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The Connection of Greece With the Trans-European Transportation and Communication Networks

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THE CONNECTION OF GREECE WITH THE TRANS-EUROPEAN TRANSPORTATION AND COMMUNICATION NETWORKS

Andrianos Theodoros ^[1], Karakotsoglou Michalis ^[2], Rizos Charalampos ^[3]

¹ Rural and Surveyor Engineer, MSc, Aristotle University of Thessaloniki PhD. Candidate,
Scholar of the Onassis Foundation
Thiramenuous 1, 546 34 Thessaloniki
tel.: +30 2310 245807, e-mail: theoandrianos@yahoo.gr

² Planning and Regional Development Engineer, MSc
Kimonos Voga 1, 546 43 Thessaloniki
tel.: +30 2310 841960, e-mail: mkarakotsoglou@yahoo.com

³ Rural and Surveyor Engineer, MSc, Aristotle University of Thessaloniki PhD. Candidate
Ipsilantou 62 – 64, 542 48 Thessaloniki
tel.: +30 2310 300383, e-mail: xrizos@mycosmos.gr

1. INTRODUCTION

The idea of Trans-European Networks of Transport, Energy and Telecommunications (TEN in the EU jargon) emerged by the end of the 1980s in conjunction with the proposed Unified Market. It made little sense to talk of a big market, with freedom of movement within it for goods, persons and services, unless the various regions and national networks making up that market were properly linked by modern and efficient infrastructure. The construction of Trans-European Networks is also an important element for economic growth and the creation of employment

The Treaty of Maastricht in 1992 establishing the European Union provided a sound legal basis for the TENs. Under the terms of Chapter XV of the Treaty (Articles 154, 155 and 156), the European Union must aim to promote the development of Trans-European Networks as a key element for the creation of the Internal Market and the reinforcement of Economic and Social Cohesion. This development includes the interconnection and interoperability of national networks as well as access to such networks. Moreover, in December of 1993 two teams were created; the first one was called "Bangemann Team" and undertook the networks of telecommunications and the second one, the "Christophersen Team", the networks of energy and transports. Their job is mainly to facilitate the projects and also to take explicit decisions with regard to the priorities and the specifications.

A large number of projects of common interest have benefited from financial support of the Community budget through the TEN-budget line as well as the Structural Funds and Cohesion Fund. The European Investment Bank (EIB) has also greatly contributed to the financing of these projects through loans.^[1]

2. THE TRANS-EUROPEAN TRANSPORTATION AND COMMUNICATION NETWORKS

2.1 Legislation

The Treaty considers that the creation of Trans – European Networks does not constitute simply legitimate and commendable objective, but also precious means of application of other basic policies for the E.U.

According to the article 129 B of the Treaty, the Community in order to help the member states to develop Trans – European Networks:

1. Determines a total of orientations that covers the objectives, the priorities and the projects of common interest in the sector of Trans–European Networks. The European Parliament and the Council approve these guidelines after consultation of the Economic and Social Committee and the Committee of the Regions. (Process of joint decision). It constitutes essential condition that the orientations and the projects of common interest that concern the territory of every member state are approved by the interested member state.
2. Executes each action that is proved necessary for the guarantee of the interoperability of the networks, especially in the harmonisation of technical models.
3. It has the possibility of strengthening the financing efforts of each member - state for projects of common interest (for example studies of feasibility, guarantees of loan or interest rates subsidy).^[2]

2.2 Forms of financing the Trans – European networks

Corporate Strategy Between Public and Private Sector

Because of the difficult budgetary situation of the European Union and many member states, it is necessary to encourage the private sector so that it participates as much as possible in the creation of Trans–European

Networks, especially in transports, where according to the preliminary estimates of the Committee, a lot of difficulties will arise in the financing of the priority programs. For this aim, the responsible team (Christophersen) encourages the member states to re-examine their attitude in the area of manufacture and infrastructure management and grant in the private sector a field of wider action. ^[2]

Lending from the European Investment Bank

Simultaneously, the Committee appreciating that the available means, both the state and the private sector, would be at all probability insufficient, asked from each member state to seek new financing from the Community. For this reason, the European Investment Bank created a Special Locker in order to finance infrastructures of Community interest and mainly those that are included in the list of the Trans-European Networks priority projects. ^[2]

2.3 Trans – European Transport and Energy networks

Energy and transport are two areas for which relations with third countries are crucial. Transport is of course essential in order to ensure smooth movements of people and economic operators within the EU but also with the outside world. Its importance becomes even more apparent in a period characterised by globalisation. If modes of transport are the arteries of our society, then energy is the blood. The Green Paper on the security of EU energy supply recently issued by the Commission shows that whereas the EU economy is energy-intensive, Community energy resources are limited. Consequently, the EU is dependent on external sources of energy, a situation which will not change with the forthcoming enlargement. Hence, most of the EU's external relations include an important chapter on energy. ^[1]

Trans-European Road Transport Network

Since freedom of movement for both persons and goods is one of the major issues for the European Union, the need for an efficient and safe transport system - in particular for road transport - is a prerequisite for a fair European integration. All users of the road transport system should also benefit from harmonised conditions, be they private users, customers or commercial hauliers.

In September 2001 the Commission adopted a White Paper on the European Transport Policy which describes what has been achieved so far both at the Union and the Member State levels and what should be done in the near future.

Broadly speaking, the development of road transport in the EU15 can be summarised by a few figures :

- the global distance travelled by all road vehicles has tripled over the last three decades
- there were 469 private cars per thousand persons in the year 2000 compared to only 232 in 1975
- the volume of road freight haulage grew by 34% between 1991 and 2000
- road freight haulage made up about 75% of freight traffic within the European Union in 2000 compared to 50% in 1970
- the road safety issue is still a major concern with some 40 000 fatalities a year (half the figure of 1970) and more than 1.7 million injured. For these reasons the Commission has recently adopted a road safety action programme with a view to again reducing the number of fatalities by 50%, by the year 2010. ^[1]

