CREATING INFRASTRUCTURE FOR EUROPE'S UNIFICATION: FINANCING AND MANAGEMENT OF CONSTRUCTION PROJECTS IN THE EUROPEAN UNION

by

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Abstract

This Thesis examines the current increase of infrastructure construction activity in the European Union (EU). The EU is currently in the stage of completion of the Single Market initiative, where there will be "free movement of people, capital, goods and services" between its Member States. It has realized that a basic requirement for this effort to succeed, is the development of new transport, energy, and telecommunications infrastructure, where this does not exist, the upgrade of the existing infrastructure, where it is not efficient, and the interconnection of networks in the EU territory.

First, an introduction to the European Union is made. Then, the need for new or upgraded infrastructure in the member countries of the EU is justified and an overview of the projects planned is presented. The sources of the necessary capital to support these projects are identified, and, finally, the financing and management at the Member State level are examined.

The capital required for the numerous projects that are planned to be constructed is enormous and can not be covered solely by the budgets of the members of the EU. Furthermore, the less developed Member States are unable to handle efficiently the increased construction activity and require radical changes in the government sector, as is the case of Greece which is used in this Thesis as an example. The Commission of the European Union, trying to solve those problems, has proposed innovative techniques on planning, financing and management for construction projects. These proposals have major implications for construction companies which will have to adapt to the new reality in order to exploit the numerous opportunities offered in the European market.

Thesis Supervisor: Charles H. Helliwell, Jr.
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CHAPTER 1

Introduction to the European Union

During the past few decades, the intense competition among countries around the globe, mainly in the fields of politics, defense, commerce, economy, exchange of knowledge has created a need for unification between nations sharing common geographical, cultural, or political characteristics, assembling forces with a goal not only to survive, but also to lead in the international arena. One of the most interesting and successful examples of this effort is the attempt to unify Europe through the establishment of the European Community (EC), which was recently renamed to European Union (EU), as an indication of successful completion of the first stage of unification.

The European Union is an institutional framework for forging unity and cooperation among the peoples and nations of Europe. It is a new stage in a process begun in the 1950s with the creation of the three original European Communities, which came to be known collectively as the European Community.

1.1 The Union's Origins[1]

The Community was created in the wake of World War II, as a devastated Western Europe sought ways to rebuild its economy and prevent future wars. On May 9, 1950, the French Foreign Minister put forward a bold plan of lifting Europe out of the rubble of World War II. He proposed to pool European coal and steel industries under a common authority within an organization open to other European countries, as a first step towards a centuries-old ideal that in the past had been attempted or achieved only by force - a united Europe. The long term objective was to provide a structure to pursue the political unification of Europe through a concrete economic integration - starting with coal and steel. Belgium, the Federal Republic of Germany,

[1] "The European Union: A Guide"

Italy, Luxembourg and the Netherlands accepted the French proposal, signing the European Coal and Steel Community (ECSC) Treaty in 1951. The ECSC was so successful that coal and steel trade between the Six increased by 129% in the first five years.

Encouraged by the success of the ECSC, the Six decided to continue the unification of Europe through further economic integration and in 1957 they signed the treaties to create a **European Economic Community** (EEC) to merge separate national markets into a large single market that would ensure the free movement of goods, people, capital and services with a wide measure of common economic policies and a **European Atomic Energy Community** (Euratom) to further the use of nuclear energy for peaceful purposes.

Although the founding treaties focused on the economic sphere, political union has been an aspiration from the outset. The Single European Act (SEA) of 1987 amended the founding treaties to facilitate concrete progress towards European unity through more majority voting, strengthened common action in the economic and social fields, and increased cooperation in the sphere of foreign policy. The SEA also gave a more prominent legislative role to the European Parliament.

Union membership has doubled from six to twelve in the forty three years since the first treaty was signed. On January 1, 1973, Denmark, Ireland and the United Kingdom joined. Greece joined the EC in 1981, and Spain and Portugal in 1986. On October 3, 1990 the five Laender of the former German Democratic Republic entered the Community as part of a united Germany. Three more countries will join the Union on January 1, 1995: Austria, Finland, and Sweden were accepted as members and their citizens have approved the entrance in referendums held in these countries, very recently. The citizens of Norway, however, voted against the accession in the EU by a majority of 52.2% to 47.8%, on a referendum held on November 28, 1994, despite the fact that Norway was admitted too.[2] The map of the European Union as of January 1, 1995, is shown in Figure 1.1.

The Treaty on European Union (Maastricht Treaty) was signed on February 7, 1992 and entered into force on November 1, 1993 following ratification by the twelve Member States. The Maastricht Treaty is just one further, but very important step towards a European constitution. It

[2] This result is attributed to a traditional xenophobia of the Norwegians, the natural oil supplies that are currently in Norway's soil and a very successful campaign from the side of the "NO" supporters. (To Vima, December 4, 1994)

forms an overall framework for various stages of integration. The new goals that it proposed are:[3]

- A common European currency by 1999 at the latest.
- Rights for European citizens (Union citizenship).
- New powers for the European Community: a more active role in consumer protection, public health, visa policy, the establishment of Trans-European transport, telecommunications and energy networks, Treaty provision for development cooperation, industrial policy, education, culture, greater importance for environmental protection, an increase in research and development, further progress on social policy and cooperation in the fields of justice and home affairs.

Figure 1.1. The European Union (as of January 1, 1995).

[3] "European Union: Europe on the move"

- Increased powers for the European Parliament: involvement in the enactment of legislation, right of approval prior to appointment of the Commission, power of assent for all major international agreements.
- Introduction of a common foreign and security policy.

The European Union constitutes a unique relationship between nations. It used to be referred to as the "Common Market" because it is a single trading entity. But it was always much more than that. The European Community was a political creation from the outset, committed by its founding treaties to seek an ever closer union among the peoples of Europe.[4]

1.2 Governing and Law-making Institutions of the European Union

The Governing institutional framework of the European Union differs from all previous national and international models. It includes a Commission, a Council of Ministers, a European Parliament and a Court of Justice. A fifth institution, the Court of Auditors, monitors EU budget spending.

This unique system, is different from the US constitutional arrangement, since the EU is not founded on a constitution, but on international treaties among sovereign nations. The power to enact laws that are directly binding on all EU citizens throughout the EU territory also distinguishes the Union from international organizations.

The Union has been described as a supranational entity. The member states work together, in their collective interest, through the joint administration of their sovereign powers. The Union also operates according to the principle of "subsidiarity" which characterizes most federal systems. Under this principle, the Union is granted jurisdiction only for those policies that cannot be effectively handled at lower levels of government, i.e. national, regional, or local.

The EU system is flexible and inherently evolutionary, since it is designed to allow for the gradual development of European unification and has not yet achieved its final form.

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[4] "The European Union: A Guide"

1.2.1 Commission

Commission is the executive and the policy engine. It proposes legislation, is responsible for administration and ensures that the provisions of the treaties and the decisions of the institutions are properly implemented. It has investigative powers, and can take legal action against persons, companies or member states that violate EC rules. The Commission manages the budget and represents the Union in international trade negotiations.

Under the Maastricht Treaty, the European Parliament must approve the appointment of the Commission as a body. The President of the Commission is appointed for a term of five years.

The Commission is composed of 17 Commissioners, two each from France, Germany, Italy, Spain and the United Kingdom, and one from each of the other member states. The Commissioners act in the Union's interest, independently of the national governments which nominated them. Each is assigned one or more policy area and each is assisted by a small "cabinet" or team of aides. The Commission's administrative staff based mainly in Brussels, numbers about 13,000, divided among more than 20 "directorates-general" and other administrative services.[5]

1.2.2 Council of the European Union

The "Council of Ministers", as it was named before the Maastricht Treaty, adopts laws acting on proposals submitted by the Commission. It is composed of ministers representing the national governments of the member states. Different ministers participate in the Council according to the subject under discussion. Each Government acts as President of the Council for six months in rotation. The Council can take certain decisions by majority vote; others, such as taxation, or alterations of the Commission's legislative proposals, require unanimity. When decisions are taken by majority, France, Germany, Italy and the United Kingdom have ten votes

[5] "The European Union: A Guide"

each; Spain has eight votes; Belgium, Greece, The Netherlands and Portugal have five votes each; Denmark and Ireland have three votes each and Luxembourg has two votes.[6]

1.2.3. European Council

The European Council is the meeting of the Heads of member states and the President of the Commission. It meets at least twice a year, at the end of each EU member state's six-month rotating presidency of the Council.

1.2.4. European Parliament

The number of members of the European Parliament increased from 518 to 567 in the June 1994 elections, to reflect the enlargement of the Federal Republic of Germany following German unification. The President of the Parliament is elected for a term of two and a half years.

Before 1987 the Parliament had limited legislative power. However, with the "cooperation procedure" and the "assent procedure" introduced in the Single European Act and the "Co-decision procedure" introduced by the Maastricht Treaty (see Figure 1.2), it was given more power including the following:

The Parliament has a veto power over the accession of new member states and the conclusion of association agreement with third countries. It can also question the Commission and the Council, or even dismiss the Commission through a vote of censure (a power that has never exercised). It can amend, or reject the Community budget, veto legislation in certain policy areas, such as the environment, research and development, culture, education, vocational training and youth. The Parliament normally holds its plenary sessions in Strasbourg, France.

[6] "European Union: Europe on the move"

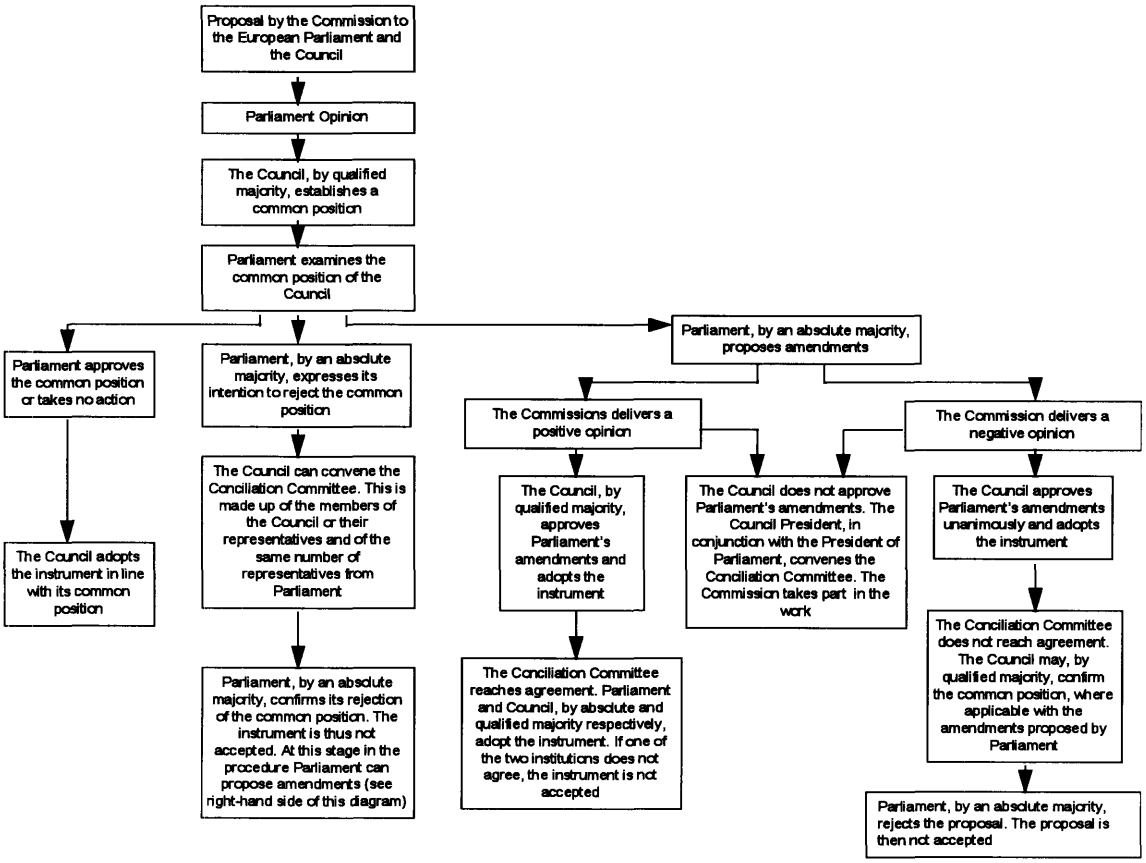

Figure 1.2. The Co-decision Procedure[7]

1.2.5. Court of Justice

The Court of Justice, sitting in Luxembourg is the Community's "Supreme Court". It is comprised of 13 judges, one from each member state plus a President of the Court, and six advocates-general. Both groups are appointed for renewable terms of six years by mutual consent of the member states.

[7] "European Union: Europe on the move"

The Court, whose rulings are binding, ensures that the treaties are interpreted and applied correctly by the other institutions, member states, national courts, companies and private citizens. Judgments of the Court in the field of EC law overrule those of national courts.

1.2.6. Court of Auditors

The Court of Auditors is based in Luxembourg and its main purpose is to supervise expenditures. It has extensive powers to examine the legality and regularity of receipts and expenditures and the sound financial management of the budget. Its twelve members are appointed by the Council of Ministers, after consulting the Parliament for renewable six-year terms.

The institutions mentioned above are assisted by two committees that have advisory role to the Commission and the Council of Ministers: The **Economic and Social Committee**, a 189-member body, based in Brussels, represents the various categories of economic and social activity such as labor, employers, agriculture, and consumer and professional associations. The **Committee of the Regions** consists of representatives of regional and local bodies from each member state and consults on cultural policy, economic and social cohesion, public health, Trans-European networks, and other appropriate areas of policy.

1.2.7. Legislation Policies

Legislation implementation takes different forms according to the results to be achieved. **Regulations** are binding in their entirety and are imposed automatically throughout the EU territory. They could be compared to Federal Laws in the US. **Directives** are addressed to Member States and are binding in terms of the result to be achieved. Member States are free to choose the best form of implementation and are given enough time (1.5 to 2 years) to pass the directive into national law. Once this predetermined period of time for all member countries to act on the directive is expired, EU law automatically takes precedence over national law. Finally,

Decisions are binding in their entirety upon those to whom they are addressed - Member States, natural and/or legal persons.

