take into account that together with the commissioning of the objective, the beneficiary of the

investment shall take over the whole objective for the purposes of maintenance, exploitation and assurance of all related services.

MAIN TECHNICAL – ECONOMIC INDICATORS OF THE INVESTMENT

TOTAL VALUE OF THE INVESTMENT = 886834 LEI (VAT included) out of which:
Works of CONSTRUCTION AND MOUNTING = 702492 LEI
MACHINERY AND EQUIPMENT ITEMS = 53550 LEI
FACILITIES = 0 LEI
DURATION FOR THE ACHIEVEMENT OF THE INVESTMENT (calendar months)
The optical fiber telecommunication network 6 months
CAPACITIES
Constructive data
The optical fiber telecommunication network 32.17 km

5 Impact on environment

In the preparation process the impact on environment was studied and related information collected. It can be stated that the project does not have impact on soil, air, natural habitats and archeological heritage.

Name of the environmental impact	Relevance
Protection of water quality	
Sources of pollutants for waters, concentrations and mass debits of pollutants resulted according to the technological and activity phases	not applicable
The water treatment plants and installations or for the pre-treatment of designed waste waters, dimensioning elements, pollutant retaining efficiency	not applicable
Concentrations and mass debits of pollutants evacuated in the environment, disposal location or emissary	not applicable
In case of projects regarding waste storage installations, the following shall also be submitted	
The leachate collection, treatment and disposal system (including the description of the proposed technology and treatment installation, in case this is achieved in situ: - not applicable	not applicable
Air protection	
Sources of pollutants for air, debits, concentrations and mass debits for the resulted pollutants and their features according to the technological or activity phases	not applicable
Installations for residual gas treatment and powder retention, for the collection and dispersion of residual gas in the atmosphere, dimensioning elements, efficiencies	not applicable
Concentrations and mass debits of the pollutants evacuated in the atmosphere	not applicable
In case of projects regarding waste storage installations, the following shall also be submitted	not applicable
The landfill gas collection and evacuation system	not applicable
Protection against noise and vibrations	
Sources of noise and vibrations	not applicable
Arrangements and equipments for protection against noise and vibrations	not applicable
Level of noise and vibrations at the limit of the precinct of the site and the nearest protected receiver	not applicable
Protection against radiations	
Sources of radiations	not applicable
Arrangements and equipments for protection against radiations	not applicable
Arrangements and equipments for protection against radiations	not applicable
Level of radiations at the limit of the precinct of the site and the nearest protected receiver	not applicable
Protection of the soil and subsoil	
Sources of pollutants for soil and subsoil	not applicable
Works and equipments for the protection of the soil and subsoil	not applicable
Protection of land- and water-based ecosystems	
Description of the environmental aspects that shall probably be affected by the proposed project, including, especially: the population, fauna,	not applicable

flora, soil, water, air, climate factors, landscape and inter-relations between these factors	
Pollutants and the activities that can affect the land- and water-based ecosystems	not applicable
Works, equipments and measures for the protection of the land- and water-based fauna and flora, of the biodiversity, natural monuments and protected areas	not applicable
Protection of human settlements and other public interest sites	
Distance to the human settlements and the public interest sites, respectively investments, historical and architectural monuments, various settlements, areas of traditional interest etc	not applicable
Works, equipments and measures for the protection of human settlements and protected sites and/or public interest sites	not applicable
Waste management for the in situ generated wasted	
Types and quantities of any type of resulted waste	not applicable
Modality of waste management and the assurance of the environmental protection conditions	not applicable
Management of the toxic and hazardous substances	
toxic and hazardous substances produced, used, commercialized	not applicable
Modality of management of the toxic and hazardous substances and the assurance of the protection conditions for the environmental factors and the human health	not applicable

After the completion of the construction works for the optical fiber telecommunication network the green area shall be rearranged so to bring to the initial aspect. There is no environmental impact.

6 Estimated investment costs

It is important for the project partners to estimate the sustainability of the investment prior to the implementation of the planned project. The objective of this is to see the ability of the project to maintain its results under the given, and forecasted, internal and external conditions.

General approach

Within this analysis, we calculate with the following macro-economic presumption:

- There will be no secular and significant change in **inflation**; it has no significant impact on the maintenance of the project-related institutions. The analysis does not concern the impact of inflation.
- The **exchange rates** are fluctuating in both countries; both currencies are currently weak compared to the Euro. Calculations were made according to the exchange rates approved by the European Commission in December 2011. Calculating (reserving) with the fact that the exchange rate of HUF/EUR and RON/EUR may become weaker, we did not change the exchange rate to the current Commission level.
- Currently, the central bank base rate in Hungary is 6,00%, in Romania 5,50%. The strategies of both banks of issue indicate that they will not differ significantly from the current rate. The COWI guide defines a financial **discount rate** of 5%. During the calculation of the budget and its present value, we will not deviate from the indicated rate.
- The **reference period** of the project is 15 years - the cash flow is for this period - according to the COWI guide

The first year of expected costs is 2014. Preparation costs incurred in this year with the submission of the applications, including costs for the technical plan, the feasibility study, the translation and the external consultancy costs. The year of project start is 2014; the last year of the reference period is 2026. The project will be realized within two years, not including the preparation period; the implementation period will include the procurement of equipments, the building works in Hungary and renovation of the building in Romania.

Estimated costs of the investment

Hereafter the goal of the financial analysis is achieved by the following logic:

- The first step is to determine the **investment costs** by adding them to the proper groups.
- After this we numerate the **operational costs** of the project and divide them with the incremental method as stated in the CBA guide and the JFS guide.
- The next step is the summation of the financial costs.
- This is followed by the numeration of financial indexes (chapter 7)
- The final step of the financial analysis will be the creation of the cash-flow board and the deduction of the conclusions and results.

The costs of the project are shown in the following table.

