

FP6 IST

SEEFIRE

South-East Europe Fibre Infrastructure for Research and Education



White Paper: Strategic Report on SE European Fibre Infrastructure for Research and Education

Executive Summary of SEEFIRE Deliverable 4.3 Addressing Politicians and Policy Makers in Southeast Europe

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Abstract: This document is a brief executive summary of the SEEFIRE deliverable D4.3, the “White Paper: Strategic Report on SE European Fibre Infrastructure for Research and Education”. The SEEFIRE project was addressing the digital divide and inhibitors of research and education networking in SEE countries as well as the potential impact of NREN-initiated efforts for dark-fibre acquisition. This document targets politicians and policy makers in southeast Europe. The reference deliverable, which is available at <http://www.seefire.org/publications>, was based on a preliminary version (v0) that was made available to the European Commission for comment and was distributed to participants at the SEEFIRE policy workshop held on 17 January 2006 in Bucharest, Romania.

The SEEFIRE Project

The SEEFIRE Project was a special support action co-funded by the FP6 IST Programme of the European Commission, building on the success of previous activities and projects, including SEEREN, to support research and education networks in southeast Europe and will provide input for preparing the next-generation networks for research and education in the region. The project started on 1 March 2005 and ended on 28 February 2006.

The objectives of SEEFIRE were:

- establish a benchmark of existing and potentially available optical fibre for NRENs in the region;
- make an analysis of the technical options available for the deployment of dark fibre and the management of optical transmission by NRENs in the region;
- report on economic aspects and regulations;
- disseminate information and increase awareness about dark-fibre deployment both at technical and policy-making levels.

The recent progress in technology for optical transmission at high speed has made the deployment of owned or leased fibre networks a reality for NRENs. SEEFIRE studied the feasibility of cost-effective gigabit networks in southeast Europe, connecting researchers and universities in the region with other research users in Europe and worldwide. In doing so, the project aimed to contribute to reducing the digital divide that affects several countries in southeast Europe.

The SEEFIRE Consortium	
TERENA (co-ordinating contractor)	The Netherlands
GRNET	Greece
CESNET	Czech Republic
NIIF/HUNGARNET	Hungary
AMREJ	Serbia and Montenegro
DANTE	United Kingdom
RoEduNet	Romania
ISTF	Bulgaria
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ASA	Albania
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This document addresses politicians and policy makers in South East Europe in order to show them the necessity and the advantage of powerful IT infrastructure for education and research. The key messages are:

- Improvement of the country's education and research infrastructure and capacity is a way to improve the country's economic activity and therefore the country's wealth;
- The positioning of the country in Europe will be improved by the investment in essential information infrastructure, similar to that deployed in other European countries;
- The support for NRENs in SEE is important because they are integral part of the academic ICT community, know the users and their requirements better than commercial Internet Service Providers;
- Governments of southeast European countries need to speed up the process of building an Information Society in their own country, by providing appropriate computer networks for use by research and education;
- These networks must be advanced and able to deliver services comparable to those in the rest of Europe in terms of quality and bandwidth, in order to enable innovative applications;
- These services cannot be supported at the level or price of connectivity that is currently offered by telecom operators or Internet Service Providers;
- There are no major obstacles from a regulatory point of view to the acquisition of optical fibre by NRENs, but the legislators should speed up the liberalisation process and simplify the procedures that sometimes may make the acquisition very difficult or cumbersome;
- SEE countries now have a unique opportunity to follow the example of many countries in Europe and abroad that have been able to make giant leaps in the provision of high-speed networks, thereby enabling delivery of advanced services to users in a cost-effective way thanks to the acquisition of their own optical fibre networks;
- The use of dark fibre technologies by NRENs can result in significant cost savings and thus more efficient use of public funds.

There is a significant digital divide in the provision of computer networking services to researchers, teachers and students in Europe, with many countries in South East Europe positioned at the lower end of the gap. Thanks to the EU enlargement process, these countries are closer to the European Union than they were ever before. International policies in these countries are converging towards the ultimate goal of integration and approximation to the standards of the *Acquis Communautaire*. However, there are still huge inhibitors in place in the region, acting at the political and economic levels. The major obstacle to improving research and education network provision at international, national or university level is the extremely high pricing of telecommunication links. This is the result of the lack of competition and frequently persisting dominance of (ex-) monopoly telecommunications operators. Although the market has been formally liberalised, the situation in southeast Europe today is still very similar to the one which existed in the countries of the European Union ten years ago, and the measures which need to be taken are the same: it is vital that the market for electronic communications in the region will be fully and effectively liberalised as quickly as possible.