1.3. The European Union and the United States

The Union is often compared to the United States, and there are some similarities. Member countries have agreed to pool some of their sovereign powers for the sake of unity, just as American states did to create a federal republic. In the fields where such delegation of national sovereignty has occurred - for example, in trade and agriculture - the Union acts as a full-fledged country, and negotiates directly with the United States and other countries. Member States retain their full sovereign powers in such fields as security and defense matters, although they have agreed to take joint actions in foreign and security policy under the new Union. Although the US federal model continues to inspire the search for political unity, Europe is constructing its own model for unification, ensuring respect for its richest asset - the historical, cultural and linguistic diversity of the European nations.

The relationship between the US and the European Union could be described as excellent. There are formal bi-annual meetings between the US government and the Commission with the purpose of mutual consultation especially on foreign policy issues. Specific accords have been concluded on cooperation in a number of areas such as environmental matters, workers health and safety, research and development in energy, biotechnology, competition and anti-trust laws enforcement, financial securities etc. Informal cooperation exists in a number of other areas as well as agreements for stronger cooperation in the future.[8]

The European Union and the United States account for more than 30% of world trade and for more than 70% of the industrialized world's Gross Domestic Product. The Union is the largest trading partner of the US, taking about 22.9% of total US exports (mostly machinery and transportation equipment, agricultural products, and mineral fluids), and providing 17.7% of US imports (machinery, motor vehicles, precision equipment, iron and steel and other manufactured products).

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[8] "The European Union: A Guide"

The US investments in the EU have risen from $83.9 billion in 1985 to $200.5 billion in 1992, after the launch of the single market program. The EU investments in the US have grown to $219 billion in 1992, well ahead of the Japanese investment, which totaled $96.7 billion.

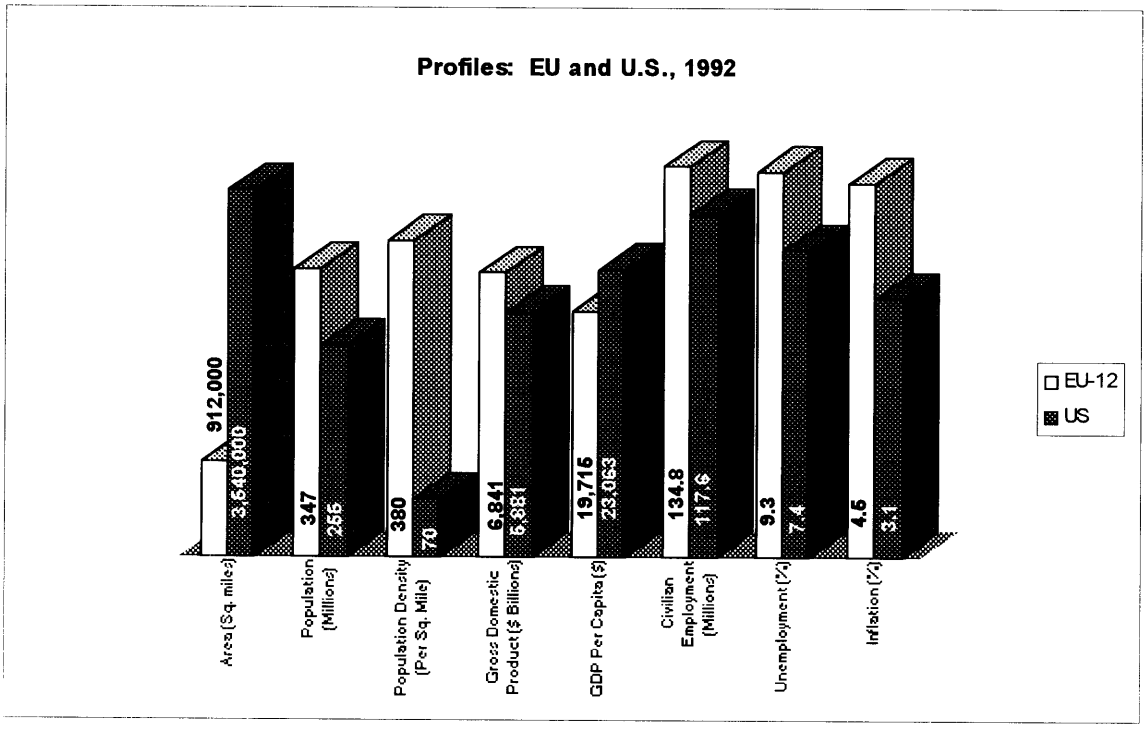

Figure 1.3. Comparison: EU , US 1992[9]

The above mentioned figures show that the unification of Europe is prosperous for both parties. Both sides agree on that, despite some natural conflicts on trade regulation issues, since the EU and the US are competitors in the trade field. For US firms, especially the medium-size that were unable to meet the requirements of twelve different markets, a single market of 347 million consumers offering uniform standards and procedures with the resulting economies of scale, hence reduced costs, can offer major opportunities.

[9] Source: "The European Union: A Guide"

1.4. European Union goals and achievements.

1.4.1. Accomplishments to-date

The Treaty of Rome, in 1957, stated as primary goals for the EEC "a harmonious development of economic activities, a continuous and balanced expansion, an increase in stability, an accelerated raising of the standard of living and closer relations between the (Member) States"[10], through the establishment of a common market. However, it took almost thirty years (mid-80's) for the Community to realize that these primary goals had not been accomplished. The Commission's White Paper in 1985, set the path for completion of the internal market by the end of 1992 (EC 92 program).

EC92 had as a main purpose the creation of a frontier-free economic area within which **people**, **goods**, **capital** and **services** can circulate freely. For this, it listed 300 legislative measures needed to eliminate all physical, technical and fiscal barriers including:

- An end to intra-EC customs checks and border controls.
- The harmonization or mutual recognition of technical standards.
- The mutual recognition of professional diplomas.
- An EC-wide market for services, such as banking, insurance, securities and other financial transactions.
- The approximation of the national rates and assessment criteria for the EC's indirect taxes.

These measures strengthened the Community's economy, thanks to job-creating growth fed by investment. Between 1984 and 1990, production rose by 20% and 8.5 million new jobs were created. Firms reacted to the Single Market by merging, acquiring interests and developing joint ventures with companies in other Member States. Economic growth, however began to slow down and in mid-1993 there was a strong recession due to a serious increase of unemployment.

[10] EEC Treaty, Art. 1

The European Council along with the Commission are currently studying some structural problems in the EU economy.

The single (or internal) market that the EC92 program tried to implement has officially been in existence since January 1, 1994. More than 95% of the planned measures at the Community level had been adopted and more than 85% have been transposed into national laws in all twelve countries. All frontiers between the Member States have been removed as far as goods, services and capital are concerned. Checks on persons[11] are temporarily maintained because certain arrangements to protect the common external border of the Community have not yet been finalized. The delay is due to some physical modifications to airport arrival terminals and the completion of a central computerized system for monitoring arrivals.[12]

Under the Maastricht Treaty on EU, union citizenship is established as a complement to the nationality of the individual Member State. Citizens of the Union will be entitled to vote and stand as a candidate whenever municipal elections are held in the Member State where they reside. Moreover, in the future every citizen of the Union will, in the territory of a non-member country in which the Member State of which he is a national is not represented, be entitled to protection by the diplomatic or consular authorities of any other Member State. Special rules, however, provide the assurance that Union citizenship in no way replaces national citizenship.

The further objectives of the European Union as stated in the Maastricht Treaty are:

- *To promote economic and social progress which is balanced and sustainable, in particular through the creation of an area without internal frontiers, through the strengthening of economic and social cohesion and through the establishment of economic and monetary union, ultimately including a single currency.*

- *To assert the European identity on the international scene, in particular through the implementation of a common foreign and security policy including the eventual framing of a common defense policy which might in time lead to a common defense.*

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[11] The Schengen Agreement on the free movement of people has been signed by only nine of the twelve partners of the European Union.

[12] "The European Union: A Guide"

- *To strengthen the protection of the rights and interests of the nationals of Member States through the introduction of a citizenship of the Union.*

- *To develop close cooperation on justice and home affairs.*

- *To maintain the communication conduct and build on it with a view to considering to what extent the policies and forms of cooperation introduced by this Treaty may need to be revised with the aim of insuring the effectiveness of the mechanisms and the institutions of the Community.* [13]

1.4.2. The common foreign and security policy

The European Union is now turning towards a further unification. While it is the world's largest trading power, its role and power in the international politics are limited. The recent major political crises, such as the Gulf War, the collapse of the Soviet Union and the Eastern block and the civil war in former Yugoslavia have forced the Community leaders to seek a common political approach for the benefit of the Union as a whole. However, the individual Member States pay particular attention to foreign and especially security policy in respect to their sovereignty. The common foreign and defense policy, agreed in the Maastricht Treaty will give a more powerful image to the Union, but will have to be implemented gradually and very carefully. Under the new treaty, the governments of the Community are bound by the Community agreements on joint action at the international level, or if no such agreement has been made, are required to comply with the foreign and security policy of the Community. The citizens of Europe support a common defense policy by a percentage of 77 for and 13 against and a common foreign policy by 66% for and 19% against.[14]

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[13] "European Union: Europe on the move"
[14] Source: "Eurobarometer, No 39, spring 1993"

1.4.3. Economic and Monetary Union

The successful implementation of the Single Market has opened the road towards the ultimate stage of European unification. The Economic and Monetary Union (EMU) means that the currencies of the Member States are tied to one another at the same fixed rate and that there can be no more devaluations or revaluations of individual currencies. Transactions will be made in a single currency that will be controlled by a central bank and there will be no national restrictions on converting money from one currency to another. Banks and insurance companies will be able to operate in every country. Individuals and companies will be more secure without having to deal with exchange rates fluctuation and will be more able to take advantage of the large internal market, making more investments.

The implications of the exchange rate stability that EMU will bring into reality are that the economic policies of the Member States will have to be very closely coordinated, especially on the inflation and external debt issues. **Convergence** of the economies is therefore required, for the purpose of which several programs are currently under implementation. The wealthier Member States must support financially the economically weaker countries and regions in order to assist them in bringing their economies up to Community levels.

The benefits of locked exchange rates within an economic and monetary union, however, will have an invaluable positive impact on individual citizens and companies. There will be less risk for investments, savings on currency conversion costs, price stability. The economically weaker regions, and as a result the people living on them, will have a better chance to catch up if they link their own development efforts to those of the Community.[15] Interest rates will be lower (due to lower inflation) attracting investments towards the European Union, establishing the single European currency as a popular international currency for business transactions.

[15] "European Union: Europe on the move"

1.4.3.1. The European Monetary System

The Economic and Monetary Union has been an official objective of the Community since 1969. In 1979, the European Monetary System (EMS) came into force. The system uses the Exchange Rate Mechanism (ERM) to determine the exchange rates of the currencies of the Member States that participate fully, (i.e. all except Greece) ensuring that there will be only slight fluctuations. Its core is the European Economic Unit (ECU), which is used to fix bilateral central rates for the currencies that participate in the ERM. Under the ERM, the actual rates can only fluctuate by no more than 2.25% on either side of the fixed central rate. The Member States have to apply a policy of price stability in order for the EMS to fulfill this requirement. This is a first step towards the ultimate goal of fixed exchange rates in the final stage of EMU.

The need to coordinate the economic policies of the Member States with a view to monetary union became apparent in the fall of 1992, after more than five years of stability in the EMS. A world-wide slackening of economic activity and the protracted debate on the Maastricht Treaty resulted in a crisis of confidence with massive speculative movements on the currency markets. As a consequence, the Spanish peseta and the Portuguese escudo had to be devalued while the Italian lira and the British pound had to leave the EMS temporarily. Another crisis occurred in August 1993, when the market pressure on some currencies was so severe, that the 2.25% bands of the EMS had to be replaced by 15% bands around the central fixed rate.[16]

1.4.3.2. The European Currency Unit

The ECU is a "basket" of specified amounts of each EU currency. Amounts are determined in accordance with the economic size of the Member States (Figure 1.4), and were revised every five years, until the implementation of the Maastricht Treaty. The value of the ECU is determined by using the current market rate of each member currency. The average exchange rate against the dollar in 1993 was 1 ECU = $ 1.17. All the member States' currencies participate in the ECU basket. In addition to its functions within the EMS, the ECU is the

[16] "Annual Report 1993. European Investment Bank"

Union's accounting unit. It has also become popular as a private financial instrument. There are ECU-denominated traveler's checks, bank deposits and loans and the ECU is used by some businesses as a currency for invoicing and payment. Significant amounts of ECU-denominated bonds have been placed on international markets. The first public offering of these bonds in the United States was launched in 1984. Currently, the ECU ranks among the top ten currencies in international bond issues.