Budgetary lines*	2014	2015	2016	2017	Total eligible costs
I. Preparation costs	**43 300,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**43 300,00 €**
1. Preparation of technical plans	10 000,00 €				10 000,00 €
2. Preparation of studies, statistics, databasis, researches	29 300,00 €				29 300,00 €
3. Costs of compulsory permits	0,00 €				0,00 €
4. Project meeting costs	0,00 €				0,00 €
5. Travels costs	0,00 €				0,00 €
6. Translation costs	0,00 €				0,00 €
7. External consultancy costs	4 000,00 €				4 000,00 €
II. Staff costs	**3 500,00 €**	**21 000,00 €**	**17 500,00 €**	**0,00 €**	**42 000,00 €**
1. Management cost	*2 600,00 €*	*15 600,00 €*	*13 000,00 €*	*0,00 €*	*31 200,00 €*
1.1. Salary of the project manager	1 500,00 €	9 000,00 €	7 500,00 €		18 000,00 €
1.2. Salary of the project assistant	600,00 €	3 600,00 €	3 000,00 €		7 200,00 €
1.3. Salary of the financial manager	500,00 €	3 000,00 €	2 500,00 €		6 000,00 €
					0,00 €
2. Expertise costs	*900,00 €*	*5 400,00 €*	*4 500,00 €*	*0,00 €*	*10 800,00 €*
2.1. Salary of the expert	900,00 €	5 400,00 €	4 500,00 €		10 800,00 €
2.2. Salary of the expert					0,00 €
2.3. Salary of the expert					0,00 €
2.4. Salary of the expert					0,00 €
2.5. Salary of the expert					0,00 €
2.6. Salary of the expert					0,00 €
2.7. Salary of the expert					0,00 €
III. Travel and accomodation costs	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**
1.1 Fuel					0,00 €
1.2 Rail ticket					0,00 €
1.3 Local fares					0,00 €
1.4 Other costs					0,00 €
2. Accomodation					0,00 €
3. Per diem					0,00 €
4. Meals					0,00 €
IV. External service costs	**500,00 €**	**6 341,94 €**	**15 667,74 €**	**0,00 €**	**22 509,68 €**
1. External management services	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*
1.1					0,00 €
2. Professional expertise	*0,00 €*	*2 729,03 €*	*9 651,61 €*	*0,00 €*	*12 380,65 €*
2.1		2 729,03 €	9 651,61 €		12 380,65 €
3. Organisation of events	*0,00 €*	*0,00 €*	*3 612,90 €*	*0,00 €*	*3 612,90 €*
3.1			3 612,90 €		3 612,90 €
4. Visibility action	*500,00 €*	*3 612,90 €*	*2 403,23 €*	*0,00 €*	*6 516,13 €*
4.1 Promotional materials	0,00 €	3 612,90 €			3 612,90 €
4.2 Adds	500,00 €	0,00 €	403,23 €		903,23 €
4.3 Web page					0,00 €
4.4 Other			2 000,00 €		2 000,00 €
5. Other services	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*
5.1					0,00 €
V. Equipment costs	**0,00 €**	**1 806,45 €**	**0,00 €**	**0,00 €**	**1 806,45 €**
1. Costent related equipment	*0,00 €*	*1 806,45 €*	*0,00 €*	*0,00 €*	*1 806,45 €*
1.1		1 806,45 €			1 806,45 €
2. Office equipment	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*

2.1					0,00 €
VI. Investment costs	**0,00 €**	**480 831,94 €**	**0,00 €**	**0,00 €**	**480 831,94 €**
1. Purchase of land					0,00 €
2. Purchase of buildings					0,00 €
3. Construcion of buildings, infrastructure	*0,00 €*	*480 831,94 €*	*0,00 €*	*0,00 €*	*480 831,94 €*
3.1		480 831,94 €			480 831,94 €
4. Reconstruction, renovation of buildings (part of buildings), infrastructure	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*
4.1					0,00 €
VII. Financial costs	**60,00 €**	**360,00 €**	**300,00 €**	**0,00 €**	**720,00 €**
1. Bank cost	60,00 €	360,00 €	300,00 €		720,00 €
2. Guarantee costs					0,00 €
3. Legal consultancies fees, notary fees					0,00 €
VIII. Overhead costs	**840,00 €**	**5 040,00 €**	**4 200,00 €**	**0,00 €**	**10 080,00 €**
1. Overhead costs	840,00 €	5 040,00 €	4 200,00 €		10 080,00 €
Net total costs	**48 200,00 €**	**515 380,32 €**	**37 667,74 €**	**0,00 €**	**601 248,06 €**
Non-recoverable VAT	**0,00 €**	**47 889,68 €**	**832,26 €**		**48 721,94 €**
Gross total costs	**48 200,00 €**	**563 270,00 €**	**38 500,00 €**	**0,00 €**	**649 970,00 €**

The costs in the table are net costs (in compliance with the regulations).

The most significant costs among *preparation costs* are the making of the feasibility study and technical plans. The budget includes the costs of the project meeting and the expert.

The *staff costs* include the wages and contributions of the members of the project management team, and of the internal experts. These persons will cooperate during the whole project period for the successful implementation.

The *travel costs:* The partners require the support of its fuel costs and a per diem allowance.

The external services category is very complex. This includes the costs for communication, boards, publications and advertisements. Furthermore, it contains the costs of public procurement experts and technical inspector, and the costs for experts and health economists participating in the trainings and on conferences. The most important item of the external services is the miscalculated and underestimated cost for the implementation documentation.

The equipment and investment categories include the costs of procurement of the equipments, and the investment detailed in chapter 4

The last two budgetary lines contain the associated costs, such as bank, insurance and overhead costs.

Estimation of the operating costs

Hereinafter we calculated the operating costs of the project. We considered the planning principles that were stated in the previous chapters and used the method of conservative estimation. The operating costs were calculated as fixed and variable costs.

Based on the incremental method and the characteristics of the project, a the followint operating cost categories can be defined (calculated on incremental cost):

1. **Costs of optical network on utility poles**: This category has a fixed rental fee. Fixed cost: 10 Ft/year/meter
2. **Costs of optics located in the ground**: 0 Ft
3. **Radio network**: Rental cost of assets on foreign property should be calculated. In this project, 3 assetts will be stored on the top of 3 buildings, the rental fee should be calculated to the operating costs, as fixed cost.
4. Electricity usage
5. Rental cost of server installation
6. Cost of internet-access of the network
7. Maintenance: arrival service should be operated

Operating costs of the new infrastructure, euro/month

Cost category	€/year
Rental fee of optical network on utility poles	1400
Rental fee of optics located in the ground	0
Rental cost of assets on foreign property (radio network)	1000
Electricity	500
Rental cost of server storage	500
Cost of internet-access of the network	2000
Total	5400

The first table shows the *operating costs* including material costs, and daily fees, and calculates with maintenance costs as well.

The table shows the operating costs with the incremental method. The table contains the joint additional expenditure of the partners.

Replacement costs

The replacement costs concern the replacement of equipments procured within the project.

When defining replacement, we mean the change of devices (e. g. scrapping). The cost-benefit analysis is based on financial approach, so it can not contain deterioration costs. We are planning replacement three times during the reference period (5000 euro respectively). These will occur in 2018, 2023 and 2028. **This is the cost of Replacement of devices in the base station**

Revenues

Our project will not generate any kind of revenues, since its results will be of public benefit, and will be made available for the general public free of charge.

Our project will generate some income, but the income will be equal or less than operating cost, so it will now have revenue. The source of income will be the further selling of the internet to Internet-providers, so they can access internet cheaper (maintaining neutrality in the competition, thus equal conditions are assured)

Residual value

From the available methods considering the calculation of the residual value, the most fitting is when we obtain the residual value by decreasing the value of investment with the deterioration rates calculated by the anticipated life-span. The obtained residual value is equal to the residual value calculated by the incremental method.