In fact, some of these countries currently have direct access to the GÉANT2 pan-European network for research and education, but many of them have no adequate national or local network infrastructure that is capable to adequately support the provision of the services that researchers, teachers and students need to collaborate with colleagues in their scientific disciplines in the country and abroad.

If measures are not taken, the research exclusion in southeast Europe will obstruct attempts to complete the realisation of the European Research Area (ERA). Policy makers responsible for research and education in SEE should be aware of the risks of information exclusion and recognise the need to close the digital divide as the only way to follow the lead of eEurope in building an Information Society.

Various international initiatives have been supporting National Research and Education Networks (NRENs) in the region through a number of past and current network infrastructure projects, like SEEREN/SEEREN2, co-funded by the European Commission, and the SEELight initiative, led by GRNET, the Greek NREN, under the Hellenic Plan for the Economic Reconstruction of the Balkans (HiPERB). Thanks to these projects, NRENs in the countries concerned are obtaining better connections to research and education networks in other countries, are able to participate in eInfrastructure research projects (like SEE-GRID) and are moving, slowly but

steadily, towards a recognised international role (including TERENA membership and involvement in the GN2 project).

But international support on its own is not sufficient to make any substantial impact on the development of research and education networking in the less advanced regions in and around Europe. The responsibility for that development lies with the national stakeholders, and it is from there that the main policy impetus and the majority of the necessary resources have to come.

The governments concerned need to understand that, over the coming decades, investments in NRENs and ICT will be important elements in the creation of economic prosperity and autonomy, and vital for achieving a better national future. Therefore, NRENs and the general Internet require investments and care from governments because it should be a national priority to make advanced services available to the broadest audience as soon as possible, in order to capture their creative and innovative potential and to supply them with the latest knowledge and information.

A national network backbone connecting all research and education institutions in a country is a vitally important infrastructure. Governments have a special role and obligation to make an adequate communication infrastructure available to the research and education communities via the NREN. First and foremost, the SEE governments should enable, encourage and, if necessary, require NRENs to own their infrastructure for local, national, cross-border, regional and global connectivity when no suitable services are available or those available are offered at exorbitant price.

The government counterparts of NRENs in SEE countries should make it a priority to speed up the process of building an Information Society in their own country, by providing appropriate computer networks for use by research and education. They should make sure that these networks are advanced and able to deliver services comparable to those in the rest of Europe in terms of quality and bandwidth, in order to enable innovative applications.

As a consequence, adequate and stable funding should be provided for the acquisition of a dark-fibre infrastructure for research and education at the local, national, regional and international level.

In Europe an increasing number of research and education networks, for instance in the Netherlands, Switzerland, Germany, the Czech Republic, and many others, are based on optical fibre. At the pan-European level, the new GÉANT2 backbone will have large parts of the international links based on optical fibre. In the Balkans, Greece, Serbia, Montenegro, the FYR of Macedonia have to various degrees optical fibre network serving the academic community at the metropolitan area or country level. All countries in SEE should build on the example of those NRENs in the region that have acquired dark fibre.

Optical fibre is accessible to NRENs in SEE. There are many fibre plants in the ground. Almost in all countries there is fibre which is owned by some utility company, railways etc., in addition to the optical infrastructure of telecommunication operators. Normally there are no regulatory obstacles for NRENs to acquire optical fibre, but telecom operators are not keen to sell or lease fibre. Even if there are competing potential fibre offers for several routes in some countries, the government can play an essential role in increasing competition by effectively speeding up the liberalisation process with specific legislations.

Certainly, significant funding is needed to support and sustain high capacity networks for research and education. SEEFIRE has explored a number of cost cases for the countries concerned. Ballpark figures have been calculated for all countries in SEE, showing the order of magnitude of the investment required for leasing and lighting dark fibre on a 5-year basis. Indeed, the cost cases show that in spite of non-negligible upfront investment in the purchase of the optical fibre and equipment, there is a substantial economic advantage in NRENs acquiring their own infrastructure instead of buying network capacity from operators. The general result is lower cost for much higher bandwidth, and flexibility in the provision of advanced services, enabling exchange of scientific knowledge, collaboration of researchers, remote teaching and access to the information society by a wider student population.