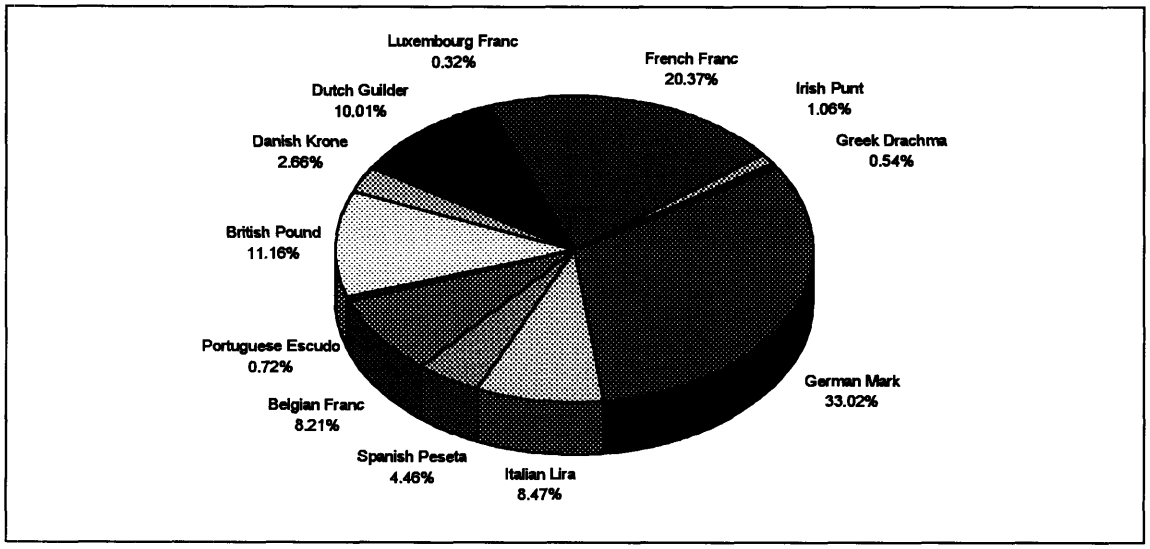

Figure 1.4. Composition of the ECU (Percent Share of each Currency, 1993)

1.4.3.3. The stages towards the final goal

The Economic and Monetary Union is planned to be developed in three stages. On July 1, 1991 the European Community entered Stage One, which aimed to improve economic and monetary policy convergence among member states. During this stage, Member States removed all restrictions on capital movements between them, with very few exceptions. Stage Two, which started on January 1, 1994, was the signal for even more preparations at the Member State level for the final stage. Countries whose inflation rates and government debt are too high must adopt

multi-annual programs to try to eradicate their "weaknesses" and thereby move closer to the more stable countries. For this reason, it was agreed by the governments to do their utmost to avoid excessive deficits in their national budgets. A European Monetary Institute has been created as a predecessor of a Central European Bank, which is planned to be created during the third stage. Community countries whose Central banks still take orders from the national governments must create legal base for the gradual independence of their monetary authorities during the second stage.

The third stage can begin in the beginning of 1997, if the Heads of the States and Governments decide that the majority of the Member States fulfill the "convergence criteria" that are stated below. In any case the final stage will begin on January 1, 1999 even if the countries satisfying these criteria do not constitute a majority. Two countries, namely the United Kingdom and Denmark have declared that they can not commit themselves that they will be ready for the final stage. Denmark has furthermore stated that will not participate in the final stage.

Those countries whose economies do not fulfill the requirements for full participation at the time of evaluation will not be able to participate in the principal decisions related to monetary policy. At least once every two years, or at the request of one of those countries, an assessment will be made as to whether the conditions for full participation have been fulfilled.

Economic conditions for participation in the final stage of economic and monetary union (convergence criteria)[17]

Price stability: *A Member State must be able to demonstrate sustainable price stability. The average rate of inflation, observed over a period of one year before the examination for the final stage (not until 1996), must not exceed by more than one and a half percentage points that of the three best performing Member States in terms of price stability.*

Public finances: *At the time of the examination the Council should not detect any excessive deficit on the part of the Member State. The deficit is deemed to be excessive if the*

[17] "European Union: Europe on the move"

budget deficit is more than 3% of gross domestic product or if total government debt exceeds 60% of gross domestic product.

Exchange rates: *A Member State must have respected the normal fluctuation margins (currently 2.25%) provided for by the exchange-rate mechanism of the European Monetary System (EMS) without severe tensions for at least two years before the examination. During that same period the Member State must not have devalued its currency against any other member's currency.*

Interest rates: *Observed over a period of one year before the examination, the average nominal long-term interest rate may not exceed by more than two percentage points that of the three Member States who have the best results in terms of price stability.*

The economic situation of the Member States in the European Union is shown in Table 1.1.

1.4.3.4. The Central European Bank[18]

In the final stage of EMU, the money supplies of ECU will be controlled by an independent European Central Bank (ECB). The ECB will be responsible for the stability of the currency, a role currently assumed by the individual central banks of the Member States. In the EMU the ECB, together with the central banks of the member states participating will form the European System of Central Banks (ESCB), which will be independent of any government or the Community. Neither the ECB, nor the central bank of any Member State or any of their officers can take instructions from Community institutions or bodies, from any government of a Member State, or from any other body, when carrying out their tasks and duties. The European Central Bank is made up of a Governing Council and an Executive Board. The Governing Council consists of the Governors of the national central banks and the members of the Executive Board. The Executive Board is effectively the ECB's management. Its members will be appointed jointly

[18] "European Union: Europe on the move"

by the Member States from among persons of recognized standing and professional experience in monetary or banking matters, for a non-renewable term of eight years.

Country	GDP 1992 (ECU bn)	Government Deficit 1992 (% of GDP)	Inflation Rate 1993 (%)	Long-term interest rates 1993 (%)
Belgium	169	-6.9	2.7	6.7
Denmark	110	-2.6	1.5	6.1
Germany	1,499	-2.6	3.7	5.5
Greece	60	-13.2	12.1	-
Spain	444	-4.6	4.9	8.1
France	1,020	-3.9	2.1	5.9
Ireland	39	-2.2	1.5	6.5
Italy	945	-9.5	4.4	8.8
Luxembourg	8	-2.5	3.6	6.7
Netherlands	248	-3.5	1.7	5.6
Portugal	74	-5.2	6.4	8.9
United Kingdom	806	-5.9	1.9	6.5
EUR 12	**5,421**		**3.3**	

Table 1.1 Economic Statistical Data for the Member States of the European Union[19]

Functions of the ESCB will be to make decisions on transactions in foreign currencies, to manage Member States' official currency reserves and to ensure that payment systems in the Community operate smoothly. Only the ESCB has the right to authorize the issue of bank notes and coins in the Community.

[19] Source: "Facts through figures: A statistical portrait of the European Union"

CHAPTER 2

European Union and Infrastructure

As mentioned in the previous chapter, the EC 1992 program had taken on important dimensions that went beyond the simple removal of internal barriers to trade. The goal of the EC was (and still is) to facilitate the free trade not only between Member States, but between the Community and the external trade centers as well. Furthermore, the Community needs to enhance the level of life of its citizens, especially in the less favored (and usually more isolated) areas in order to avoid centralization. It has become increasingly clear to EC businesses and policy-makers that existing Member State infrastructure in key areas may not be adequate to support the demands of an integrated regional market.

For the last ten years, the Community has emphasized the importance of three sectors that require further integration in order to make the single market work: transport, energy and telecommunications. Europe at this time could be described as a huge worksite with increased construction activity and very large amounts invested in construction projects. In this chapter the problems and incompatibilities in infrastructure will be identified, the need for superior infrastructure will be discussed and an overview of the construction activity in the European Union will be presented.

2.1. Infrastructure deficiencies in the EU.

Transportation and energy are in a way interrelated. In the sixties the evolution of the air transport seemed to be the response to the increased demand for international travel. Since then, however, the increase in energy prices have made the passenger and freight transport by air extremely expensive, resulting to a turn towards inland transportation. Trucks are the only mode of freight transport experiencing real international growth even though they are not particularly

energy efficient.[1] Especially for an area like Europe that most of the countries are connected by land, the inland transport for people and goods seems to be the best approach.

There are many problems in the European infrastructure, as far as inland transport is concerned. The geographically peripheral Member States of the European Community (namely the UK, Denmark, Ireland, Greece, Portugal and Spain) are more dependent on road transport than the central Member States, which rely more on the railways.

Transport between Germany and Italy required transit across the Alps through the roads of Austria and Switzerland. Austria is now member of the European Community[2], but ten years ago asked from the EC to contribute to the financing of the Pyhrn motorway, since 80 percent of the traffic in that was generated by EC transit vehicles. In the same way, the Community had special agreements with Yugoslavia and Austria and had to include them to its transport policy, in order to have inland access to Greece.[3]

France is known for its rigid centralization. Everything revolves around Paris, which means that traffic between regions is severely constricted.

Since Germany was split following World War II, most of the road and rail traffic traveled along the north-south axis causing the major German ports in the North Sea to be deprived of their natural hinterland.

Luxembourg is a very small country, with no need for increased infrastructure development in the national level, but in the Community framework its roads, rail and river (Moselle) are virtually thoroughfares and carry a large proportion of the transit traffic to and from France, Belgium and Germany.[4]

Some Greek arteries are narrow roads, with only one lane per direction, causing serious delays and a large number of traffic accidents during peak hours.

In the railroad sector there are major incompatibilities between the Member States. Even though there are trains able to travel with an average speed of 185 miles per hour[5], track measurements differ in Member States. Trains have to stop when they enter a new Member State

[1] "European Transport: Crucial problems and research needs. A long term analysis."
[2] Starting on January 1, 1995
[3] Erdmenger, 1983
[4] Abbati, 1987
[5] The TGV (Train à Grande Vitesse) Atlantique 325 in France reached a speed of 515.3 km/h (322 mph) in trials and achieves an average speed of 300 km/h (187.5 mph).

to make adjustments to conform to that Member State's track width[6], a procedure that results in costly delays[7]. The railroads and trains in some countries are old and they can not handle freight transport. Another obstacle to the development of a range of rail services on a European scale stems from the fact that rail routes and capacity have largely been developed in accordance with national considerations and they have not been adapted to the traffic flows of the Common Market. A good example is the hold-up of freight trains every summer on the north-south routes when they cannot be absorbed by the North Italian network.

The problems in the inland waterways are that the shipping fleet is too large and old and that activity is too slack. Moreover, waterway operations are largely dependent on the fluctuating water levels of the rivers. As a result, rates have tended to crumble, and many firms have gone out of business.[8]

In the energy sector, the Community is concerned with the oil shortage and is trying to find ways to substitute mineral oil as the major provider of energy. Several electrical power connections need to be done between Member States as well as between Member States and countries outside the European Union.

There is congestion in air transport. The existence of twelve different systems of air-traffic management and control in the Community leads to flight delays. The problem is worsened by the fact that there is a lack of runway or terminal capacity at some EC airports.

Finally, traffic accidents due to poor design of the road networks in some countries, and the environmental effects of the increased transport demand in the Community are two problems that are becoming alarming.

The above mentioned problems make the process of planning in the Community level even more difficult, indicating the need for coordination of the projects at the national level, in order to achieve compatibility at the integrated Single market level. The Community has also to consider countries that do not belong to the Community but are of great importance to the EC trade and as a result to EC transport. Such countries are those of Eastern and Central Europe, Russia, Turkey and the countries of the Middle East, and the countries of the Mediterranean Sea.

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[6] between France and Spain, for example

[7] "The EC Liberalizes Transportation Rules and Upgrades Its Infrastructure" Business America

[8] "The European Community's Transport Policy"

2.2. Trans-European Networks

The European Community had early recognized the importance of infrastructure development in the creation and optimal operation of the Single Market, but the first step towards this direction was made rather late. Financial support for transport infrastructure was inserted into the EC budget for the first time in 1982. Even in the period from 1982 to 1993, however, the investment in infrastructure was moving at a slow pace. The Treaty on European Union (Maastricht Treaty) of 1991 adopted as a Union priority the support for the Trans-European Networks. The Commission justified this priority in its White Paper on Growth, Competitiveness, Employment (pp. 28, 29) as follows:

> *Our investment in infrastructures has been slowing down over the last 10 years. The fact that not enough attention has been paid to developing infrastructures is one of the reasons for the deterioration in the quality of life. Time wasted because of traffic congestion, under-utilization of the new communications media, environmental damage owing to the failure to use the most efficient technology are all to some extent contributory factors in the present malaise of our cities and the resulting social discord. The same is true of the thinly-populated rural areas, whose isolation is a threat to their very existence.*
>
> *The rapid progress made in data processing, environmental engineering, propulsion methods and new materials completely change the outlook. We are living with separate, compartmentalized networks, with means of transport which are often environmentally damaging. It will henceforth be possible to combine different transport modes, to use electronics to organize links and traffic better, to connect networks in all sectors for which different national authorities are responsible and to integrate stringent environmental standards in infrastructure projects.* ***A wholly new generation of projects is emerging, and a completely different development logic.***

Trans-European Networks (TENs) is a plan to link the outlying regions with the central regions of the EU and the members of the Union with their outside neighbors. After the huge collective effort that has been made to eliminate frontiers between the Member States for the

target of free movement of people, goods, capital and services the TENs will increase the physical links. The sectors that will be integrated through these Networks are **transport, energy** and **telecommunications**.

The objective of developing the TENs is to enable citizens, economic operators and regional and local communities to derive full benefit from the setting-up of an area without internal frontiers. Low-cost, efficient infrastructure are essential to promoting competitiveness. Travel will be better, safer and at lower cost resulting to an increase in trade. Effective planning will eliminate the serious socio-economic disequilibria in all Member States. Infrastructure will be a bridge towards the countries of Eastern Europe and Russia facilitating the development of an economic partnership between these countries and the European Union.

2.2.1. Estimated cost of the Trans-European Networks

The Commission's analysis shows that the overall volume of investment to be made by 1999 could amount to ECU 400 billion ($480 billion), of which ECU 220 billion will go to transport, ECU 150 billion to telecommunications and ECU 13 billion to energy transport. These amounts, however, are considered justified by the Commission because it is believed that they will be balanced off by benefits from employment creation, economic cohesion between Member States and regional development.

2.2.2. Selection of projects

The Commission and the Council have decided to speed up the adoption of master plans in the fields of transport, energy and telecommunications. Four master plans for transport are already in place. The projects will be proposed by the Member States and will be evaluated by the Commission and the Council as to whether they are "of Community interest". Project evaluation will concern the financial risks, the possible sources of financing, the legal status (duration of concessions), management and the environmental impact. This procedure is particularly important in the energy sector where the main implementation difficulties are not so

financial, as related to the length and complexity of administrative procedures (necessary treaties and agreements between countries concerned and so on).[9]

In some cases Community financing of certain projects can amount 90% of the total cost. Furthermore, projects awarded a declaration of Community interest are to be given privileged access to Community financial instruments, which means loans with better interest rates etc. Since the available finances at both the Community and the Member State level is limited, the EU will try to attract private interest by reducing the financial and administrative risks involved. An administrative and financial action plan will be drawn for each project in order to guarantee investors the stability required. More about the financing of the projects will be discussed in the next two chapters of this Thesis.