The calculation of the residual value is necessary because the lenght of time considered by the cost-benefit analysis may not be equal to the actual life-span of implemented devices. According to this they can represent value after the examined period. In this case the residual value of the devices must be featured in the last year of the examined period.

The financial residual value of project devices at the end of the reference period is 0 euro.

Operating and maintenance costs of the project

Operating and maintenance costs	Costs incurred														
	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1. Operating costs	**0,00 €**	**2 700,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**	**5 400,00 €**
1.1. Current costs	0,00 €	2 700,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €
1.1.1. Rental fee of optical network on utility poles	0,00 €	700,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €	1 400,00 €
1.1.2. Rental fee of optics located in the ground	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
1.1.3. Rental cost of assets on foreign property (radio network)	0,00 €	500,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €
1.1.4. Rental cost of server storage	0,00 €	250,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €
1.1.5. Cost of internet-access of the network	0,00 €	1 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €	2 000,00 €
1.1.6. Electricity	0,00 €	250,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €	500,00 €
1.2. Constant costs	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
1.2.1.															
1.2.2. …															
1.2.3. …															
1.2.4. …															
2. Maintenance costs	**0,00 €**	**500,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**	**1 000,00 €**
2.1. Current costs	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
2.1.1. …															
2.1.2. …															
2.1.3. …															
2.2. Constant costs	0,00 €	500,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €
2.2.1. Arrival service		500,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €
2.2.2. …															
2.2.3. …															
3. Replacement cost					**5 000,00 €**					**5 000,00 €**					**5 000,00 €**

The following table contains the total expenditure:

Description	*Present value*	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1. Total investment costs	***590 065,00 €***	**48 200,00 €**	**563 270,00 €**	**38 500,00 €**	**0,00 €**											
I. Preparation costs	***41 238,00 €***	43 300,00 €	0,00 €	0,00 €	0,00 €											
II. Staff costs	***37 498,00 €***	3 500,00 €	21 000,00 €	17 500,00 €	0,00 €											
III. Travel and accomodation costs	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €											
IV. External service costs	***19 763,00 €***	500,00 €	6 341,94 €	15 667,74 €	0,00 €											
V. Equipment costs	***1 639,00 €***	0,00 €	1 806,45 €	0,00 €	0,00 €											
VI. Investment costs	***436 129,00 €***	0,00 €	480 831,94 €	0,00 €	0,00 €											
VII. Financial costs	***643,00 €***	60,00 €	360,00 €	300,00 €	0,00 €											
VIII. Overhead costs	***9 000,00 €***	840,00 €	5 040,00 €	4 200,00 €	0,00 €											
Non-recoverable VAT	***44 156,00 €***	0,00 €	47 889,68 €	832,26 €	0,00 €											
2. Total operating costs	***66 824,00 €***	**0,00 €**	**3 200,00 €**	**6 400,00 €**	**6 400,00 €**	**11 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**11 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**11 400,00 €**
2.1. Operating costs	***48 458,00 €***	0,00 €	2 700,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €	5 400,00 €
2.2. Maintenance costs	***8 974,00 €***	0,00 €	500,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €	1 000,00 €
2.3. Replacement costs	***9 392,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	5 000,00 €	0,00 €	0,00 €	0,00 €	0,00 €	5 000,00 €	0,00 €	0,00 €	0,00 €	0,00 €	5 000,00 €
3. Residual value	***0,00 €***	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**
4. Total financial costs (1+2+3)	***656 889,00 €***	**48 200,00 €**	**566 470,00 €**	**44 900,00 €**	**6 400,00 €**	**11 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**11 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**11 400,00 €**

Revenues of the project

Revenues year-by-year	*Present value*	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1. Revenues from the main activity	***0,00 €***	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**
1.1.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
1.2.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
1.3.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
1.4.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
1.5.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
2. Revenues from the supplementary activities	***0,00 €***	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**
2.1.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
2.2.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
2.3.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
2.4.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
2.5.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
3. Other revenues	***57 432,00 €***	**0,00 €**	**3 200,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**
3.1.	***57 432,00 €***	0,00 €	3 200,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €
3.2.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
3.3.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
3.4.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
3.5.	***0,00 €***	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €	0,00 €
4. Total	***57 432,00 €***	**0,00 €**	**3 200,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**	**6 400,00 €**

7 Cost-benefit analysis

The cost-benefit analysis of the tender was created based on the following documents:

- Guideline on the preparation of the Joint Feasibility Study (hereafter referred to as JFS guide),
- „*Guidance on the methodology for carrying out cost-benefit analysis.*" published by the European Comission (hereafter referred to as CBA guide).
- „*Guide to Cost-Benefit Analysis of investment projects*" published by the European Comission (hereafter referred to as EU-guide).

In this chapter the most important results of the impact assessment's cost-benefit analysis will be revealed. We will briefly review the principals used by the calculations. The acquaintance of these principals is definitely necessary to the proper interpretation of result. Afterwards, we rate the project proposal properly based on the criteria of the JFS guide.

Methodological principles

The analysis will fit the standarts of the most widespread and accepted methodological references and recommendations of the CBA, JFS and EU guides considering the rating of project proposals, thus the **discounted cash flow** method will be applied. The economical and scientific explanation of this resides in the fact that investments usually recommend a large outflow of capital in the beginning, which we call net investment. Due to this large net expense it is important to measure the future yields also in net values.

The cash flow can be most easily defined as the difference of the effective revenues and outcomes in a given period. The cash flow is more capable to decide the financial viability of investment proposals as the accountancy outcomes. During the accountancy results we must consider expenditures that do not draw real financial flow. Furthermore these results greatly depend on the chosen rating methods of updated and allowed accountancy laws.

The goal of the cost-benefit analysis according to the JFS guide:

1. identification of the investment and definition of the objectives
2. analysis of the alternatives/ options;
3. financial analysis including calculation of the financial performance indicators, calculation of net present value (NPV), incremental analysis, discounting, calculation of internal rate of return (IRR) and cost-benefit report;
4. sensitivity analysis;
5. risk analysis.

The monitoring of financial sustainability means that during the analysis period there are sufficient financial sources at will, so that the achieved service standards can be maintained.

7.1 Identification of the investment and definition of the objectives

The identification of the investment: to create an informative infrastructure in Hungary and Romania that contributes to a concept in which people (from a youthful age) and the entrepreneurs can get accustomed to the protection of the environmental values and the usage of renewable resources. This can urge the strengthening of an environmentally sound behavior, the decrease of energy-dependency, thus the environment can be sustainable.

To achieve this, a new-built interactive and informative center will be raised in Hungary. Here all sorts of „gagdets" will be available, that will inform the young population of the cross-border region about the importance of environment-protecion in a spectacular and playful way.