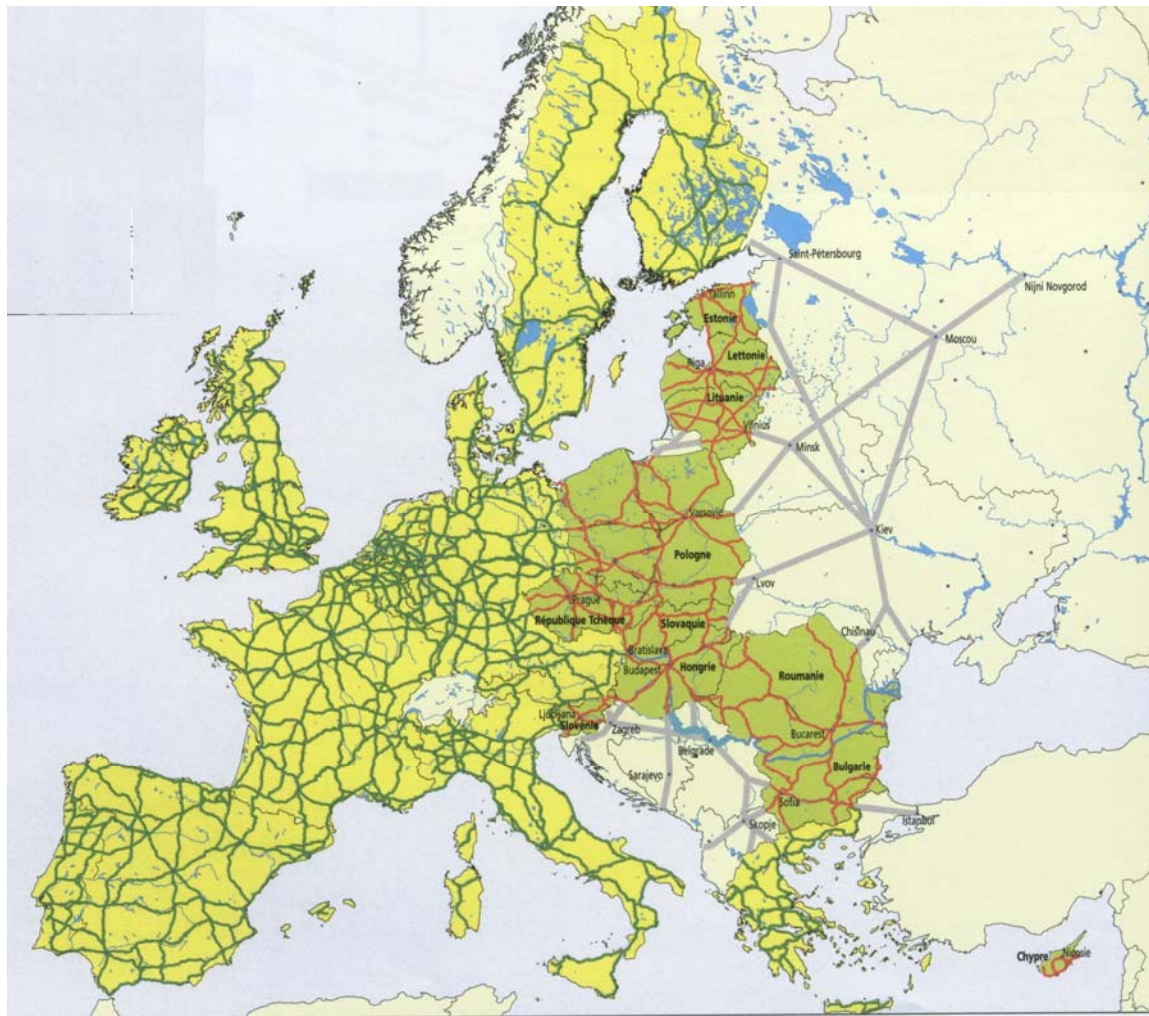


Figure 1: Trans-European Road Transport Network ^[3]

Trans-European Rail Transport Network

Rail transport in Europe has seen a worrying decline for more than thirty years now, especially in the area of freight transport. In 1970, freight transport in the fifteen Member States of the EU (including the former German Democratic Republic) amounted to 282 bln. tonne-kilometers (tkm). This figure dropped to 254 bln tkm in 2004. The share of freight transport by rail for the all land transport modes (road, inland waterways, rail and pipelines) dropped from 30 % in 1970 to 13.2 % in 2004. If sea transport is included, this figure dropped from 20 % in 1970 to almost 7.7% in 2002. For the enlarged European Union, the modal share of rail freight declined from 19.5 % in 1995 to 16.4 % in 2004. In absolute terms, the number of tonne-kilometres dropped from 494.3 bln in 1970 to 363.9 bln in 2004 in the EU25, which represents a decrease of more than 26 %. Freight transport by road has tripled in the same period.

Passenger transport by rail also declined, though less dramatically: passenger transport, 10,2 % of total rail transport in 1970, fell to 6,3 % in 2003 in the EU15. The modal share of passenger transport by rail in the EU25 (excluding air and sea transport) dropped from 6.8 % in 1995 to 6.4 % in 2003. In absolute terms, the number of passengers-kilometers (pkm) rose from 300.6 bln. pkm in 1970 in the EU25 to 346.3 bln pkm in 2003 and 349.9 bln pkm in 2004. Transport carried out by high-speed trains accounted for 4.2 % of all rail transport in 1990. In 2004, this share rose to 21.6 %.

The main reason for this state of affairs is that the railways are not as competitive as road haulage. Railway transport is less reliable than road haulage as regards delivery times, which are far less predictable in the case of rail. On some international routes, delivery times have even doubled or trebled in recent years. This is due mainly to very long stopping times en route, because other trains (passenger services especially) have priority, and because procedures at borders are complicated (train crews and locomotives have to be changed because of differences in signalling systems from one country to another, etc.). Formalities are longer and more complicated at all stages of the procedure. It takes barely a few hours to set up a contract with a road haulage operator.

Both road and rail, provide door-to-door services, though the significant decrease of private sidings for rail transport has given road transport a competitive advantage over rail. All these factors are critical for industries which work to tight schedules and apply the "just-in-time" principle. And yet, the railways have unique

advantages: they are a safe and clean mode of transport and one train can contain up to 50-60 truckloads. Their infrastructure covers a lot of territory and is generally in a good state. But they no longer match modern-day customer requirements.

Revitalising the railways is thus an imperative. It is a top priority in the European Union's common transport policy. Far from wishing to "fragment" the railways the European Union is anxious, in line with its transport policy, to create conditions in which rail transport can once again be efficient and competitive, particularly for freight.