2.2.3. Transport

Among the three sectors of the Trans-European Networks, transport has been given the most importance and priority. Transport is one of the four common policies of the Community (the others being agriculture, fisheries and commerce) and until recently was the least developed of them. If the fact that transport accounts for 7 to 8% of the Gross Domestic Product of the EU and the fact that about 5.6 million people were employed in this sector in 1991, is considered, then the importance given to transport by the Community is justifiable. Its overall economic impact is even greater when one considers that the manufacture of transport equipment gives jobs to another 2.6 million people, or 6.5% of total Community industrial employment.[10]

2.2.3.1. Growth in the past twenty years

Transport demand in the past 20 years has expanded in line with the growth of the EC economy. Since 1970, annual economic growth was 2.6% in real terms while the growth rates

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[9] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"
[10] Coffey, 1993

for transport services was 2.3% for goods and 3.1% for passengers. The main growth factors are:[11]

- Changes in the structure of manufacturing industry with shifts in production locations away from urban areas to new industrial sites. Economic integration within the EC has speeded up the dispersal process.

- Changes in production methods, leading to stock reduction and a requirement for more flexible, varied and rapid delivery systems (known as "just-in-time" systems). Shipment sizes are reduced but deliveries become more frequent.

- The growing importance of the services sector and its multi-site business activities has encouraged rapid growth in professional mobility.

- The rise in personal incomes and changing demographic patterns have led to a higher degree of car ownership and increased leisure and holiday travel.

However, the growth in transport these last twenty years has not been spread evenly between the modes of transportation available.

Transport for goods by road has more than doubled in absolute terms and now accounts for 70%. Transport by rail has decreased from 28% to 15% and inland waterways carry 9%.

Passenger traffic has increased by more than 85% in volume, since 1970 and most of the increase is absorbed by private cars. Cars account for 79% of all passenger transport compared with 8.9% for buses, 6.6% for train and 5.6% for airplane, although passenger air traffic has quadrupled in the past twenty years.

Two of the reasons for the increase in demand for road transport are first, the increase in the number of private cars (the average number of cars in the EC now is 380 per 1000 inhabitants and is expected to increase by 25% to 35% in the period 1990-2010) and second, the fact that road users are not confronted with the full cost of their activities. As prices do not reflect the full costs, demand is artificially high.

[11] "Transport in the 90's: Europe on the Move"

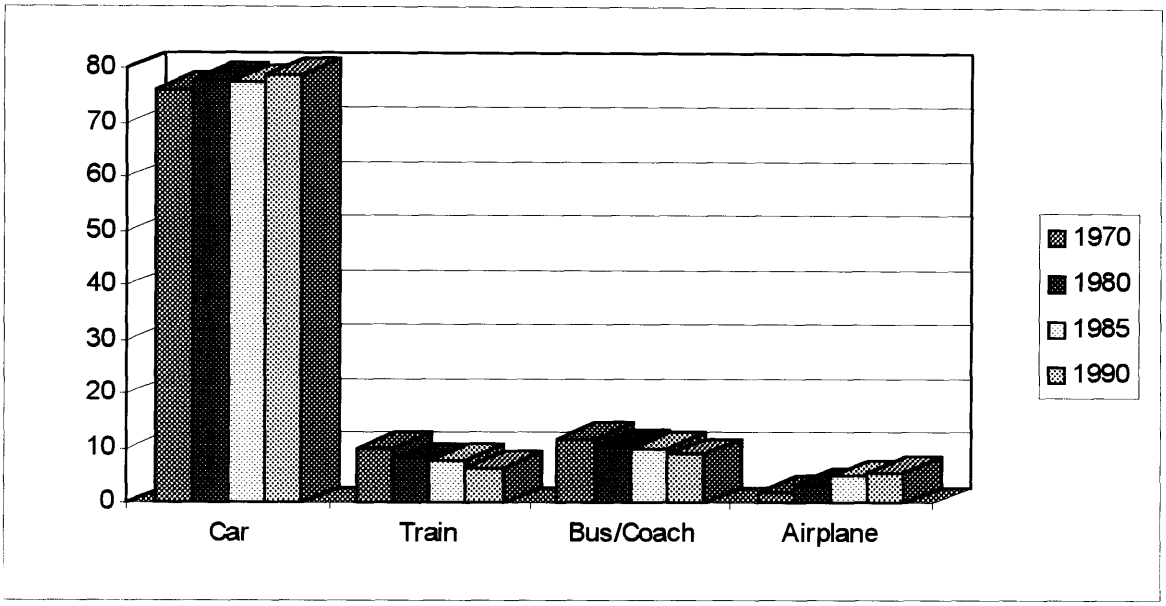

Figure 2.1. Passenger Transport in the European Community 1970-90 (%)[12]

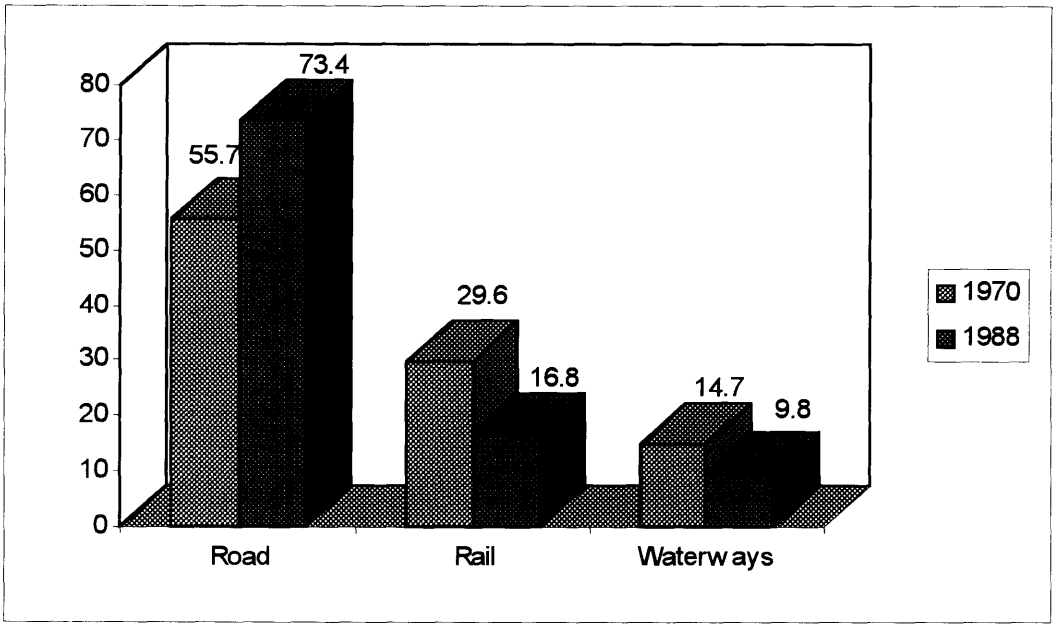

Figure 2.2. Market Shares of the different transport modes in the EC 1970 and 1988 (%)[13]

[12] Source: "Transport in the 90's: Europe on the Move"
[13] Source: "Transport in the 90's: Europe on the Move"

The uneven growth in the utilization of the different transport modes has caused the road transport systems to be congested or near saturation level in some regions of the Community. Investments in different modes are uneven too. Even though two-thirds have gone to road transport, they have not helped the infrastructure cope with the increasing growth in traffic.

The environmental effect of the uneven distribution of demand in the transport sector is obvious. 80% of the carbon dioxide (CO_2, one of the "greenhouse" gases) emissions, come from road transport. Airplanes account for 11%, railways for 4% and inland waterways for less than 1%. It is the less polluting modes that are underutilized.[14]

Transport volumes are expected to increase by 30% by the year 2000. In addition, new links will be required between the European Union and its neighboring countries in the European Free Trade Association[15] and in the Central and Eastern Europe. The distribution of the transport demand between the different modes must be balanced for the Single Market to work more efficiently.

2.2.3.2. EC Transport Policy

The European Community has taken several measures towards harmonization of the national legislation on every aspect of transport. The main goals are to establish freedom to all Community firms to transport goods and passengers without discrimination as to nationality or place of establishment and freedom of choice of mode of transport.

In road transport the frontier checks on goods crossing from one Member State to another were abolished on January 1, 1993. The transport of goods, however, from a company from one Member State inside another, known as "cabotage" is still limited. The transport of passengers by bus anywhere in the Community by firms established in the Community is partially free, and is expected to be further liberalized before the beginning of 1997. The planned Community-wide road tax to charge for the use of motorways by trucks is aiming at bringing prices more in line with costs and reduce the attractiveness of road transport over other modes. The idea is that with appropriate pricing and infrastructure policies the imbalance between modes will disappear.

[14] "Transport in the 90's: Europe on the Move"

[15] Economic Treaty with a much lighter character than the EU, signed by Norway, Finland, Austria, Switzerland, Sweden, Iceland and Liechtenstein

Price controls on air fares have been eliminated. Consecutive "cabotage" in the air transport sector is allowed. This means, for instance that a German airline can carry passengers between two French cities provided they join a flight originating outside France. Full cabotage will be possible from 1997.[16]

In the rail transport sector international groups are allowed to use the rail infrastructure in Member States to operate international services. Cabotage in shipping services has become possible with exceptions and is fully allowed in inland waterways transport.

The liberalization of the EC transport market will lead to:[17]

- More competition among EC transport companies.
- The offering of better and quicker services by distributors and manufacturers.
- A reduction in shipping costs to customers, estimated at 10% to 15%, as was the experience in the United States.

2.2.3.3. High-Speed Trains and Combined Transport

Priority in the planning of the Trans-European Networks is given to high-speed trains and to combined transport. High-speed trains will shift some passengers from use of the private car (since they offer affordable, more comfortable travel) and from air travel (since they are competitive in terms of duration of the trip). The time factor will also increase the preference for freight transport towards rails. The Channel Tunnel connecting the UK with the rest of the Community, is a very good example.

Combined ("intermodal") transport refers to complementarity of modes. Each mode will be developed so that it meshes better with other modes. At present, combined road/rail carries only 4% of the total goods transported. Combined transport will target trunk routes which are already near saturation point or where environmental problems occur. Transit across the Alps between the north and south of the Community is one such route. North-south and east-west waterways, like the new link between the Rhine and Danube rivers, also offer new possibilities.

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[16] "Transport in the 90's: Europe on the Move"

[17] "The EC Liberalizes Transportation Rules and Upgrades Its Infrastructure" Business America

Combined transport can also include inland waterways and even coastal shipping. The basic idea is to use non-polluting and energy-efficient modes for the main part of journeys wherever possible. In this way, a coherent intermodal policy would be developed using the most appropriate mode or combination of road, rail and waterways, and taking account of cost and efficiency as well as environmental and safety considerations.[18]

2.3.3.4. Priority projects

The Commission has identified 26 projects in the field of transport concerning almost all Member States of the European Union and which are described in Table 2.1. These include the development of a high-speed train between Paris and Berlin via Strasbourg, the Fehmarn belt fixed-link crossing (tunnel/bridge between Germany and Denmark, a high-speed train and combined-transport link between Lyons and Turin and a motorway connection from Berlin to Moscow via Warsaw. In the sector of air transport priority projects include a new air traffic management system for Europe and the construction of the new Athens airport. In some cases work is already in progress.

All the proposed train, motorway, air or waterway links have been chosen according to a range of selection criteria: economic importance for the region, employment creation, benefit for industry and viability, potential for private investment and financing, community interest like trans-frontier links or interconnection of networks. All had to pass environmental scrutinity. It is now up to the public authorities of the Member States, the regions or municipalities and the private partners to decide on the implementation of these projects.[19]

[18] "Transport in the 90's: Europe on the Move"
[19] "Trans-European Networks: Europe on the Move"

Project Type	*Member (and Non-Member) States involved*	*Indicative Total cost ($ million)*[20]	*Progress*[21]
1. Brenner axis. Rail connection through the Alps	Italy/Austria / Germany	12,000	Studies in progress
2. Paris-Brussels-Cologne-Amsterdam-London (PBKAL); High-speed train: Belgium	Belgium	3,000	Completion of feasibility studies
3. Paris-Brussels-Cologne-Amsterdam-London (PBKAL); High-speed train: Netherlands	Netherlands	2,520	Completion of feasibility studies
4. Paris-Brussels-Cologne-Amsterdam-London (PBKAL); High-speed train: London-Tunnel access	United Kingdom	4,680	Completion of feasibility studies
5. Madrid-Barcelona-Perpignan; High-speed train	Spain / France	8,160	Studies in progress
6. Fehmarn belt crossing; fixed link between Denmark and Germany; estimated construction costs for the tunnel/ bridge; new construction or upgrading of railway needs to be decided (preliminary cost estimates ECU 2 to 4 billion)	Denmark / Germany	5,400	Studies in progress
7. TGV Est: High-speed train Paris-Strasbourg	France	4,800	Studies under completion
8. TGV Est: High-speed train: Karlsruhe-Frankfurt-Berlin	Germany	10,200	Partially ready to go
9. Rotterdam-Betuwe line (Cologne-Frankfurt-Karlsruhe-Switzerland-Italy): railway line	Netherlands / Germany / Italy / (Switzerland)	3,720	Studies under completion

[20] Conversion of amounts to US dollars was made using the exchange rate: ECU 1=$ 1.20
[21] As of beginning of 1994

Project Type	*Member (and Non-Member) States involved*	*Indicative Total cost ($ million)*[20]	*Progress*[21]
10. Lyons-Turin: High-speed train/combined transport	France / Italy	7,440	Studies in progress
11. Urban by-passes for combined transport corridors and selected combined transport projects	Germany / France / Italy / Spain	2,760	Ready to go
12. Nuremberg-German/Czech border-Prague: motorway	Germany / (Czech Republic)	1,200	German part: ready to go / Czech part: studies finalized
13. Berlin-Warsaw-Polish/Belarussian border (Moscow): motorway (new construction)	Germany / (Poland)	3,840	Ongoing studies
14. Patras-Athens-Thessaloniki-Greek/Bulgarian border: motorway	Greece	1,800	Works in progress
15. Lisbon-Valladolid (Spanish/French border): motorway	Portugal / Spain	2,400	Works in progress
16. (Dublin)-Holyhead-Birmingham-Cambridge-Felixstowe/Harwich-(Benelux): road corridor (by sections)	UK	1,200	Works partially in progress
17. Bari-Brindisi-Otrando: motorway	Italy	1,200	Studies in progress
18. Road traffic management system	EC	1,200	Technology available; program to be designed; some centers already in place
19. New Athens airport (Spata)	Greece	2,400	Studies in progress; consortium chosen; contract not signed