In Romania the establishment of the informative center will be done through property-restoration. Here the adult population of the cross-border region can get a line on the current nature-conservational events with the help of several multimedia devices. The most serious problems and their expected consequences will be introduced solely to adults in an understandable way. Furthermore another goal is to draw people's attention to the relevance of the protecion of environment

According to the EU guidelines, as a main objective, CBA provides support for informed judgement and decision making. CBA is an input, amongst others, for decision making on major project co-financing by the EU. CBA, i.e. financial and economic project appraisal, including risk assessment, may be complemented by other studies, for example cost-effectiveness and multi-criteria analyses, if the project is likely to have important non-monetary effects, or economic impact analysis, in the case of significant macroeconomic effects.

Investment projects, co-financed by the Structural Funds, the Cohesion Fund and the IPA constitute implementation tools for EU Cohesion Policy and pre-accession. By means of a CBA the welfare contribution of a project to a region or a country can be measured and, in so doing, the contribution of an investment project to EU cohesion policy objectives can be assessed. For this reason, besides regulatory requirements for major projects, the Member States may also need to use CBA for projects with investment costs below the threshold mentioned in the EU regulations. In fact, most public administrations in the Member States or in the candidate countries provide further specific guidance to project promoters.

For the same reason it is also necessary to carry out a CBA for major projects implemented under CF and ERDF in order to meet the acquis standards. In this case, it is important to clearly assess whether the benefits of the specific option chosen to comply with the requirements outweigh its costs.

During the cost-benefit analyses, we consider the following standards based on the CBA guide, the JFS guide and the EU guide:

- we made calculation on **fixed prices**, at the same time we considered each unit's relative change in price
- The cash flow is planned in **real values**
- The real financial discount rate applied during the future discount of cash flows is **5%**.
- The **initial year (base year) of the analysis** is the year of the fixed prices: 2014.
- **Considering the discounting, the year 0 is 2012.**
- **The timeline of the calculations is 15 years.** The given years on which the cost-benefit analysis contains predictions are: 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028.
- We used the **discounted cash-flow method.**
- The charges incurred are estimated with the **incremental net benefits technique** (based on increments): the units which are not affected by the initiation of the investments or are not paid back by increments are ignored. So we subtract the presently availabe cash flows and economical profit from the future cash flows and social profit.
- **We apply conservative financial policites** during the financial analysis

- The expenses that appeared previously are ignored, because their return does not depend on the investment.
- We ignore funding costs.
- We manage the inflation in calculations consistently.

7.2 Analysis of the alternatives/ options

The goal of this chapter is to determine the best solution from the final versions which will contribute to the fact of achieving our goal with the lowest costs.

The general CBA guide determines three types of methods with which we can compare alternatives. The Feasibility Study guide prefers the completion of cost effectiveness analysis.

During the comparison of alternatives, we consider the following:

1. The method of comparing alternatives is based on the cost effectiveness analysis
2. The incremental method is used when comparing alternatives
3. The timeline of the analysis is 15 years
4. During the analysis we calculate with economical costs
5. The used discount rate based on the European Comission guideline is 5,5%
6. When discounting, the year 0 is 2014

With the information above, we can choose the proper version with which we will achieve our goal at the lowest costs. The version which's results will have the **lowest** present value applying the incremental method and the discount rate of 5,5% **will be chosen**.

Option 0.

Option zero (option with no investment):

Without the investment, the observable needs and the satisfy of different EU-, national and regional development agendas will not be completed, the progress of e-services cannot be realised, the digital gap will be deepened, the formation of information society will not start, or slow down or stop. The common cross-border interests and goals will atrophy or suffer without the foundation of the deployed network..

Option 1.

Medium option (option with medium investment)

This version is the medium option with the technical background introduced in Chapter 4 and the costs presented in Chapter 6.

This is the goal for the project and proposal, the details can be found in technical specification in the other part of the feasibility study, proposal documentation.

Option 2.

Maximum option (option with maximum investment)

The fiber optics, FFTx connection in various methods means about ten-time higher investment costs and with much longer period of implementation and difficult and lengthy

regulatory process. The access of communes, local population and institutes will be expensive and limited and the sustainability will depend on several factors. The broadband supply, the underground and/or wire/cable network construction and the supplementary investments mean so high expenses in many manners that will not help the realisation such infrastructure-building.

7.3 Financial analysis

Hereafter the goal of the financial analysis is achieved by the following logic:

- The first step is to determine the **investment costs** by adding them to the proper groups.
- After this we numerate the **operational costs** of the project and divide them with the incremental method as stated in the CBA guide and the JFS guide.
- The next step is the summation of the financial costs.
- This is followed by the numeration of financial indexes.
- The final step of the financial analysis will be the creation of the cash-flow board and the deduction of the conclusions and results.

The costs of the project are shown in the following table.

Budgetary lines*	2014	2015	2016	2017	Total eligible costs
I. Preparation costs	**43 300,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**43 300,00 €**
1. Preparation of technical plans	10 000,00 €				10 000,00 €
2. Preparation of studies, statistics, databasis, researches	29 300,00 €				29 300,00 €
3. Costs of compulsory permits	0,00 €				0,00 €
4. Project meeting costs	0,00 €				0,00 €
5. Travels costs	0,00 €				0,00 €
6. Translation costs	0,00 €				0,00 €
7. External consultancy costs	4 000,00 €				4 000,00 €
II. Staff costs	**3 500,00 €**	**21 000,00 €**	**17 500,00 €**	**0,00 €**	**42 000,00 €**
1. Management cost	*2 600,00 €*	*15 600,00 €*	*13 000,00 €*	*0,00 €*	*31 200,00 €*
1.1. Salary of the project manager	1 500,00 €	9 000,00 €	7 500,00 €		18 000,00 €
1.2. Salary of the project assistant	600,00 €	3 600,00 €	3 000,00 €		7 200,00 €
1.3. Salary of the financial manager	500,00 €	3 000,00 €	2 500,00 €		6 000,00 €
					0,00 €
2. Expertise costs	*900,00 €*	*5 400,00 €*	*4 500,00 €*	*0,00 €*	*10 800,00 €*
2.1. Salary of the expert	900,00 €	5 400,00 €	4 500,00 €		10 800,00 €
2.2. Salary of the expert					0,00 €
2.3. Salary of the expert					0,00 €
2.4. Salary of the expert					0,00 €
2.5. Salary of the expert					0,00 €
2.6. Salary of the expert					0,00 €
2.7. Salary of the expert					0,00 €
III. Travel and accomodation costs	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**
1.1 Fuel					0,00 €
1.2 Rail ticket					0,00 €
1.3 Local fares					0,00 €
1.4 Other costs					0,00 €
2. Accomodation					0,00 €