Lest there be any misunderstanding here, the EU is in no way trying to privatise the railways: no European institution can do that, quite simply because the Treaty forbids it (Article 295 of the Treaty on the system of property ownership). However, the European Commission believes in the virtues of competition, which encourages undertakings to innovate and return to efficiency. ^[1]

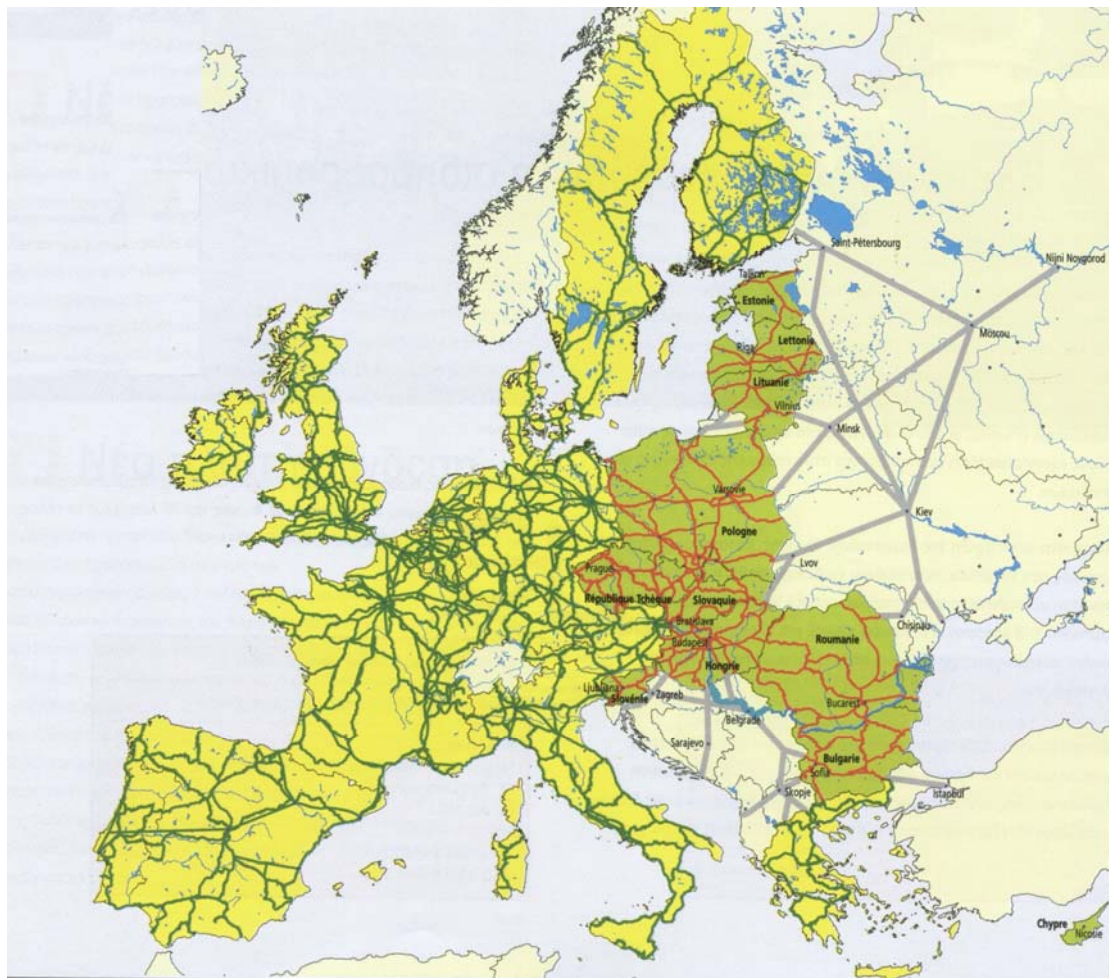


Figure 2: Trans-European Rail Transport Network ^[3]

Trans-European Inland Waterway Transport Network

Inland waterway transport plays an important role for the transport of goods in Europe. More than 35.000 kilometres of waterways connect hundreds of cities and industrial regions. While 18 out of 25 Member States have inland waterways, 10 of which have an interconnected waterway network, the modal share of river transport accounts for 7% of the total inland transport in the European Union.

In 2003, 125 billion ton-kilometres of freight were transported by inland waterways in the Union. Fluvial transport plays a vital role in transport through the European North-west. In the hinterland of the largest seaports of the EU, the modal share of inland waterway transport can reach up to 43%.

Together with rail and short sea shipping, inland waterway transport can contribute more to rebalancing the different transport modes, as recommended by the White Paper on the European transport policy for 2010. ^[1]

Trans-European Maritime Transport Network

Considering its geography, its history and globalisation the European Union is still very dependent on the maritime transport. Nearly 90% of its external trade and more than 40% of its internal trade goes by sea; on the whole nearly 2 billion tons of freight are loaded and unloaded EU ports each year; maritime companies belonging to European Union nationals control nearly 40% of the world fleet; the majority of EU trade is carried on vessels controlled by EU interests; and finally the maritime transport sector - also including shipbuilding, ports, fishing and related industries and services - employs some 3 million people in the European Union. ^[1]

The objectives of the governing lines are the improvement of ports in the chain of transports and the effectiveness of operations of ports so as the ports and the marine transports are in place to:

- facilitate the interior and the exterior trade of the Community
- contribute in the decongestion of the land corridors of transport via the promotion of other marine transports and, friendly to the environment, ways of transport
- improve the accessibility and strengthen the economic and social cohesion ^[2]