Project Type	*Member (and Non-Member) States involved*	*Indicative Total cost ($ million)*[20]	*Progress*[21]
20. Air traffic management system for Europe (CNS/ATM): this includes also the satellite system Inmarsat-III (navigation payloads) and associated ground segment	EC	9,600	Definition of system completed; projects ready for implementation
21. Channel Rhine-Rhône	France	3,000	Studies in progress
22. Channel Seine north	France	1,800	Studies in progress
23. Connections between Elbe and Oder: inland waterways	Germany	720	Studies in progress
24. Danube upgrading: section between Straubing and Vilshofen: inland waterways	Germany	840	Studies in progress
25. Vessel traffic management system for Community waters	EC	1,200	Works in progress
26. Multimodal positioning system by satellites system	Germany / France, European Space Agency	1,200	Studies in progress
	Total	***98,280***	

Table 2.1. Trans-European transport networks: Priority projects[22]

[22] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

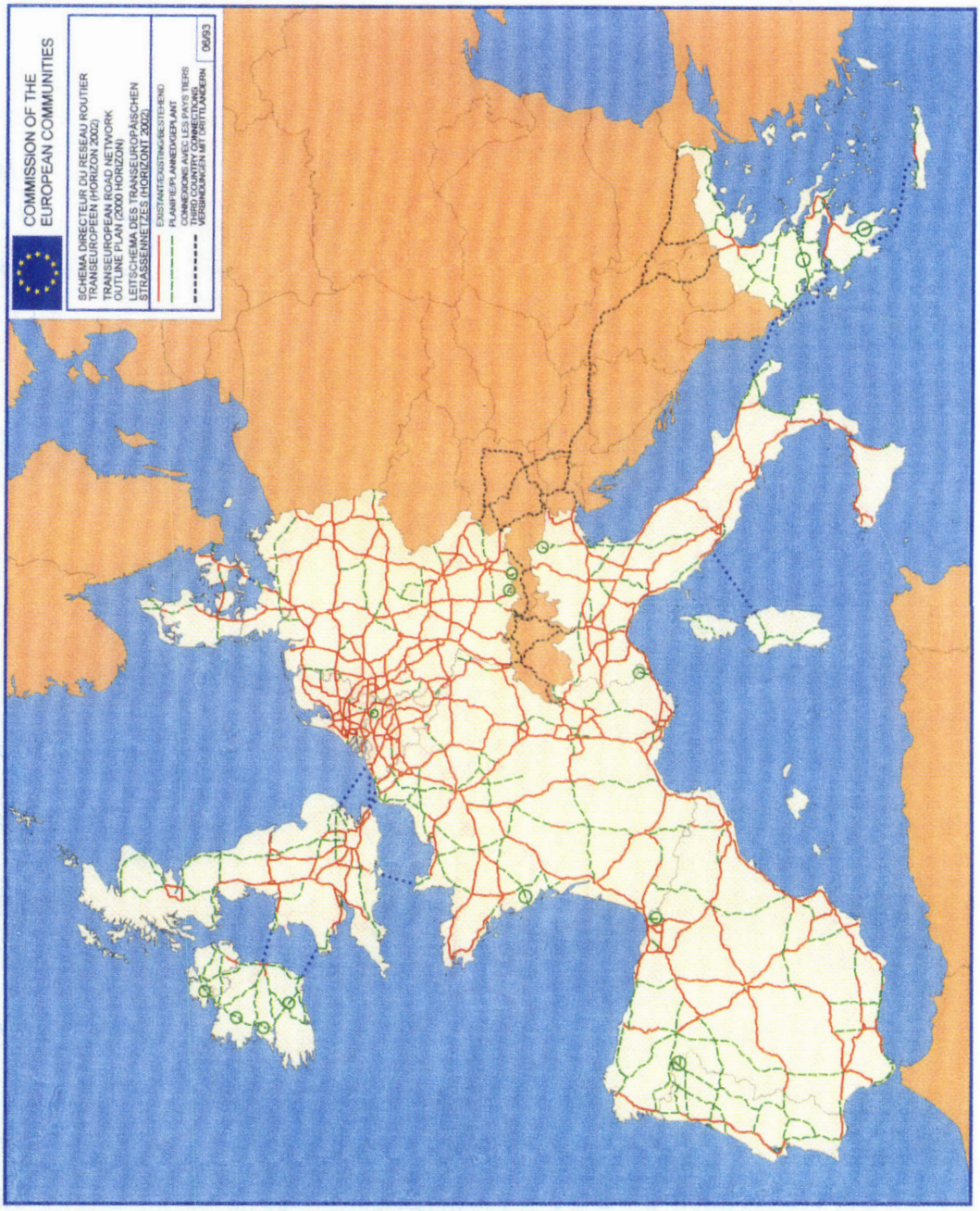

Figure 2.3. Trans-European Road Network (2000 Horizon)[23]

[23] Source: European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

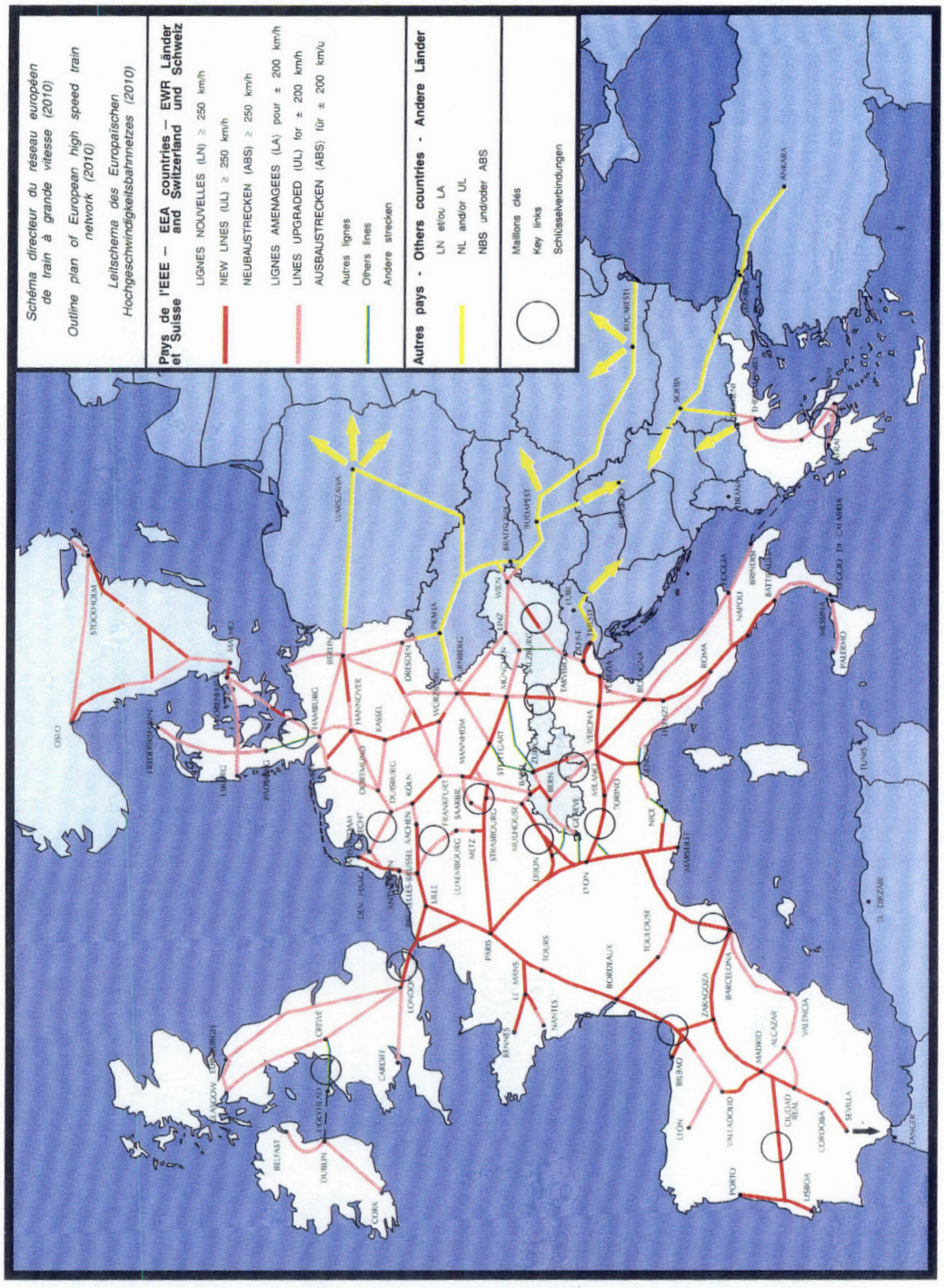

Figure 2.4. Outline Plan of European High-Speed Train (2010 Horizon)[24]

[24] Source: European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

2.2.4. Energy

Two key factors for competitiveness in industry, cost reduction and higher living standards in the regions of the European Union is the reliability and efficiency in the energy supply networks. The sub-optimum use of existing networks and brakes on their desired expansion are a major problem in the central parts of the Community in particular, and one which is closely bound up with the situation on the market for electricity and gas. Gas consumption and imports from the North Sea, Russia and Algeria are increasing. Interconnection and improvement of the management of electricity systems in Europe falls short of what is considered essential to the proper functioning of the Single Market.[25]

In order to improve competitiveness of the EC industries over their competitors in the U.S. and Japan, EC officials want to increase the transparency of the pricing mechanisms for industrial consumers of gas and electricity. To achieve these goals, the Commission has planned the creation of new networks to allow cross-boundary sales of energy and to improve energy efficiency and distribution. The need for intra-EC sales is shown from the fact that in the past few years the energy trade inside the Community has doubled, while in the same period the consumption has only increased by 10%.[26]

There are also environmental reasons that dictate the development of energy networks. The new networks will favor the use of fuels with the least carbon dioxide emissions. The energy networks will help to intensify the cooperation of the Union with the non-member countries of the Mediterranean region that are the main suppliers of oil in the area. After the Gulf Crisis the need for better relations with these countries was considered essential.

The energy sector as a whole in Europe is changing. Electricity companies are being privatized with the British being the first. A number of EC firms are entering into joint ventures in order to benefit for the exchange of technological know-how and to achieve economies of scale.

The fact that with the exception of some regions, the financing of energy networks does not depend heavily on the public sector creates another problem. Unlike transport, planning of energy networks is not a financing problem at first. Private sector investments are often hampered by administrative constraints. These constraints are above all the consequence of exclusive import

[25] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"
[26] "The New European Infrastructure" Business America

and export rights, transport monopolies, limited possibilities to construct and operate gas pipelines and transmission lines. Removal of these constraints is essential to the relaunch of investment and network planning. Furthermore, the opening-up of markets and deregulation means greater competition and thus greater energy efficiency. The competitiveness of European industry would be generally strengthened as a result.[27]

The Community seems now determined to speed up the planning and implementation of the energy infrastructure projects. The Commission is planning to give financial incentives to feasibility studies so that technical, economic and environmental studies are carried out in order to mobilize the special Community funds developed for energy projects.

Priority projects are shown in Tables 2.2 and 2.3 and include the connection of electricity grids within and between Member States and with neighbors such as Germany-Poland, France-Switzerland, Spain-Morocco, Greece-Balkan countries and so on. Gas projects will connect separated gas networks like those of the United Kingdom and continental Europe and those of France and Spain. New supply lines include this from Norway to Germany and the Benelux[28] countries, from Algeria to Spain and Italy and from Russia to the EU. The estimated cost of energy projects for the period 1994 through 1999 could reach ECU 13 billion ($ 15.6 billion).

[27] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"
[28] Belgium, Netherlands, Luxembourg

(a) Connection of isolated electricity networks

a1:	Northern Ireland	-	Scotland
a2:	Ireland	-	United Kingdom
a3:	Germany	:	Connection to the new Laender
a4:	Greece	-	Italy
a5:	Greece	:	Connection of Crete
a6:	Spain	:	Connection of the Balears

(b) Improvement of interconnections between Member States

b1:	Germany	-	Denmark
b2:	Germany	-	Netherlands
b3:	Germany	-	Belgium
b4:	France	-	Belgium
b5:	France	-	Germany
b6:	France	-	Italy
b7:	France	-	Spain
b8:	Belgium	-	Netherlands
b9:	Belgium	-	Luxembourg
b10:	Spain	-	Portugal

(c) Improvement of electricity networks within Member States in conjunction with improved interconnections between Member States with non-Community countries

c1:	United Kingdom	:	Wales
c2:	Denmark	:	East-West link
c3:	Netherlands	:	North-East area
c4:	France	:	North-East area
c5:	Italy	:	North-South and East-West links
c6:	Spain	:	North-South link and lines along the coast of the Mediterranean and the Cantabrian Sea
c7:	Portugal	:	Improvements regarding interconnection with Spain
c8:	Greece	:	East-West link

(d) Creation or improvement of electricity interconnections with non-Community countries[29]

d1:	Germany	-	Sweden
d2:	Germany	-	Poland
d3:	Germany	-	Norway
d4:	Germany	-	Austria
d5:	Italy	-	Switzerland
d6:	Italy	-	Austria
d7:	Italy	-	Tunisia
d8:	Greece	-	Balkan countries
d9:	Greece	-	Turkey
d10:	United Kingdom	-	Norway
d11:	Netherlands	-	Norway
d12:	France	-	Switzerland
d13:	Spain	-	Morocco

Table 2.2. Priority Electricity Projects

[29] At the time that the White Paper was written (December 1993), Sweden, Austria and Finland were not members of the EU, yet.