3. Per diem					0,00 €
4. Meals					0,00 €
IV. External service costs	**500,00 €**	**6 341,94 €**	**15 667,74 €**	**0,00 €**	**22 509,68 €**
1. External management services	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*
1.1					0,00 €
2. Professional expertise	*0,00 €*	*2 729,03 €*	*9 651,61 €*	*0,00 €*	*12 380,65 €*
2.1		2 729,03 €	9 651,61 €		12 380,65 €
3. Organisation of events	*0,00 €*	*0,00 €*	*3 612,90 €*	*0,00 €*	*3 612,90 €*
3.1			3 612,90 €		3 612,90 €
4. Visibility action	*500,00 €*	*3 612,90 €*	*2 403,23 €*	*0,00 €*	*6 516,13 €*
4.1 Promotional materials	0,00 €	3 612,90 €			3 612,90 €
4.2 Adds	500,00 €	0,00 €	403,23 €		903,23 €
4.3 Web page					0,00 €
4.4 Other			2 000,00 €		2 000,00 €
5. Other services	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*
5.1					0,00 €
V. Equipment costs	**0,00 €**	**1 806,45 €**	**0,00 €**	**0,00 €**	**1 806,45 €**
1. Costent related equipment	*0,00 €*	*1 806,45 €*	*0,00 €*	*0,00 €*	*1 806,45 €*
1.1		1 806,45 €			1 806,45 €
2. Office equipment	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*
2.1					0,00 €
VI. Investment costs	**0,00 €**	**480 831,94 €**	**0,00 €**	**0,00 €**	**480 831,94 €**
1. Purchase of land					0,00 €
2. Purchase of buildings					0,00 €
3. Construcion of buildings, infrastructure	*0,00 €*	*480 831,94 €*	*0,00 €*	*0,00 €*	*480 831,94 €*
3.1		480 831,94 €			480 831,94 €
4. Reconstruction, renovation of buildings (part of buildings), infrastructure	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*	*0,00 €*
4.1					0,00 €
VII. Financial costs	**60,00 €**	**360,00 €**	**300,00 €**	**0,00 €**	**720,00 €**
1. Bank cost	60,00 €	360,00 €	300,00 €		720,00 €
2. Guarantee costs					0,00 €
3. Legal consultancies fees, notary fees					0,00 €
VIII. Overhead costs	**840,00 €**	**5 040,00 €**	**4 200,00 €**	**0,00 €**	**10 080,00 €**
1. Overhead costs	840,00 €	5 040,00 €	4 200,00 €		10 080,00 €
Net total costs	**48 200,00 €**	**515 380,32 €**	**37 667,74 €**	**0,00 €**	**601 248,06 €**
Non-recoverable VAT	**0,00 €**	**47 889,68 €**	**832,26 €**		**48 721,94 €**
Gross total costs	**48 200,00 €**	**563 270,00 €**	**38 500,00 €**	**0,00 €**	**649 970,00 €**

Considering the chosen version, we calculate the project's accentuated financial performance indicators with the estimation of the project's cash flow:

a) Financial Net Present Value (FNPV)
Formula:

$$FNPV = -C_0 + \sum_{i=1}^{n} \frac{C_t}{(1+r)^t}$$

C_0 the amount of the original investment
C_t (t=1, 2, …, n) cash flow generated at time t
r discount rate

The next two tables show some important data of the project.

1. The first table shows the return of the project, **the present net value and the internal rate of return**. It is visible that the investment has no return value due to its non-profit character; the **present net value is negative**. This applies to the rate of return as well. However, since the cash flows contain negative elements as well, the FRR is non-applicable.

$$FNPV = -C_0 + \sum_{i=1}^{n} \frac{C_t}{(1+r)^t} = -599.457$$

2. The secont table shows the calculation of DNR. DNR (Discounted Net Revenue): discounted revenue - discounted operating costs + discounted residual value. Since the project has no revenues, the discounted operating costs exceed discounted residual value, that means, DNR is negative in this project.

.

Financial indicators of the project

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1. Total investment costs	48 200,00 €	563 270,00 €	38 500,00 €	0,00 €											
2. Total operating costs	0,00 €	3 200,00 €	6 400,00 €	6 400,00 €	11 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	11 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	11 400,00 €
3. Total cash outflows 1+2	48 200,00 €	566 470,00 €	44 900,00 €	6 400,00 €	11 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	11 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	11 400,00 €
4. Total cash inflows	0,00 €	3 200,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €	6 400,00 €
5.Residual value															0,00 €
6. Net financial cash flow 4+5-3	**-48 200,00 €**	**-563 270,00 €**	**-38 500,00 €**	**0,00 €**	**-5 000,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**-5 000,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**0,00 €**	**-5 000,00 €**
7. Financial present net value (FNPV)	**-599457,00**														
Financial rate of return (FRR)	#ZÉRÓOSZTÓ!														

Discounted net revenue (DNR)

Description	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
1. Total cash outflow of the operating costs (Operting costs: sheet nr. 2.)	0	3200	6400	6400	11400	6400	6400	6400	6400	11400	6400	6400	6400	6400	11400
2. Total cash inflow (Revenues: sheet nr. 5.)	0	3200	6400	6400	6400	6400	6400	6400	6400	6400	6400	6400	6400	6400	6400
3. Residual value															0
4. Operating net revenue (2-1+3)	0	0	0	0	-5000	0	0	0	0	-5000	0	0	0	0	-5000
5. Discounted net revenue (DNR) [1]	**-9 392,28 €**														

Sustainibility of the project

The project is financially sustainable, if the cumulated cash flow is yearly not negative.

According to the CBA guide, the developer must pay off the missing amount of money if the income (involving received financial support) is not enough to finance the operational costs.

The project partners declared that they will financially cover the operation of the project from their own budget (which is equal with the yearly operation costs-incomes). Due to this the project will not generate deficit and will be be able to operate in a sustainable way during and beyond the reference period.

The contributions from maintainers, i.e. the state, are not, or only additionally included. The realization of the project and the maintenance and further generation of results require financial sacrifices from the maintainers. The maintainers guarantee the necessary resources in the budget of the given institute and the additional operating costs.