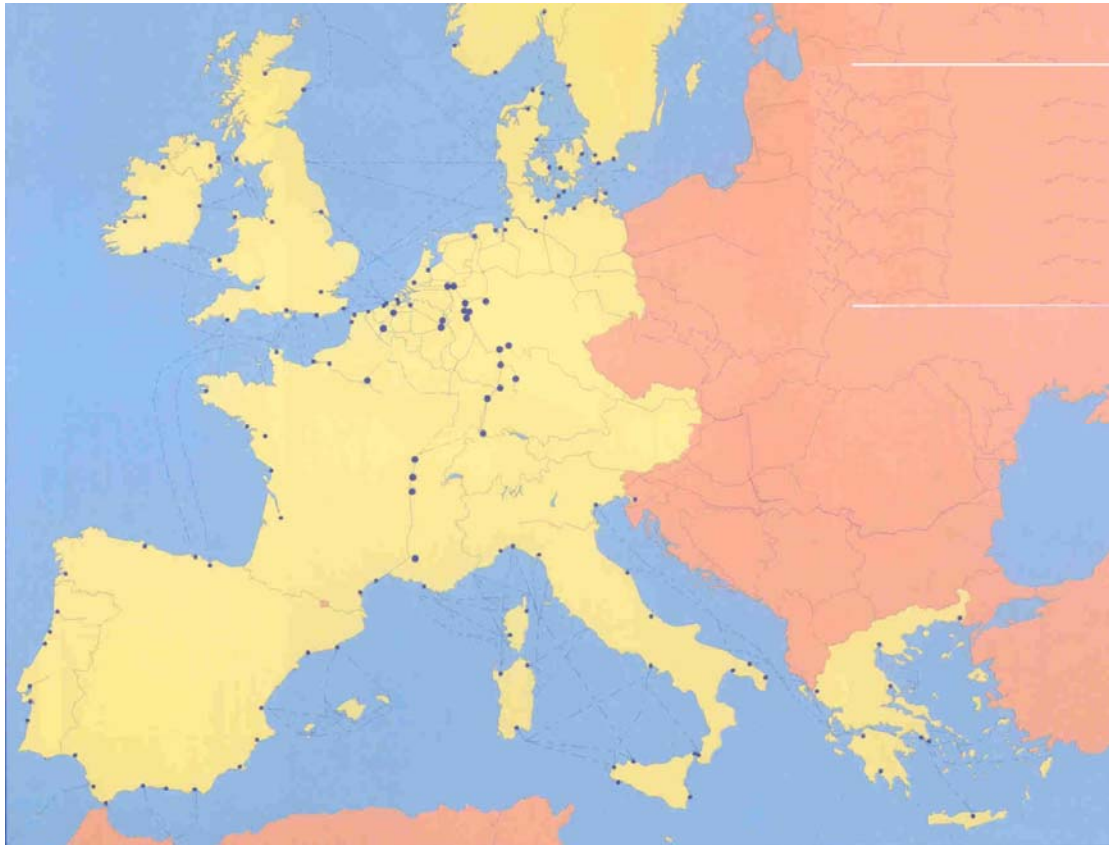


Figure 3: Trans-European Inland Waterway and Maritime Transport Network ^[3]

Trans-European Air Transport Network

Of all forms of transport, air travel has seen by far the most impressive growth in the European Union over the last twenty years. In terms of passenger-kilometres, traffic increased by an average of 7.4% a year between the year 1980 and 2001, while traffic at the airports of the 15 Member States increased five-fold since 1970.

Despite the impact on air transport of the 11th of September terrorist attack it's expected that the traffic trend will recover in the coming years. Following the major crisis which hit the industry in the early 90s, efforts to restructure and deregulate the European market have enabled airlines to operate successfully again.

However, there is another side to the coin: the boom in air travel is exacerbating problems relating to the saturation levels reached at airports and the overloaded air traffic control system. Airlines complain about the fragmentation of European airspace, which, they say, leads to inefficiency and major delays.

Each year Europe's airports come closer to the limits of their capacity. Some of the major airports have already reached saturation point, thus limiting access

for new companies wishing to compete with the well-established carriers. The Commission's work programme in the field of air transport is intended to tackle these issues. ^[1]

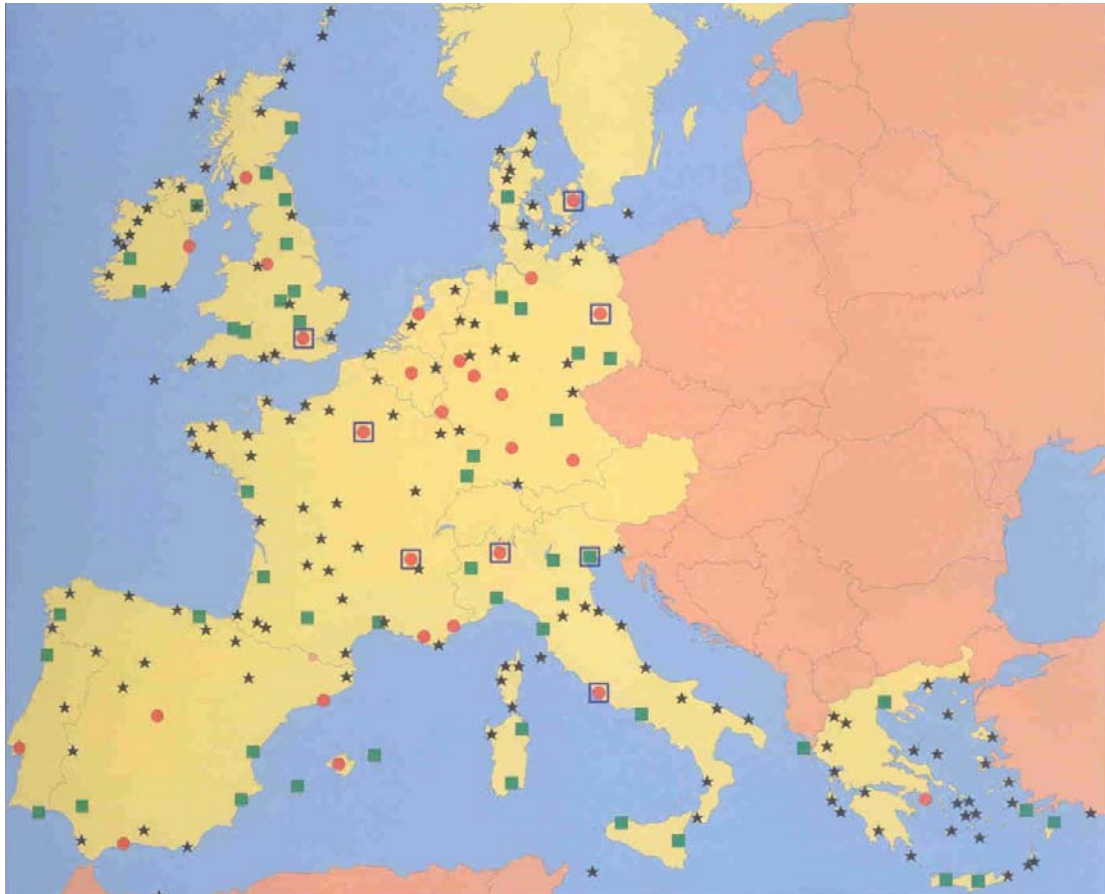


Figure 4: Trans-European Air Transport Network ^[3]

Trans-European Intermodal Transport Network

Supporting intermodal transport is a major part of the Commissions White Paper: European Transport Policy for 2010: Time to decide. It contributes to the objective of shifting the balance between modes.