(e) Introduction of natural gas in new regions

e1:	Northern Ireland		
e2:	Germany	:	New Laender
e3:	Corsica and Sardinia		
e4:	Spain	:	New regions
e5:	Portugal	:	Whole country
e6:	Greece	:	Whole country, including Crete

(f) Connection of isolated or separated gas networks

f1:	Ireland	-	Northern Ireland
f2:	Great Britain	-	Continent
f3:	Germany	:	Connection of German network to gas
	Belgium	:	Pipelines coming from Zeebrugge
f4:	Germany	:	Connections to the new Laender
f5:	Spain	-	France
f6:	Portugal	-	Spain

(g) Improvement of reception capacities/LNG storage and underground storage

g1:	Ireland	:	Construction of an LNG station
g2:	Germany	:	Construction of an LNG station
g3:	France	:	Extension of LNG stations
g4:	Italy	:	Extension/construction of LNG stations
g5:	Spain	:	Extension of LNG stations
g6:	Germany	:	Creation of underground storage facilities
g7:	France	:	Creation of underground storage facilities
g8:	Spain	:	Creation of underground storage facilities

(h) New gas supply pipelines

h1:	Norway	-	Belgium or Netherlands: new project planned
h2:	Norway	-	Germany (Emden): Europipe project
h3:	Norway	-	Denmark-Sweden: Scanpipe project
h4:	Algeria	-	Morocco-Spain-France (Toulouse/Fos)
h5:	Algeria	-	Tunisia-Italy: capacity increase
h6:	Russia	-	Ukraine-EC: upgrading of existing gas pipeline system
h7:	Russia	-	Belarus-Poland-EC
h8:	Russia	-	Scandinavian countries-EC
h9:	Bulgaria	-	Greece

NB: LNG could be an interesting alternative to some gas supply pipeline projects that have not yet been finalized.

Table 2.3. Priority Gas Projects[30]

[30] Source: European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

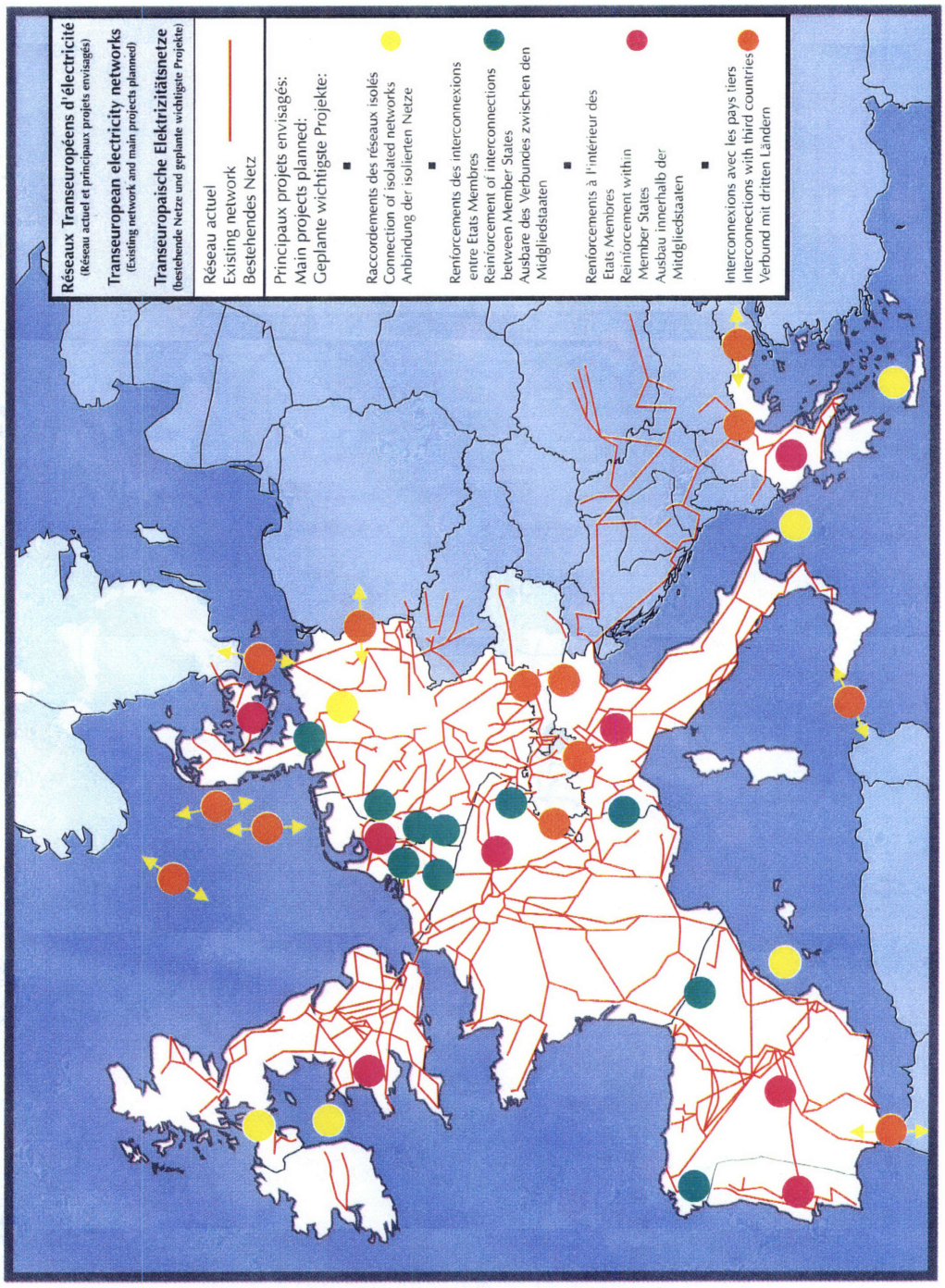

Figure 2.5. Trans-European Electricity Networks[31]

[31] Source: European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

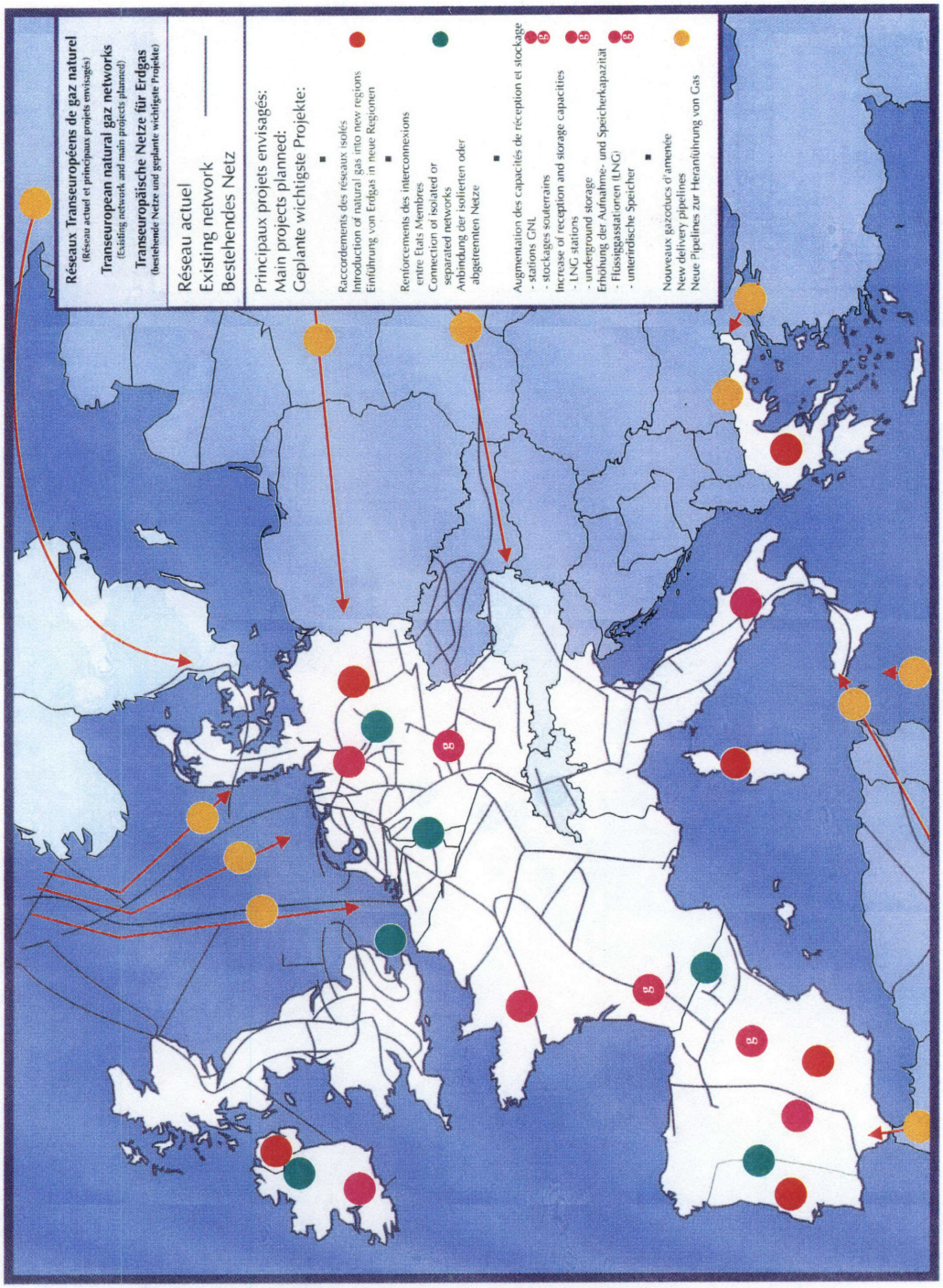

Figure 2.6. Trans-European Natural Gas Networks[32]

[32] Source: European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

2.2.5. Telecommunications

The need for a "common information area" in the European Union can be best understood by trying to think of a European firm that has branches in all the Member States and tries to set up permanent communication links between the head office and the branches. It will face many problems due to the existence of several different communication networks and tariff structures. This in addition to the evolution of the communications technology and the fact that the next two decades could be characterized as the "communications time" shows the importance of telecommunications networks.

The telecommunications industry accounts for $ 342 billion world-wide of which $ 100.8 billion in the European Union level. It is estimated that by the year 2000 this sector alone will account for the 6% of the Gross Domestic Product.

Networks that will be able to transport voice, text and images between any two locations thanks to digitizing techniques will constitute the nervous system of the economy, and more generally tomorrow's society. *With these networks it will be possible to transmit myriads of texts (commercial messages, newspapers, correspondence, training courses, catalogues, technical notices, etc.), images (films, medical images, graphics, etc.) and sound (voice, music etc.) stored and combined in databases, for use in the most diverse applications (leisure, education, medical care, tourism, manufacturing activity, etc.).*[33] The effect of those transmissions on economic activities and on every citizen is obvious.

Telephone networks are already international but the text, data and image networks are developing at national level only. If a common information area is to be established in the European Union, the digital national networks should be interconnected just like the telephone networks.

One of the problems that the Commission has identified in these early stages of the telecommunications networks is the "vicious cycle" of demand and supply.[34] Supply is low or does not exist in some countries and wherever it exists is too expensive. This, in turn, makes demand to be currently low, which discourages the creation of a viable supply. In order to

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[33] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

[34] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

stimulate interest and investments towards this direction, the Commission proposes to identify strategic projects in collaboration with the various parties concerned and support those projects both financially and from a regulatory point of view (standardization, security and protection of privacy issues etc.).

An example could be the Europe-wide mobile telephone network that is already working and allows its users to use their mobile phone in all countries of the European Community and other non-member countries. It is based on a very advanced technologically standard, GSM, that is developed by the European Community.

The strategic projects will be carried out at each of three interdependent "levels":[35]

- *The carrier networks for transmission and information which will deal with the installation of the high-speed communications network, using advanced transmission and switching techniques (Asynchronous Transfer Mode).*

- *The generic services which form the common basis for all telematic applications, three areas would be considered:*
  - *I. access to information services, which should provide all users with user-friendly access to databases containing information of all types available in multimedia libraries, laboratories or administrations;*
  - *II. electronic mail, which will enable documents to be transmitted fast and cheaply.*
  - *III. interactive digitized video services covering the whole of the Community the emergence of which it is vital to promote, as their general availability will revolutionize working practices, leisure and training. They offer new possibilities for customized services ("pay-as-you-view" and "video-on-demand" services), creating new demand and hence jobs.*

- *Telematic applications are the third level which concerns adapting the service to the specific needs of user groups. Public administration in connection with the single market is of particular interest here. Exchanges of data and the coordinated, accelerated*

[35] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

introduction of an electronic mail network between administrations involved in the management of the single market should also enable businesses and citizens to have easy access to the administrative information they require. This objective is being pursued in the framework of the Community TNA-IDA project.

It is estimated that the volume of financing needed from private and public sources for the telecommunications networks will be ECU 150 billion ($ 180 billion) for a period of six to ten years starting in 1994. The priority projects proposed (Table 2.4) until 1999 will cost ECU 67 billion ($ 80.4 billion).

Information highways	***Target area for Strategic Projects***	***Investment Required 1994-1999 ($ billion)***
Interconnected advanced networks	• establishment of high-speed communication network	24
	• consolidation of integrated services digital network	18
General electronic services	• electronic access to information	1.2
	• electronic mail	1.2
	• electronic images: interactive video services	12
Telematic applications	• teleworking	3.6
	• links between administrations	8.4
	• teletraining	3.6
	• telemedicine	8.4
	Total	***80.4***

Table 2.4. Trans-European telecommunications networks[36]

[36] Source: European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

CHAPTER 3

Financing infrastructure projects in the European Union

The development of new and the upgrade of the existing infrastructure in the European Union requires huge amounts of money that seem to be unobtainable, especially in such a short period of time (the next six to ten years), even from an organization consisting from twelve countries, some of them among the richest countries in the world. In this chapter we will see the sources from which the Community plans to raise these funds and the ways of financing.

The European Union in an attempt to stimulate the economic growth, and having realized the importance of infrastructure to this growth, is creating new funds and other ways of financing to assist the development of the planned projects. These funds along with the institutions that support them will be described below.

It would be useful to keep in mind that an indicative exchange rate between the US dollar and the ECU is: ECU 1 = $ 1.20.

3.1. Financial Institutions

The basic providers of funds for the European Union's growth are two, the Community's own resources (budget) and the European Investment Bank.

3.1.1. The Budget of the European Community

The Budget is drafted by the Commission and adopted by the European Parliament and the Council of Ministers. The Commission's financial management is subject to internal control under the authority of a Financial Controller. A special unit to fight fraud is also established.

The financial management of the Commission is also supervised by the Court of Auditors which verifies that revenue is received and expenditure incurred in a lawful and regular manner,

and the European Parliament, which supervises the proper implementation of the Community's policies.