Description	2014	2015	2016	2017	2018	2019	2020	2021
1. Financial investment cost	48 200 €	563 270 €	38 500 €	0 €				
2. Financial operating cost	0 €	3 200 €	6 400 €	6 400 €	11 400 €	6 400 €	6 400 Ft	6 400 Ft
3. Loan reimbursement								
4. Reimbursement of the interests								
5. Other costs								
6. Total cash outflows (1+2+3+4+5)	**48 200 €**	**566 470 €**	**44 900 €**	**6 400 €**	**11 400 €**	**6 400 €**	**6 400 Ft**	**6 400 Ft**
7. Financial revenue	0 €	3 200 €	6 400 €	6 400 €	6 400 €	6 400 €	6 400 €	6 400 €
8. Total grant amount of EU fund	40 970 €	478 780 €	32 725 €					
9. National public contribution (10+11)	7 230 €	84 491 €	5 775 €	0 €	5 000 €	0 €	0 Ft	0 Ft
10. National co-financing amount	5 421 €	63 349 €	4 330 €					
11. Total own contribution (12+13)	1 809 €	21 142 €	1 445 €	0 €	5 000 €	0 €	0 Ft	0 Ft
12. Own contribution (i.e cash)	1 809 €	21 142 €	1 445 €					
13. Liabilities (14+15)	0 €	0 €	0 €	0 €	5 000 €	0 €	0 Ft	0 Ft
14. Loans								
15. Other liabilities	0 €	0 €	0 €	0 €	5 000 €	0 €	0 €	0 €
16. Financial residual value								
17. Total cash inflows (7+8+9+16)	**48 200 €**	**566 470 €**	**44 900 €**	**6 400 €**	**11 400 €**	**6 400 €**	**6 400 Ft**	**6 400 Ft**
18. Net financial cash flow (17-6)	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 €**	**0 Ft**	**0 Ft**

7.4 Sensitivity analysis

We have analyzed the variables of the project budget. None of the variables would modify the present net value by 5% by a variation of 1%.

This means that there are no critical variables in the budget.

7.5 Risk analysis

The factors directly affecting the project and performance indicators are the financial revenues, the costs of financial investment and financial operation, and the different elements of yield.

From the point of view of the project, we must analyze the probability of the events' realization. The budget of the project partners is centrally managed. The larger measures in the budgets of the two countries negatively affecting the budgets of the health institutes can be risk-increasing factors.

Fort he other part of risk analysis see chapter 9.

8 Presentation of social and economic advantages

According to the World Economic Forum, the global economy is experiencing one of its most complex and comprehensive challenges in history. The recent credit crisis has led to record unemployment and economic hardship in both developed and emerging countries. Focusing on the transformational opportunities posed by the global economic turmoil, leaders

from industry, government and civil society attending the 2009 World Economic Forum Annual Meeting in Davos, Switzerland agreed that information and communications technologies (ICT) can play a vital role in the pathway to an economic recovery.

A digital revolution can form the foundation of a sustainable global economy. Leading academics, global organizations and industry analysts agree that there is a direct correlation between the use of ICT and positive macroeconomic growth. This evolving global communications fabric is intelligent, adaptive and highly innovative and its impact can be felt at both the micro and macro economic levels. ICT represents our collective nervous system – a platform for helping to solve some of our greatest economic, social and environmental challenges.

When focusing on macroeconomic impact, we can state, that ICT investment serve as an enabler of global recovery and trade. Although the global economic downturn has had an impact on business growth and individual consumption, it has also sparked opportunities. Several recent studies have examined the effects of ICT investment on economic performance in varying regions throughout the world.

One recent study, “Socio-economic Impact of Internet in Emerging and Developing Economies” estimates that when Internet penetration rises by 10 percent in emerging economies, it correlates with an incremental GDP increase of one to two percent4. Similarly, another study found that the comparative GDP growth rate of a developing country can be boosted by 0.59 percent per annum for every 10 mobile telephones added per 100 inhabitants5. “ICT is a harbinger of productivity and growth in developing nations,” notes Leonard Waverman Dean of the Haskayne School of Business at the University of Calgary. “ICT must be used to accelerate the global recovery. It’s the key infrastructure for the 21st century.”

For developed nations, the impact of fixed-line broadband penetration is equally important to

economic growth. A recent study, “Economic Impacts of Broadband, Information and Communications for Development 2009,” states that an increase of broadband access in developed countries of 10 subscribers per 100 inhabitants corresponds to a 1.2 percent increase in per capita GDP growth.

Additionally, multiple studies also point out that rankings in national competitiveness and network readiness are directly correlated. For example, future broadband investments could generate a total of 968,000 new jobs and result in more than 170 billion Euros of additional GDP (0.60 % GDP growth) by 2020 in Germany alone7. These significant economic returns on broadband investment amplify the need to move ahead with ambitious broadband plans through growth and innovationgeared political and regulatory frameworks which foster large-scale private investment.

By stimulating both upstream capacities (R&D, product design, application development) as well as downstream services (logistics, transportation, etc), ICT acts as a multiplier for economic growth.

9 Risk analysis

During risk analysis, we took into consideration the events that can concern the realization and operation of the project and its conditions. Several risk factors must be taken into consideration during project implementation, measures must be taken for their reduction and the management of occurring problems – if possible –, and solution alternatives must be worked out. The risks may concern the operational or financial results of the project. Possible risks occurring during project implementation and the alternatives for their reduction are as follows:

Eventual problems occurring during the project, and management alternatives

Type of risk	Risk	Description	Management alternative
Financial	Exchange risk	The movement of the HUF-EUR and the RON-EUR exchange rate has an impact on the financial implementation of the project, can result in the relative increase of costs.	The creation of reserves and the assurance of a bigger own contribution can be an alternative for the reduction of the exchange risk.
Operational	Inappropriate implementation	Complaints on implementation quality can occur on both sides.	Inclusion of legal guarantees into contracts with the suppliers.
Operational	Delay in implementation	Delay in implementation due to the failure of supplier.	Inclusion of legal guarantees into contracts with the suppliers.
Procedural	Delay in public procurement process	A delay in the public procurement process can occur on both sides, which results in a delay of procurement of equipment and of construction works.	Proper preparation of public procurement process, compilation of documentation, initiation in time of procedures.
Procedural	Unsuccessful public procurement	The public procurement process is started, but is unsuccessful.	Preliminary public procurement process without commitment.

Possible project-related risks

Occurrence probability /Impact on project objectives	Low	Medium	High
Low	Delay in public procurement process		
Medium	Unsuccessful public procurement Delay in implementation Inappropriate implementation		
High		Exchange risk	

10 Administrative and procedural liabilities

In case of the current project, administrative and procedural liabilities can be related to reconstruction works subject to authorisation, and implementation and equipment procurement processes related to public procurements.

On the side of the lead partner, the construction and the procurement of equipment are subject to public procurement. Public procurement in Hungary is regulated in Act CXXIX of 2003. One of the part of construction is subject to construction permit, the construction complies with Hungarian acts of law by taking into consideration the general construction provisions and the Hungarian Planning and Construction Regulations (OTÉK). The construction documentation contains these in detail.