The aim of the Commissions policy on Intermodal Freight Transport is to support the efficient « door to door » movement of goods, using two or more modes of transport, in an integrated transport chain. Each mode of transport has its own advantages e.g. potential capacity, high levels of safety, flexibility, low energy consumption, low environmental impact; intermodal transport allows each mode to play its role in building transport chains which overall are more efficient, cost effective and sustainable. ^[1]

Trans-European Energy Networks

The European Union finances electricity and gas transmission infrastructure projects of European interest. A yearly budget of about 25 Million Euros is spent mainly for supporting feasibility studies. Most of the projects cross national borders or have an influence on several EU Member States.

The guidelines on Trans European Energy Networks specify which projects are eligible for funding. The financial rules specify the financial procedures involved. The call for applications for funding is open in the first quarter of each year. Applications are made by promoters of eligible projects, like electricity and gas transmission companies, investors in LNG facilities and gas storages. Projects need to be supported by the Member States involved. ^[1]

The Trans European Energy Networks are integral to the European Union's overall energy policy objectives, increasing competitiveness in the electricity and gas markets, reinforcing security of supply, and protecting the environment. Moreover, they connect islander, interior and peripheral regions, contributing in the objectives of unification and cohesion of the Union. ^[3]



Figure 5: Trans-European Electricity Network ^[3]



Figure 6: Trans-European Gas Network^[3]

2.4 Trans – European networks of telecommunications

eTEN is the European Community Programme designed to help the deployment of telecommunication networks based services (e-services) with a trans-European dimension. It focuses strongly on public services, particularly in areas where Europe has a competitive advantage. The programme aims to accelerate the take up of services to sustain the European social model of an inclusive, cohesive society. Its objectives are at the very heart of the eEurope mission of "an information society for all". It promotes public interest services which give every citizen, enterprise and administration full opportunity to gain from the e-Society, bridging the digital divide which threatens to create an information underclass in the areas of :

- eGovernment
- eHealth and eHealthcare
- eInclusion
- eLearning

- Services for SMEs (eBusiness)
- Trust and Security services components

eTEN has its legal basis in the Trans-European Networks (TEN) policy, established by the European Union and governments of the member states to remove the barriers to the movement of people, goods and services across Europe in the building of the common market. This has been an evolving effort over half a century, and one which remains of the highest priority to preserve Europe's prosperity, stability and security in the face of global challenges. The information society, based on network services which are of an increasingly commodity nature, presents many opportunities, but they are accompanied by almost as many threats. Sophisticated technology enables sophisticated services, but where the skills to access and exploit them are absent, exclusion results. The European Union is endowed with a rich heritage of nationalities, cultures and traditions. This is a great strength, but in the development of e-services, there is the danger of islands arising where language groups or national administrative borders interrupt the flow of services. It is with such challenges in mind that the Trans-European Telecommunications Networks policy has been set out.

eTEN built on the earlier EuroISDN action which aimed at technical harmonisation as a platform for services. In 1997 the first set of programme guidelines were adopted which gave the programme its current shape. The telecommunications industry and market has changed enormously in the years since then, and the programme is changing to focus its efforts where they are most needed. New guidelines were adopted in 2002 which will see much more emphasis on public services underpinning the European social model.

eTEN projects partners are organisations who intend to offer e-services. Because of this, they must have the skills and resources to carry out a project and then exploit the results. They should have the financial resources, or access to these resources, and the management skills and personnel resources to operate the proposed service. This means that a mixture of technical and operational expertise is demanded from the consortium.

In contrast with EU research programmes, eTEN is also open to proposals from single entities, provided they meet the general interest requirements, and aim to be active in several member states. New technologies need time to gain market

acceptance, thus there are here opportunities for successful post-research and development projects to bring their results to the market.

eTEN supports deployment. Although not part of the research Framework Programme, eTEN is a key tool for the exploitation of successful research activities from technical development to the market. Private investors will tend to focus on sectors which show the best potential for short term profitability. There remain many areas where services are in the general societal or economic interest, but either do not promise a rapid return on investment, or bring benefits which are long term or not visible through direct financial reward to the operators. This is where Community and eTEN financial support, is justified.

What distinguishes eTEN from other Information Society actions is its "preparation for a roll-out" approach. eTEN is there to help the partners overcome their project's initial investment and launch difficulties. This reduces the commercial risk during the project's early stages, and supports the transnational implementation costs. It also helps with any organizational problems related to public/private partnerships. eTEN emphasizes public-private partnerships, which can broaden access to, and use of information and communication technologies.

eTEN provides assistance in the critical launch phase of a service, so that investors or public authorities can make informed decisions before the launch of service, based on thorough analysis of the economics involved.

eTEN can provide up to a part of the total investment required to bring a service into full operation (up to 30%). In the initial launch phase when the business or investment plan is being developed, up to 50% of the costs can be met. This first phase, when assumptions about the operating costs and the potential revenues or savings are put to the test, is vital to the successful operation of a service.

These services should have a number of beneficial socio-economic consequences for businesses and employment and should be self-sustaining in the long run without Community support. Thus, the Community funding should enable the partners to develop a convincing business case, allowing them to roll-out the operational service with their own financial resources or by seeking additional external private or public funding.