The most striking feature of the Community budget continues to be the high level of expenditure on agriculture. Nonetheless, Europe is now developing in such a way that funds are being redirected towards other areas of activity , i.e. the regional and social sectors.[1]

3.1.1.1. Revenues

The Community acts like a super-government collecting an unusual combination of taxes from the Member States. The growth of the revenues is limited by a ceiling set by the Member States and is 1.20% of the Community's Gross National Product, planned to increase to 1.27% by 1999. The "taxes" from which the revenue comes are:

- **Customs duties** which are charges collected from each country based on products imported from outside the Community, accounted for 18% of the revenues in the 1994 budget.

- **Agricultural, sugar and isoglucose levies**, which are charges on agricultural products that enter the Community from outside sources (2.9% in 1994).

- **VAT** resource, which is a charge of 1.27% on the Value Added Tax[2] collected by each Member State, and contributed 51.1% in the 1994 budget.

- A **fourth** (or additional) **resource** which is an amount paid by each Member State according to its prosperity. The additional resource is collected as a percentage of each country's Gross National Product, which varies every year, based on the part of the budget that is not covered by any other revenue. For 1994, that rate on GNP was 0.33%, and the total contribution of the fourth resource to the budget was 27.3%.

[1] "The Budget of the European Community: Europe on the move"
[2] The VAT is a tax charged as a percentage on every good or service sold.

- Finally, **miscellaneous revenue** comes from deductions from staff remunerations, bond interest, contributions to additional programs and repayments of certain expenditures and accounted for 0.7% of the revenues.

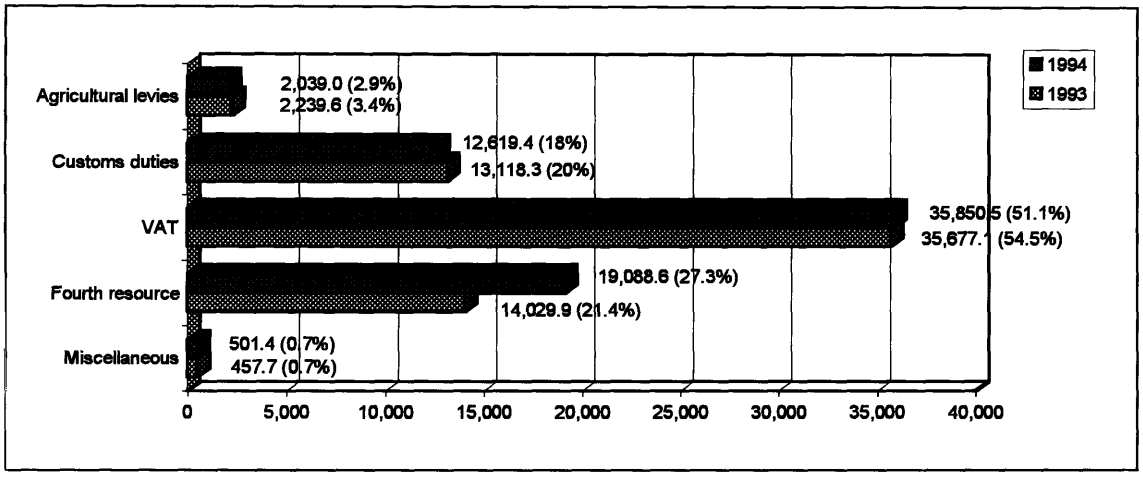

Figure 3.1. Revenue in EC Budget 1993, 1994. (ECU million)[3]

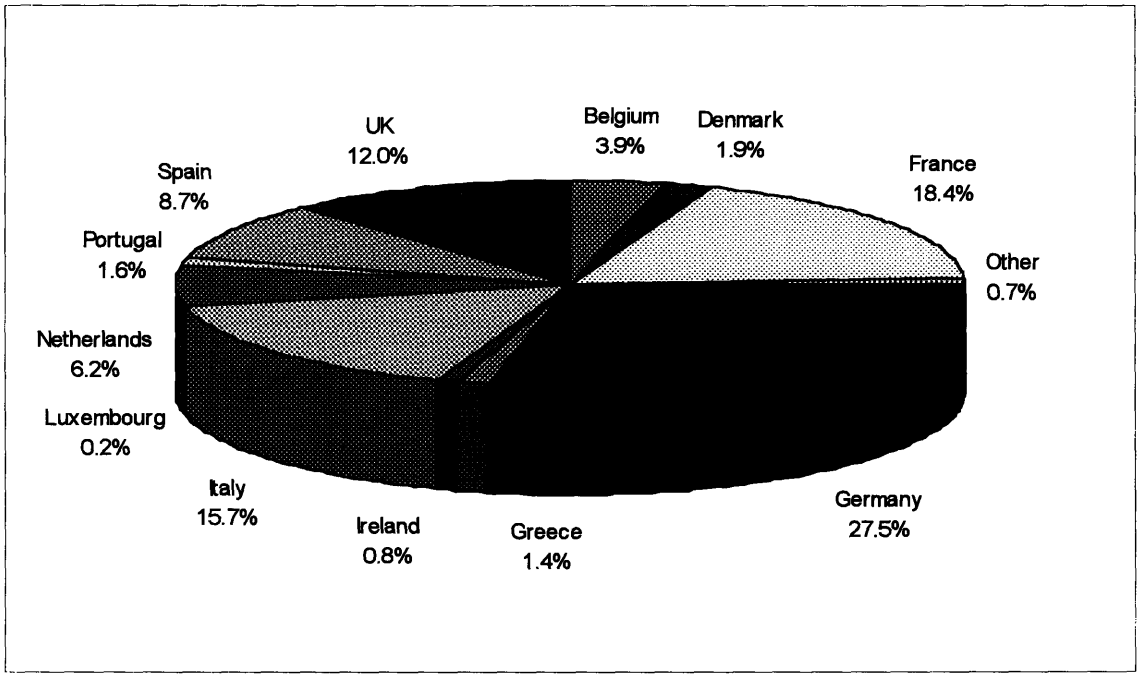

Figure 3.2. Financing of the 1993 general budget, by Member State (ECU million)[4]

[3] Source: European Commission. "Preliminary Draft Budget of the EC for the financial year 1994"
[4] Source: "The budget of the European Community: Europe on the move"

3.1.1.2. Expenditure

The European Community Budget redirects the revenues towards areas of EC interest, covers administration costs and "finances" its external policy. The expenses of the budget are broken down into the following categories:

Agriculture. The Community is following the policies of the industrialized countries to provide aids towards agriculture workers in order to increase their level of earnings to a comparable with that of workers in other sectors. It needs increased productivity and competitive prices in the agricultural sector. Agriculture accounted for 49.8% of the 1994 budget expenditures.

Structural, Social and Regional Operations. This expenditure that accounted for 31.7% of the 1994 budget aims to support the development of the poorest regions, to convert declining industrial areas, to contribute towards the occupational integration of young people, to combat long-term unemployment and to promote rural development.[5] It includes the European Regional Development Fund, the European Social Fund, the Guidance Section of the European Agricultural Guidance Fund and the recently established Cohesion Fund, which will described later.

Internal Policies. The expenditure for internal policies - which include transport, education, culture, energy, environment, consumer protection, the internal market and industry- was ECU 4.24 billion for 1994, or 5.8% of the total expenditures. Of this, 280 million went to the Trans-European Networks.

External Action. The expenses of the contribution of the Community to the development of the Third World, the reconstruction of the new democracies of the Central and Eastern Europe, as well as aids towards non-member Mediterranean countries, Latin American and Asian countries accounted for the 5.7% of the total expenses under the 1994 budget.

Finally, **administrative expenditures** accounted for 4.9% of the 1994 budget and **reserves** for the 2.1%.

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[5] "The budget of the European Community: Europe on the move"

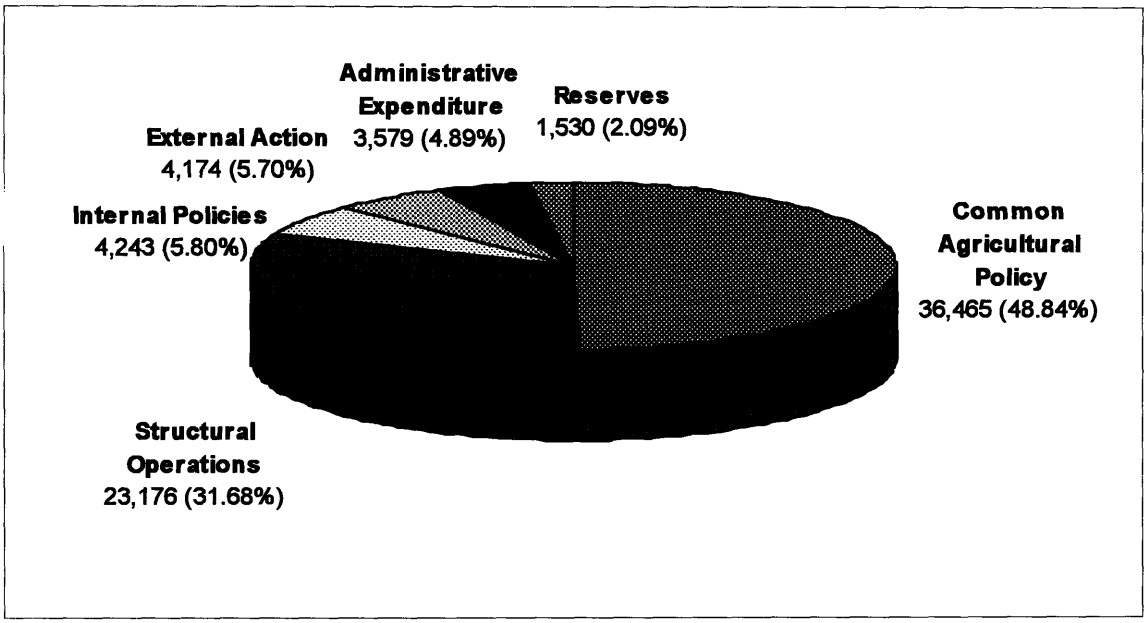

Figure 3.3. Expenses in the 1994 EC budget. (ECU million)[6]

3.1.2. The European Investment Bank

The European Investment Bank (EIB), created by the Treaty of Rome, when the EC was created, is the official financial institution of the European Union. The members of the EIB are the members of the Union who have all subscribed to the Bank's capital. As a result, EIB's operations are loyal to the decisions made at the Community level and share the Community's objectives. The EIB contributes towards European integration and promotes greater economic and social cohesion among the countries of the EU. As a bank, it works in close with the banking community both when borrowing in the capital markets and when financing capital projects. Apart from financing, it offers more services, including project appraisal and evaluation. The EIB operates in a similar way with the World Bank, focusing, though, on the European Community's support and development.

[6] Source: European Commission. "Preliminary Draft Budget of the EC for the financial year 1994. Overview"

3.1.2.1. Financing activity of the European Investment Bank

As mentioned before, the EIB is the major contributor of the funds created by the Community for the European development. Loans are granted to public and private sectors in the following sectors of the economy:[7]

- Communications, transport, environmental and energy infrastructure.
- Industry, services and agriculture.

Financing of projects is done in two forms. Large-scale projects are financed by individual loans concluded directly with promoters, or through financial intermediaries. Small and medium-scale projects are financed through global loans, which are loans given to banks or financial institutions operating at European, national or regional level. These intermediaries follow the EIB's criteria to grant loans to projects undertaken by small and medium-sized enterprises (SME) or local authorities. Loans do not normally exceed a ceiling of 50% of the total cost of the projects.[8]

The loans provided by the EIB have a variable maturity between 7 and 20 years, depending on the type of the project. (7 to 12 years for industrial projects and up to 20 years for infrastructure projects). Grace periods, usually between 2 and 5 years are sometimes accorded. Loans can be either in a single currency, or in a mix of currencies, depending on the borrower's preferences and the Bank's holdings.

The EIB has the privilege of borrowing with the best terms available in the market, for reasons that will be explained below. Moreover, it works on a non-profit basis.[9] As a result, it can lend with very low rates which are adapted continuously, reflecting each currency's market cost plus a small margin to cover the Bank's operating costs. Loans are granted mainly at fixed rates, but those with very long maturities may be granted with rates revisable every 4 to 10 years. Loans may also carry variable rates.[10]

The EIB operates also outside of the Community financing projects in countries such as the African, Caribbean and Pacific countries signatories to the Lome Convention (ACP States), the

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[7] "Annual Report 1993. The European Investment Bank."
[8] Under the "Edinburgh facility" which will be discussed in a later paragraph, this ceiling was raised to 75% of the total cost of the project.
[9] Even though it reported a surplus of ECU 1 billion in 1991.
[10] "Annual Report 1993. The European Investment Bank"

Overseas Countries and Territories (OCT), countries having cooperation agreements with the EU in the Mediterranean region, the Central and Eastern Europe, Asia and Latin America and the countries of the European Free Trade Association (EFTA) for the period of 1994-1995.

Authorization for the financing of projects outside the Community is given by the Bank's Board of Governors[11], since the EIB has autonomy in the EU. Authorization is given in two ways: case by case, for financing of certain types of projects of particular importance to the Community, notably communications or energy supplies, and in the form of ceiling amounts in the case of financing in individual countries or groups of countries under agreements, conventions or decisions on Community financial cooperation.[12]

In 1993 the EIB financing operations totaled ECU 19.6 billion ($ 23.5 billion) of which ECU 17.7 billion was lent in the European Union for capital investment amounting to more than 50 billion. Table 3.1 shows the amounts lent in each country for the years 1992 and 1993, and Table 3.2 shows the allocation of the loans provided by the EIB in 1993 to each country and sector.

[11] The Board of Governors is comprised by one representative from each country, who usually is the Minister of Finance.