Effective as of 1 January 2012, the brand new Act No. 108 of 2011 on public procurement (PPA) shall be applicable for public procurements in Hungary. Pursuant to the official interpretation to the new Act, the adoption of the new regulation became necessary due to the complex and non-transparent nature of the former PPA. Both the award of public contracts in general – in terms of Directive 2004/18/EC – and the award of utilities contracts – in terms of Directive 2004/17/EC – are covered by the PPA. However, the new PPA is more like a framework type of legislation, i.e. several detailed rules are anticipated to be laid down in government decrees at later stages. The PPA is supplemented by several governmental and ministerial decrees such as, for example, the Government Decree 168/2004 (V.25.) on the System of Centralised Procurement, Government Decree 34/2004 (III. 12.) on Detailed Rules of Forwarding and Publication of Requests for Procurement and Design Tenders. The Hungarian statutory law reflects the current EU procurement law. Furthermore, due to the fact that Hungary is a Member of the European Community, it has to comply with the obligations arising from the international agreements of the EC, including the GPA.

The main principles are “equal treatment”; “best value for money”; “transparency of spending” and “clarity of the relevant competition”. These principles serve as the main basis for the interpretation of the law.

Section 6 of the PPA lists all entities which qualify as contracting authorities: the PPA applies to State and public entities in general. Public entities are, under Hungarian law, the executive bodies of the State (e.g. ministries, central purchasing bodies, central budgetary entities and public money funds), bodies governed by public law (e.g. National Bank, Hungarian Television), any form of local and self-governments (e.g. municipalities, bodies of national minorities) and public foundations. There are two applicable threshold values in Hungary: the national threshold value; and the EC threshold value. Below the national threshold value, the PPA does not apply. In case the national threshold is exceeded, there are different regimes applicable depending on whether the amount of the EC threshold is exceeded or not. The estimated value can be determined as the highest amount of consideration (inclusive options) generally requested or offered for the subject matter of the given contract. This value is calculated without tax. There are special calculation rules for the estimated value for specific contracts. In compliance with the Directives, there are different thresholds for the public sector and the utility sector. The national threshold values for 2011 are as follows :

Public sector:	**Utility sector:**
public supply: HUF 8,000,000; public works: HUF 15,000,000; public work concessions: HUF 100,000,0000; public services: HUF 8,000,000; and public service concession: HUF 25,000,000.	public supply: HUF 50,000,000; public works: HUF 100,000,000; and public services: HUF 50,000,000

The PPA distinguishes between procedures with one phase, two phases (consisting of both a participation or qualification phase and a bidding phase), and a three-phase procedure, the competitive dialogue (which contains a qualification phase, a dialog phase and a bidding phase). Under the PPA, purchasers are free to award public contracts either by applying the 'open' procedure, or the so-called 'invitation' procedure – the restricted procedure in terms of the Directive 2004/18/EC – by which only participants qualified (short-listed) in the participation phase may submit an offer. The purchaser may use a negotiation procedure (with or without publication of the contract notice) only if (i) an open or restricted procedure or a competitive dialogue has failed, and (ii) in exceptional cases for public works and supply or service contracts. Pursuant to the new PPA, if the estimated purchase price of goods and services does not reach HUF 25 million, or the estimated value of the construction project does not exceed HUF 150 million, the purchaser may not need to announce an invitation for tender but may instead ask at least three possible SME bidders to make an offer.

Open procedure:

For receipt of tenders: 45 days starting on the day of the publication of the call for tender (29 days in limited cases – if the announcement has already been published before the call for tender and 22 days in urgent cases). For evaluating/awarding the tenders (validity periods of the tenders): 30 days in general and 60 days in case of public works, starting on the day of closing the tender. Upon request, the validity periods are subject to a maximum 60-day extension.

Restricted procedure: For receipt of tenders: 40 days starting on the day of publication of the call for tender (26 days in limited cases – where the announcement has already been published before the call for tender; and in urgent cases 21 days). For evaluating/awarding the tenders (validity periods of the tenders): 30 days in general and 60 days in case of public works, starting on the day of closing the tender. Upon request, the validity periods are subject to a maximum 60-day extension.

Negotiation procedure: For evaluating/awarding the tenders: 30 days validity periods, starting on the day of closing the negotiations (60 days in case of public works).

Competitive dialogue:

For receipt of tenders: 30 days, starting on the day of publication of the call for tender (60 days in case of public works). The purchaser has 5 additional days to invite participants for the competitive dialogue.

For evaluating/awarding the tenders (validity periods of the tenders): 30 days, starting on the day of closing the tender (60 days in case of public works).

In the context of joining the European Union, the Romanian legal framework on public procurement underwent substantial changes, aimed to align its provisions to the EU standards, mainly by implementation of the relevant EU directives into the Romanian legislation. Currently, the Emergency Ordinance No. 34/2006 on the awarding of public procurement contracts, works concession contracts and services concession contracts, as amended (hereinafter "**GEO No. 34/2006**"), sets out the general legal framework of public procurement in Romania. The general provisions of GEO No. 34/2006 are supplemented, on specific matters, such as procedural aspects and verification or contestation procedures, by two main sets of acts, issued by the Government, or by other competent authorities, as following:

(i) Government acts, such as:

Government Emergency Ordinance No. 30/2006 regarding the verification of the procedural aspects concerning the awarding of public procurement contracts, public works concession contracts and public services concession contracts, as amended;

Government Decision No. 1660/2006 for approving the application guidelines regarding the awarding of procurement contracts by electronic means provided by the GEO No. 34/2006, as amended;

Government Decision No. 921/2011 for approving the application guidelines of Government Emergency Ordinance No. 30/2006;

Government Decision No. 71/2007 for approving the application guidelines of the provisions referring to the awarding of the public works concession contracts and of services concession contracts as provided under GEO No. 34/2006;

Government Decision No. 925/2006 for approving of the application norms of the GEO No. 34/2006 regarding the awarding of public procurement contracts, works concession contracts and services concession contracts;

Government Decision No. 782/2006 approving the Regulation of organisation and functioning of the National Council for Solving Complaints (hereinafter referred to as the "Council" or "NCSC"), meaning the Romanian authority competent to settle, as first instance, complaints related to public procurement awarding acts;

Government Emergency Ordinance No. 74/2005 regarding the setting up of National Authority for

Regulating and Monitoring Public Procurement (hereinafter "NARMPP"), meaning the competent

Romanian regulatory authority for public procurement, as amended; and *Law No. 178/2010* regarding the Public Private Partnership ("Law No. 178/2010").

(ii) Acts of NARMPP, such as:

Order No. 107/2009 approving the Regulation regarding the supervision over the awarding procedure of public procurement contracts, public works concession contracts and services concession contracts.

GEO No. 34/2006 covers the following three main types of contracts: (i) public procurement (acquisition) contracts (ii) contracts regarding the concession of services by a contracting authority to a private entity; and (iii) contracts regarding the concession of public works by a contracting authority to a private entity.