In conclusion, eTEN makes a major contribution to bringing services of societal interest from the conceptual stage into full operation. ^[1]

3. GREECE IN TRANS – EUROPEAN NETWORKS

3.1 The geo – economic role of Greece

In the effort of approaching the geo-economic role of Greece as transport node it should be taken into consideration the diversity of the natural and the geo-economic parameters. Greece is found in the most southern point of Balkan peninsula and constitutes the most southern but also eastern member state of the European Union. It is one important entry in Europe for the East. Moreover Greece is the point of meeting for the three continents: Europe, Asia and Africa. ^[4]

Greece is a member state of the European Union with certain particular characteristics. One of them is the fact that is the unique member state without common borders with other member state. This distance that separates Greece from the hinterland of European Union constitutes basic advantage but at the same time and disadvantage. It creates enough problems with regard to the transports to the European Union but offers direct access in the markets of south-eastern Europe.

Greece, participates actively in the re-development of the map of infrastructures and traffic flow in the region. Its effort is recommended firstly, in the promotion of the completion of the Trans–European projects of first priority and their connections. Particularly, it gives accent in the horizontal corridor, that is to say the Egnatia highway. ^[5]

3.2 Projects of Greek interest that come under the Trans – European networks

Axis IV

Axis IV (Berlin – Dresden – Nuremberg – Prague – Vienna/Bratislava – Budapest – Konstance/Cracow – Sofia – Thessaloniki/Plovdiv of – Instabul) is a road and a railway axis of the North and the South that connects Germany and Austria with southern Europe. Its total length is estimated in 3.285 km and the cost of road axis is about 6.210 million Euros. ^[6]

Axis IX

The IX axis, that goes through from the cities Helsinki – St. Petersburg – Moscow – Kiev/Minsk – Odessa – Bucharest – Dimitorfgrand, after a Greek

proposal was agreed (October 1995) to be extended to Alexandroupoli via Ormenio, being connected in this way with the Egnatia highway. This axis is of great importance, because it was determined by the Summit of Essen as a priority connection between the European Union and third countries. Its total length is estimated in 3.400 km, except from the extension to Alexandroupoli, and it is the first in size Pan-European axis. The main obstacle for the operation of this axis is the circulatory congestion in the frontier stations, because of the big number of the countries that goes through. [6]

Patra – Athens – Thessaloniki – Evzoni (PATE) Road Axis and Egnatia Highway

This project will constitute the vertebral column of the road system of Greece as it is of vital importance for the growth of infrastructure of transports in Greece.

It is constituted by two axes:

1. The axis of the North and the South, PATE: Rio – Antirio, Patras – Athens – Thessaloniki – Promachon (Greek-Bulgarian borders)
2. The axis of the East and the West, Egnatia road: Igoumenitsa – Thessaloniki – Alexandroupoli – Ormenio (Greek-Bulgarian borders – Kipi (Greek-Turkish borders))

It is a project that is included in the Trans-European road network and in the Trans-European motorways. Moreover, the northern department of PATE axis constitutes part of the European road corridor, that was determined by the pan-european Congress of Crete on transports, which crosses many south-european countries and connects them with Germany. The Greek road networks are interlinked with the Italian ones through the marine harbours of Igoumenitsa and Patras (lines of car-ferries). [3]

The concretisation of this project will involve important reductions in the time of travel between important Greek cities, and will have as result remarkable improvements with regard to the road safety. At length of axes PATE and Egnatias is distributed roughly the 70% of the Greek population. Additionally, the new infrastructure is expected to contribute decisively in the reinforcement of commercial transactions and in the economic growth. During the constructional period of the motorway, a demand of 270.000 manyears of employment will be created. Moreover, after the completion of the project an important number of permanent posts will be

created as well. It has also vital role for the regional growth and the social cohesion. More specifically, it improves the possibility of access in the removed northern regions of Thrace, Ipiros and Macedonia.

The PATHE axis will have a length of 860 km. It consists primarily in the upgrade of existing street on specifications of motorway (double car road with 2 x 2 lanes, while parts near Athens and Thessaloniki will be constructed with 2 x 3 lanes). The one quarter of axis already has been upgraded.

Egnatia highway includes the manufacture of 670 km of new motorway. Technically, the work will be a double motorway of two lanes per direction, which will pass near big cities. The total cost is appreciated in 3.880 million Euros for PATHE and 2.480 million Euros for the Egnatia highway. The construction of both projects has begun in 1990.

With regard to the socio-economic efficiency, the existing studies show positive results. The expected socio-economic indicator of efficiency for Egnatia highway, for example, amounts in 8,8%. ^[3]

Ionian Road

It is the more important project for the growth of western Greece. It is a closed motorway of 460 kilometres with two lanes of circulation and an emergency lane per direction, central bisector island and total width of deck 24,5 metres. For the service of nearby exploitations a network of parallel roads is forecasted. The study speed of the motorway is 120 km/ (from Antirio to Kakavia). The cost amounts in 3 millions Euros.

The starting line of Ionian Road is Antirion and finishes at the greek-albanian borders (Kakavia frontier station). It crosses the prefectures Etoloakarnania, Arta, Preveza and Ioannina. It passes through all the big urban centres (Mesologgi, Agrinio, Amfilochia, Arta, Ioannina) and is connected with the National and Provincial network only with underpass, contributing in the drastic reduction of road accidents and the harmful effect of excessive topical circulation. Ionian road is connected via Egnatia highway with central and northern Greece (eastwards) and Igoumenitsa (westwards), with which it is also connected through the new road axis Aktio – Ionian Road and the undersea junction Preveza – Aktio. In combination with the forecasted road project in the Albanian territory, it will give access in the harbours Avlona and Durrës and through them to the Italian harbours Bari and Brindisi. ^[7]

The completion of this project will contribute substantially in:

- increase of employment (direct and indirect)
- reduction of time of locomotion of charges
- attracting of private investments
- improvement of local economy
- reduction of the economic and social inequality of the regions of western Greece, mainly of Ipiros, concerning other regions of Greece and their balanced growth
- increase of tourist growth because of more favourable access and new archaeological spaces
- creation of new job positions
- the manufacture of Ionian Road is manufactured according to Environmental Terms, so as a result the balance of the ecosystem is not disturbed^[7]

Junction of Rion-Antirion

The bridge project was discussed at the Greek parliament at the end of the 19th century. However such a project was not technically feasible until the late 20th century and it was one hundred years later that the Greek State decided to invite tenders for building a fixed link on the strait of the Corinthian Gulf. The 1991 invitation to tender and the December 1993 tender led on 3rd January 1996 to the signing between the Hellenic Republic and the company Gefyra S.A. of the Concession Contract for the Design, Construction, Financing, Maintenance and Operation of the Rion-Antirion bridge. As for most concession schemes, this agreement was not put into force until the full financing for the project be achieved. It took two years to close the first private infrastructure concession financing in modern Greece with the main loan agreement signed on 25 July 1997 and financial close achieved by 17 December 1997. The Effective Date, reference start date for the project, occurred on 24 December 1997.