The public procurement procedures provided under GEO No. 34/2006 are as follows:

(i) *Open procedure*, which represents the procedure for awarding the public procurement contract to which any interested economic operator is entitled to submit a tender.

(ii) *Restricted procedure*, which represents the procedure whereby any economic operator is entitled to submit its candidacy, and only the selected candidates will be entitled to submit a tender. The restricted procedure is used when the supply is exceeding the demand.

(iii) *Competitive dialogue*, which represents the procedure under which any economic operator is entitled to submit candidacy and whereby the contracting authority carries on a dialogue with the accepted candidates, for the purpose of identifying one or several solutions fit to meet its requirements, and, based on the identified solution/solutions, the selected candidate to elaborate the final tender. The competitive dialogue is applied only when the following conditions are cumulatively met: (a) the relevant contact is deemed to be highly complex; and (b) the application of the open procedure or restricted procedure would not allow the awarding of the relevant public procurement contract.

(iv) *Direct negotiations*, which is the procedure whereby the contracting authority carries on consulting with the selected candidates and negotiates the terms of the public procurement with one or several of such candidates. Direct negotiation can be (a) negotiation with the prior publication of a participation notice, or (b) negotiation without the prior publication of a

participation notice. The Direct negotiations may apply only in certain situations, such as emergency situations.

(v) *Tender request,* which represents the simplified procedure whereby the contracting authority requests tenders from several economic operators. A tender request procedure is allowed only if the estimated value of the public procurement contract, without the VAT, is lower than the RON equivalent of: (a) EUR 125,000, for one supply contract, or (b) EUR 125,000 for one services contract; or (c) EUR 4,845,000 for one works contract. The tender request procedure is initiated by publication in the ESPA of an invitation for participation in the awarding procedure.

As a general rule, the contracting authority must award a reasonable and adequate period of time for the publishing of the participation announcements or invitations for participation so that any interested economic operator is able to prepare the offers and obtain all documents attesting its qualifications, as requested by the awarding documentation.

The Act on Electronic Communications. Act 2003. C on 'Electronic Communications' (2003. évi C. törvény az elektronikus hírközlésről) implemented the European Universal Service and Directive 1999/5/EC on Radio and Telecommunications Terminal Equipment. The Act aims to take into consideration the needs of the disabled and the lowincome users. To this end, it postulates that:

- subject to other regulations, some types of radio devices and electronic communications terminal equipment might be required to be accessible to disabled persons;
- at least 3 % of the mandatorily installed public payphones shall be such as to be accessible to those with impaired hearing or movement.

The Audiovisual Media Law: The new Act CLXXXV of 2010 on 'Media Services and Mass Communication' (a médiaszolgáltatásokról és a tömegkommunikációról szóló 2010. évi CLXXXV. törvény) covers both linear and non-linear audiovisualmedia services. Larger linear audiovisual-media service providers - particularly public broadcasters and the most popular commercial broadcasters - are obliged to provide subtitles or sign language interpretation for deaf and hard-of-hearing viewers. This provision shall be applied for content of public interest (news, political information, public announcements, etc.), films and special content aimed at these groups of viewers. By 2015, subtitles or sign language interpretation shall be provided for all the aforementioned contents.

Act 2007. LXXIV on 'Broadcasting and the Digital Switchover' (2007. évi LXXIV. törvény a

műsorterjesztés és a digitális átállás szabályairól), known also as the 'Digital Switchover Act' introduced far-reaching structural changes to the national regulation of broadcasting. The Act separates content regulation and regulation of broadcast transmission, with the latter being governed almost exclusively by Act C of 2003 on electronic communications and the specific rules provided by the Digital Switchover Act. Certain regulatory tasks were also transferred to the National Communications and Media Authority (Nemzeti Média- és Hírközlési Hatóság, NMHH), responsible for acting as an authority in matters of broadcast transmission. The Digital Switchover Act also contains a series of provisions aimed at promoting the diversity of the media. In this respect, the act introduces several obligations for cable operators and similar service providers for preserving and promoting the national culture, cultural diversity and pluralism of opinion.

This includes the re-definition of the known as 'must carry' rules. Besides those, however, there are no specific laws or regulations which require digital television broadcasters to make programmes accessible, for example via signing, captions/subtitles and audio description.

11 Sustainability

Social equity: Project results in balanced development on both sides of the border. Due to identifying the cluster-forming potentials, the business possibilities will be extended in the case of disadvantaged SMEs, thereby their competitive disadvantage against multinational companies will decrease.

The project management organizations work in an environment-conscious way. The necessary office regulations and infrastructure are available on both sides of the border (e.g. recycling, reduction of paper usage etc.). When selecting and contracting with the suppliers (by public procurement procedure when necessary), respecting the principles of environmental sustainability will be a requirement for the competitors.

The catering suppliers' contracts will include the requirement of using recyclable bottles, glasses and cutlery.

According to academic statements, ICT is a vital and necessary tool for sustainable social and economic development in 21st-century cities. Access to global networks and ICT resources is a requirement for individual and community success in the information age. Some governments see ICT-driven development programs as "a key enabler in addressing social exclusion," and envision creating "a replicable neighborhood model that uses ICT to deliver a step-change reduction in net emissions for all communities." ICT also is both a requirement for and driver of continuous innovation essential to competing successfully in the global economy. With proper focus, planning, and policies, cities can become centers of ICT-enabled innovation for sustainable growth.

ICT innovation shows great potential for energy efficiency and climate protection in cities. Studies in various countries, generally supported by or associated with telecom companies, suggest broad potential for ICT to cut energy use and carbon emissions. One U.S. study projects that changes enabled by broadband networks could save the "equivalent of 11 percent of U.S. oil imports through transportation substitution and dematerialization."4

An Australian study on a high-bandwidth and low-carbon future describes seven opportunities that could reduce national carbon emissions by 5 percent. A recent study supported by the United States Department of Energy demonstrates significant results from smart-grid technologies to monitor and adjust home energy consumption, reducing average household consumption by 10 percent. By consumers proactively managing home energy use in this way, peak loads on utility grids could be reduced by up to 15 percent annually. The RAC Foundation in the United Kingdom estimates that "through the use of ICT, there is potential within 10 years for a 15 percent reduction in commuter travel, an 18 percent reduction in heavy freight, and a 10 percent reduction in shopping by car." Many good ideas for how ICT can support innovation for sustainability have been suggested, but most benefits remain unrealized.

In connection with sustainibility, it is very important to emphasize, that the creation and use of ICT affects the health of individuals and society. The electronics industry is one of the world's largest manufacturing sectors, with social, economic, and ecological impacts across the planet. The manufacture of ICT components and products has been associated with land, water, and air pollution. While in use, ICT equipment has been shown to contribute to indoor air pollution. In both developed and developing societies, the gap between the rich and poor for access to ICT resources is perceived to be a significant social problem.