The 7 year construction period comprised:

- a 2 year preparatory period (1998-1999) where the main works consisted in completing the final design for the bridge and installing the construction site with the main task of building the dry dock,
- a 5 year building period (2000-2004) where the bridge was actually built

The Operation Period shall end no later than 42 years from the Effective Date (24 December 2039). The bridge shall then be handed over to the Greek State for its own operation.

In 1995, the traffic crossing the strait, using the current ferry services, totalled an average of 7,000 vehicles per day. The bridge services an average of 10,000 vehicles per day. The total cost of the project, including financial expenses incurred during the construction period, amounts to about 800 million Euros.

The financing came from the following sources:

- 10% Share capital
- 45% State financial contribution
- 45% Loan from European Investment Bank guaranteed by a pool of commercial banks.

The Rion-Antirion bridge is located at the intersection of two major roads:

- the Patras - Athens - Thessaloniki motorway which links the three most important cities of Greece and forms part of the European motorway network,
- the Kalamata - Patras - Igoumenitsa Western axis.

The bridge facilitates the communication between Greece and Italy (and thus Western Europe) through the harbours of Patras and Igoumenitsa. The bridge plays a significant role in strengthening the links between Patras, third city of Greece and the more rural North Western Greece. It is the longest cable stayed bridge in the world with a continuous deck of 2,250 meters. ^[8]

Railway Axis Athens – Thessaloniki - Idomeni

This corridor constitutes the railway backbone of the country, that runs through the central axis of the domestic activity, interlinks the two most important urban centres and simultaneously constitutes the basic international corridor of interconnection among the country with the Trans-European railway networks.

The part of the corridor that is between Athens and Thessaloniki constitutes the central trunk to which converge or branch away to the remainder departments of the existing and forecasted railway network. This means that the upgrade of this axis reflects not only in the railway interconnections at length of axis, but also in the relative with these ramifications of the railway network. Over the 50% of the railway corridor has already been upgraded and its speed of operation has been increased to the maximum speed limit of 200 km/hour. It is obvious that the completion of the

upgrade plan in the remainder departments will lead to radical improvement of the conditions in the service of locomotions. ^[2]

Railway Axis Thessaloniki – Alexandroupoli - Ormenio

This axis, that constitutes the most important, afterwards the central backbone, railway corridor of the country, has length bigger than 450 kilometres and is about to be transformed in axis of high speed and be integrated in the corresponding network of the Trans-European railways. ^[2]

Maritime Network

The northern harbour gates of the country (Thessaloniki, Alexandroupoli) will function with transit charges to and from the countries of Balkan, while Igoumenitsa and Patras constitute the western gates of the international trade. Essential condition for the achievement of these objectives is the upgrade of the existing infrastructure as well as the incorporation of ports in the remainder transport network of the country. Additionally, it is necessary the improvement of their accessibility through the land mainly means of transport (railway connections and connections with the basic trans-regional national network) and resolution of the local transport problems where it is required.

With the ports Igoumenitsa and Patras are activated the western harbour gates of the road axes Igoumenitsa – Thessaloniki – Alexandroupoli (Egnatia highway) and Patras – Piraeus.

The harbour of Igoumenitsa will serve the promotion of flows from Northern Greece and Balkan to Italy and, while Patras will serve, as it happens already, the movement from southern Greek hinterland and islands (mainly passenger) from and to the European Union. ^[2]

Athens International Airport

On July 31st, 1995, the Government of the Hellenic Republic and the private consortium led by HOCHTIEF Aktiengesellschaft (winner of the international tender for a strategic equity partner under a BOOT - Build, Own, Operate and Transfer - scheme) entered the Airport Development Agreement (ADA) with the joint aim to develop the new international airport at Spata by means of a Public-Private Partnership (PPP). The Airport Development Agreement (ADA) establishes a 30-year

concession ratified by Greek Law 2338/95 granting the Airport Company the exclusive right to occupy and use the site for the purpose of the "design, financing, construction, completion, commissioning, maintenance, operation, management and development of the airport". The concession period was initiated in 1996 upon the establishment of "Diethnis Aerolimenas Athinon A.E.", a private legal entity formed under Greek company law as a societe anonyme that trades as "Athens International Airport S.A."(AIA) and "is managed and operated as a private sector company".

AIA is considered a pioneer international Public-Private Partnership of its type in the world, being the first major greenfield airport constructed with the participation of the private sector.

The Greek State holds 55% of AIA's shares. The State's interests are jointly represented by the Ministers of Economy, and Transport & Communications.

The private sector partner comprises three private shareholders, who collectively hold 45% of the Airport Company's shares. ^[9]

The sources and uses of funds for the DM 4,1 billion project were as follows:

Sources	In Euro Millions
European Investment Bank Loan	997 (45%)
Commercial Banks	312 (14%)
Airport Development Fund	300 (13%)
European Union Grants	250 (11%)
Greek State Grants	150 (7%)
Share Capital	134 (6%)
Shareholder Loans	45 (2%)
Cargo Terminal Loan	17 (1%)
All Other	14 (1%)
Total Sources	2,219 (100%)

Uses	In Euro Millions
ICC Capex	1,618 (75%)
Capex Variations	134 (6%)
Pre-Operating Expenses	204 (10%)
Interest during construction	175 (8%)
Finance fees, hedging costs & other	13 (1%)
Total Project Cost	2,144 (100%)

Airports' Technical Characteristics

Airport's total land area: 17.5 km²

2 independent parallel runways of approx. 4 km each

Main Terminal & Satellite Buildings spread over an area of 180,000 m²

89 aircraft parking stands

24 passenger boarding bridges

48 gates

144 check-in counters

11 luggage-claim conveyor belts (hourly capacity 7,000 items)

Commercial area: 7,000 m²

Capacity (during the first phase of operation)

Up to 16 million passengers and 220,000 tons of cargo per annum

600 aircraft movements a day

65 landings-takeoffs an hour

Athens' strategic position at the crossroads of three continents offers access to numerous short-haul and medium-haul markets, thus promoting "Eleftherios Venizelos" as the natural connecting point of the region. The new airport is developing into the Southeastern Gateway of Europe providing connecting/feeder traffic from the eastern Mediterranean region, the Middle East, the Balkans, Africa and Greece to European and long-haul destinations. ^[9]

Intermodal Transports

Afterwards the decomposition and disorganisation in former Yugoslavia, Greece is compelled to channel the bigger part of its transports to western and central Europe via the harbours of Patras and Igoumenitsa to the Italian harbours of Brindisi, Bari, Ancona, Trieste. It is characteristic that before the war in Yugoslavia the charge that was transported with transports represented the 3% of hardly total charge, while the road transports via Yugoslavia served the 19% of total charge. This situation changed soundly afterwards the war.

The Community policy for the intermodal transports forecasts financing the growth and the extension of the harbours of Igoumenitsa and Patras, the road and railway axis Athens – Patras and Egnatia highway. The existence of the railway in the

harbour of Patras and the proposal for creation of railway station in the harbour of Igoumenitsa promotes also their role in the system of intermodal transports. [2, 10]

Electrical Interconnection between Greece and Italy

Aim of this project is the connection of the electrical network of Greece (that it is currently isolated) with that of Italy and the European one (network UCPTE), so that the reliability and the benefit of the network are improved. This movement will contribute to the concretisation of the internal market, allowing the exchanges of electric energy, giving access in new sources of electric energy and increasing the competitiveness in the electricity market.

The project is composed by the following elements:

1. undersea cable: length of 160 km from Porto Badisco (Italy –Puglia) in Aeto (Greece – Ipiros), 500 MW – 400 kV, one of the deeper cables in the world (1.000 metres depth near in Corfu)
2. air lines: in Galatina , Italy (45 km), in Arachthos, Greece (190 km.)
3. stations of transformation: DC / AC in Galatina and in Arachthos

The total expense amounts in roughly 300 millions Euros (75% for Italy and 25% for Greece). Studies of environmental repercussions have been worked out in Italy and partly in Greece. [3]

Gas Network

Aim of the project is Greece to gain access in a new source of energy. The plan is of strategic importance for Greece as it promotes the local growth, strengthens the differentiation of the primary energy supply, improves of the environment via the reduction of pollution, particularly in the urban regions, and offers new freedoms in the production of electricity.

The project will contribute seriously in the objectives of cohesion and the safety of energy supply and will improve the competitiveness of the developing economic activities in the country. Greece will be provided with natural gas by Russia via conductor and with LNG by Algeria. The project includes the manufacture of a gas pipe - conductor (510 km.) from the Greek-Bulgarian borders up to Athens, many ramifications to the main consuming centres and a station LNG in Revithousa (an island near the coast, westwards of Athens). The total cost (except the networks of distribution) is calculated between 1,3 and 1,5 billions Euros. Environmental studies

have already been worked out and show the important profits that should be expected without substantially negative consequences. ^[3]

Mobile Telephony

The development in the sector of mobile telephony is considered very impressive (concerning European and international given). Characteristic is the rhythm of the increase of the infiltration (111%) that presented Greece for interval 8/1999 – 8/2000. In the end 2000 the number of subscribers of mobile telephony in Greece approaches the 6 millions while the corresponding infiltration was shaped in 56,5% (against 62,6% average of the EU). In these frames important is also the increase of karto- mobile telephony which showed increase 69% concerning 1999. Also, all the companies of mobile telephony, recognizing the modern needs of the subscribers that travel, offer the service of Roaming in the five continents, increasing permanently the number of the co-operational countries and networks. ^[11]

Internet

According to elements from the EU, Greece is included among the member states with the smaller infiltration of Internet (4% against 25% which is the average of the EU) but with the bigger rhythm of growth. The last one results from the crowd of hospitality stations (systems that are found permanent connected in the Internet) that is registered in the region of names (domain name). gr. In time interval 1/2000 – 1/2001 Greece presented the third bigger rhythm of increase (91%) concerning the other states, reaching 148.552 stations of hospitality.

According to estimates of NCTP (National Committee of Telecommunications and Posts) but also various other researches, in the end of 2000 the number of users in Greece was calculated roughly in 6% and 7% of the population. More specifically the users of Internet in the age of 15 – 64 years (residents of urban regions) constituted the 8% of the corresponding population. The use of Electronic Post (8% for ages 18-70) and particularly in the young persons of (18-25 years) was presented also increased and reached 15%. ^[11]

ISDN

Important increase was also shown in the number of the subscribers of the ISDN lines (Digital Network of Unified Services) of basic access (BRI) (195% and

255% against 1999) despite the limited infiltration of particular services and the small percentage of these lines in the total of the telephone lines. Similarly was also the increase regarding the capital access (PRI). The cost for its call depends on time, as it is for telephony.^[11]

4. CONCLUSIONS

The European unification constitutes the fundamental objective of the European Community. The vision for the prosperity of the populations, the social cohesion and the international collaboration is the basic goal of the European Union. For the achievement of all the above the most important tools are the Trans-European Networks of Transports, Energy and Telecommunications. The European Union through an abundance of actions, energies and projects that have been fulfilled or are being made, promote the interconnection and the interoperability of national networks that will contribute in the unification of the European area.

The most important problems that impede the substantiation of the Trans-European Networks are the differences of the national budgetary frames and the hindrance of discovering financing resources. Nevertheless, in a lot of cases that the financing efficiency does not justify the manufacture of a project, the European Union advances in their concretisation, taking into consideration the social character that may have.

The manifestation of Trans-European Networks in Greece has double character: on one side it contributes in the obliteration of the disadvantages that arises from the absence of common borders with other member states of the European Union, and on the other side contributes in the most optimal exploitation of the strategic geographical position of Greece. It must also be mentioned that some of the projects that are being worked out in Greece in the frames of the Trans-European Networks support the international growth and the exercise of regional political decentralisation. Characteristic examples are the perpendicular axes of Egnatia highway, of which the expediency is not justified according to the existing and forecasted demand.

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