[12] "Annual Report 1993. European Investment Bank"

1993: 19,611.4			1992: 17,032.5	
Amount	**%**	**Country**	**Amount**	**%**
371.6	2.1	Belgium	396.6	2.5
875.5	4.9	Denmark	690.8	4.3
2,096.6	11.8	Germany	1,663.9	10.3
511.1	2.9	Greece	377.5	2.3
4,005.1	22.6	Spain	3,020.6	18.7
2,205.5	12.4	France	1,895.1	11.7
388.2	2.2	Ireland	303.5	1.9
3,362.0	19.0	Italy	3,796.9	23.5
-	-	Luxembourg	42.8	0.3
379.7	2.1	Netherlands	154.4	1.0
1488.8	8.4	Portugal	1,230.4	7.6
1929.1	10.9	United Kingdom	2,407.2	14.9
111.0	0.6	Other[13]	159.7	1.0
17,724.2	**100.0**	**Community**	**16,139.7**	**100.0**
225.7	12.0	ACP-OCT[14]	252.0	28.2
680.5	36.1	Mediterranean	320.8	35.9
882.0	46.7	CEEC[15]	320.8	35.9
99.0	5.2	ALA[16]	-	-
1,887.2	**100.0**	**Non-Community**	**893.6**	**100.0**

Table 3.1. Contracts signed by the EIB 1992, 1993. (ECU million)[17]

[13] Projects located outside from the Member States but of benefit to the Community
[14] African, Caribbean and Pacific - Overseas Countries and Territories
[15] Central and Eastern European Countries
[16] Asia, Latin America
[17] Source: "Annual Report 1993. European Investment Bank"

Country	Total	Individual Loans	Global Loan allocation	Transport	Telecommunications	Environment and other	Energy	Industry, Services, Agriculture
Belgium	465.3	346.6	118.7	303.3	-	-	43.4	118.6
Denmark	891.6	843.2	48.4	551.8	107.1	31.8	169.5	31.4
Germany	1,956.0	1,102.9	853.1	209.9	491.6	506.4	118.2	629.9
Greece	492.4	466.2	26.2	310.5	50.8	0.4	108.2	22.5
Spain	3,924.7	3,835.7	89.0	1,998.7	294.3	888.8	196.5	546.4
France	1,719.2	1,150.1	569.1	806.4	-	191.0	3.2	718.6
Ireland	407.2	388.2	19.0	49.0	30.6	24.5	258.9	44.2
Italy	3,270.3	2,455.7	814.6	106.7	767.6	161.0	903.9	1,331.1
Netherlands	313.0	271.4	41.6	-	-	237.3	38.2	37.5
Portugal	1,317.8	1,289.9	27.9	287.2	200.3	58.5	184.4	587.4
UK	1,910.9	1,865.1	45.8	377.9	151.8	712.0	513.3	155.9
Other[18]	111.0	111.0	-	72.5	-	-	38.5	-
Total	**16,779.4**	**14,126.0**	**2,653.4**	**5,073.9**	**2,094.2**	**2,811.7**	**2,576.2**	**4,223.5**

Table 3.2. EIB financing provided within the Community in 1993. (ECU million)[19]

3.1.2.2. Borrowing activity of the European Investment Bank

The European Investment Bank is the biggest borrower in the world.[20] Borrowings on the financial markets totaled ECU 14.2 billion ($ 17 billion) in 1993, as opposed to ECU 12.9 billion in 1992.

The strategy that the Bank follows and the fact that the EIB bonds enjoy the top "AAA" rating, has allowed it to borrow under the best terms in the market, and as a result, to lend under the most favorable conditions. Its borrowing strategy includes two basic elements: The diversity of currency sector and competitive bidding.

[18] Projects located outside from the Member States but of benefit to the Community

[19] Source: "Annual Report 1993. European Investment Bank"

[20] In 1992, the EIB borrowed about $15.5 billion, the Republic of Finland $11.5 billion, the World Bank $10.9 billion and the United Kingdom $6.4 billion.

The "clients" of the EIB are countries that usually want to be protected more from the exchange rate risks than the interest rate risks. To serve this demand, the EIB tries to lend in the national currency of each client. It, therefore, has to borrow in all the European currencies and some other strong international currencies, namely the US dollar, Japanese Yen, Swiss Franc, and Canadian Dollar. In this way, the Bank can more easily "hedge" against exchange rate risks, becoming more competitive. On the other hand, however, the EIB sometimes can not afford to wait for the right opportunity to borrow in a certain currency, as the World Bank does for instance, because of pressure from the EC policies, which makes it more vulnerable to unstable market conditions.[21]

Under the competitive bidding strategy, the EIB invites three to five banks to bid for each bond issue. It does not always accept the lowest bidder, but the one that had the best performance on past deals with the Bank. If a bid is significantly lower than the others, the EIB will examine very carefully whether the bidder has a real advantage. The other virtue of the bidding process is, according to the treasurer of the EIB, Philippe Marchat, in an interview he gave to "Euromoney" magazine[22], that it allows EIB to concentrate on total all-in cost and lets the banks worry about fees.

3.1.2.3. The European Investment Bank more than a financial institution

The EIB, working closely with the Commission, in the development of the Structural Funds is acting as a consultative body for certain projects, providing project appraisal and financing arrangements. The new role of the Bank, as stated in its annual report of 1993 is:[23]

> *The tasks of a bank and of the EIB in particular, no longer simply boil down to appraising a project and granting a loan. Nowadays, an investment bank is expected to furnish the promoter with assistance in other, related areas so that a project can be better prepared, better financed and better implemented. The*

[21] "Meet the generous Philippe Marchat". Euromoney, August 1993.
[22] "Meet the generous Philippe Marchat". Euromoney, August 1993.
[23] "Annual Report 1993. European Investment Bank"

straightforward loan has been supplanted by the concept of a comprehensive financial package. Lending has become a more complex operation, with banks becoming involved early on in the planning stages of a project until the scheme matures gradually into a fully-fledged, viable project meriting finance.

This changing pattern has been equally evident at the EIB. Since the Bank's inception, it has endeavored, on an informal, case-by-case basis, to help promoters to hone their projects so that they can be implemented under the most favorable financial, technical and economic conditions possible. The EIB has also striven to make contacts easier with other banks or the Commission, particularly within the context of Structural Fund support, and to help frame the terms of reference for studies or to interpret Community directives.

3.2 Funds established by the European Union for infrastructure development

The funds discussed in the following paragraphs are the major funds established by the Community in relation to the construction projects. The source for these funds are basically the Community's "own resources" (budget) and the resources of the European Investment Bank. The financing of certain projects can be combined from two or more of the following funds. The ceiling of total Community financing of a project is set at 70% of the aggregate cost of the project, but, as will be mentioned below, there are many exceptions, especially for projects with extreme importance to the EC policies and programs, such as the Trans-European Networks.

3.2.1. Regional development and Structural Funds

In a way to ensure uniform economic development and to gradually eliminate differences in levels of prosperity between one region and another, the 1957 Treaty establishing the European Communities founded the Structural Funds. In February 1988, it was decided by the Community that the Structural Funds be doubled between 1988 and 1992, increasing the total amount to some ECU 18 billion in 1992. The regions of concentration for these funds are the entire

Portugal, Greece and Ireland, and some regions in Spain, the Italian Mezzogiorno[24] and the eastern regions of Germany. 20% of the citizens of the EU live in those regions. In some Member States the Structural Funds have helped the Gross National Product to grow by 3%, while the contribution of these Funds to investment in the national economy amounted to between 5 and 7%.[25] The Structural Funds are grants and not loans and are supported by the Community's budget. They amounted at ECU 21.3 billion in 1994.

The structural funds are three: The European Regional Development Fund (ERDF), which aims at stimulating investment in economic activities (supporting the small and medium-sized enterprises) and to develop the infrastructure, the European Social Fund and the Agricultural Fund which both aim at improving the production in the problematic regions. The ERDF absorbs over 50% of the Structural Funds.

In close cooperation with the Structural Funds, the EIB devotes almost two thirds of its financing (ECU 12.4 billion in 1993) in the form of loans to regional development. It is worth noting here that a project considered compatible with the EC regional development policies, can be financed by both the Community's Structural Funds and the EIB's loans. The breakdown of the EIB regional development financing by sectors is shown in Figure 3.4.

From 1988 to 1993, the Community has granted more than ECU 60 billion under the Structural Funds and EIB financing for regional development has added up to ECU 47.1 billion, supporting investments totaling 146 billion.

3.2.2. The Edinburgh lending facility

In December 1992, in Edinburgh, the Heads of State and Government of the Member States of the EU decided on the formation of a temporary loan facility amounting at ECU 5 billion in order to support financing of construction projects. The Edinburgh facility, as it is called, was reviewed in June 1993, in Copenhagen and in October 1993, in Brussels, increasing the amount to 8 billion (7 billion for infrastructure and 1 billion for the development of the small and

[24] All central and southern Italy
[25] "European Union: Europe on the move"

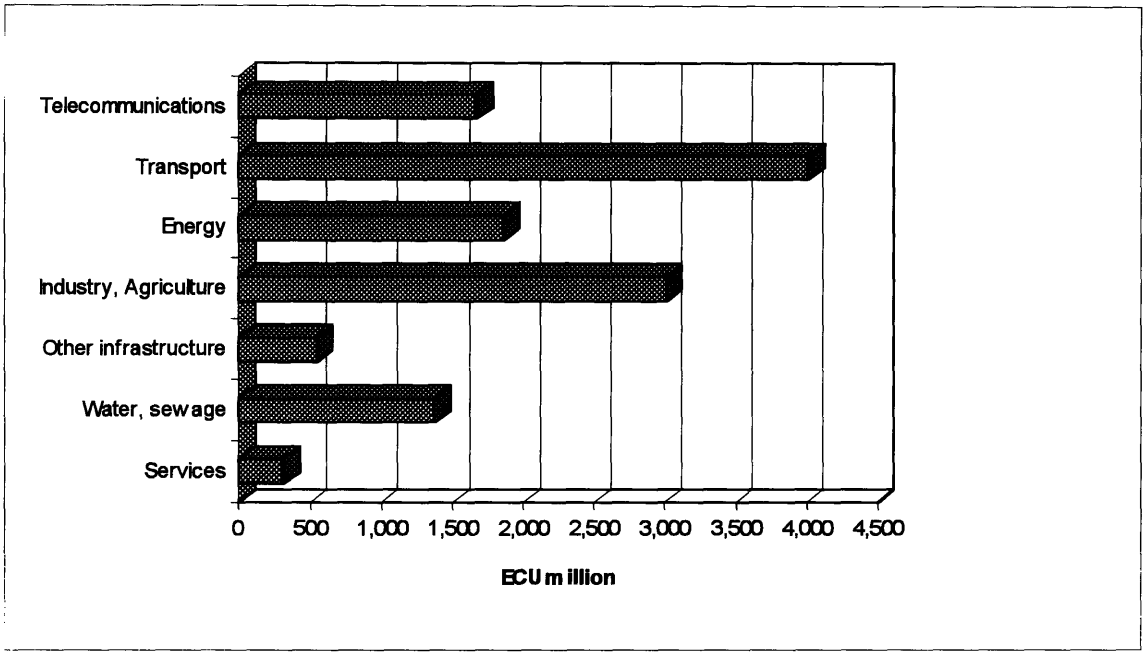

Figure 3.4. Regional development financing of the EIB in 1993. Sectoral breakdown.[26]

medium-sized enterprises) and the life-time of the facility beyond 1994. The formation of the new facility was undertaken by the European Investment Bank. The Edinburgh facility will be in the form of both individual and global loans. The following infrastructure projects are eligible to receive loans under the new fund:[27]

- investment in Trans-European transport, telecommunications and energy networks (TENs) as well as equipment in the transport and energy generation sectors.
- other schemes in the same sectors aimed at improving links between the regions concerned and the aforementioned TENs.
- investment in the environment, including urban renewal.

[26] Source: "Annual report 1993. European Investment Bank"
[27] "Annual report 1993. European Investment Bank"

The EIB has to formulate financing packages matching individual project needs, with special attention paid to the terms of the loans and the grace period. It has been also authorized to increase the lending ceiling as to the percentage of the total cost of the project financed, from 50% to 75%, thus increasing cumulative Community financing from 70% to 90% (combined financing).

In 1993, 81 projects in eleven countries of the Union had been approved, totaling 4.6 billion. The pace of contracting is low due to bureaucratic hurdles. By the end of 1993, contracts had been signed for only 47 projects (ECU 2.4 billion). The breakdown of these projects by sector is shown in Table 3.3.

Country	Amounts approved	Total of contracts signed	Transport	Telecommuni-cations	Environment	Energy
Belgium	194.1	151.3	137.3	-	14.0	-
Denmark	339.1	188.0	188.0	-	-	-
Germany	494.7	287.8	76.8	153.4	15.7	41.9
Greece	166.5	86.5	66.2	-	-	20.3
Spain	705.0	344.4	99.8	-	105.0	139.6
France	697.1	300.0	84.7	-	215.3	-
Ireland	179.2	49.7	-	-	-	49.7
Italy	476.0	446.1	47.3	196.5	10.7	191.6
Netherlands	164.4	23.3	-	-	23.3	-
Portugal	212.7	186.2	15.3	76.3	8.1	86.5
UK	979.1	300.0	274.7	-	12.5	12.8
Total	**4,607.9**	**2,363.3**	**990.1**	**426.2**	**404.6**	**542.4**

Table 3.3. Loans provided under the Edinburgh lending facility in 1993.[28]

3.2.3. The European Investment Fund

A second decision made in Edinburgh in December 1992, was about the creation of the European Investment Fund (EIF). The EIF is an ECU 2 billion ($2.4 billion) facility that will

[28] Source: "Annual report 1993. European Investment Bank"

provide guarantees to financing major infrastructure projects - mainly Trans-European Networks - and for capital investment undertaken by small and medium-sized enterprises (SMEs). The fund will be comprised by the EIB (40%), the Community budget (30%) and from Commercial banks (30%).[29]

The EIF will operate as a separate legal entity, but its management will be handled by the EIB, as a separate account, under a Cooperation Agreement.

Although the EIF will provide financial guarantees in the beginning of its operation, which started in 1994, there are plans for it to participate in direct equity in enterprises involved in implementing TENs at a later date.[30] The EIF can be considered as an attempt of the Community to join public and private funds towards the implementation of the major infrastructure projects planned for the completion of the Single Market.

3.2.4. The Cohesion Fund

The Cohesion Fund, established in 1994, is a 7-year (1993-1999) financing facility focusing on the four less developed countries in the European Union. It is included in the package of measures towards the economic and social cohesion between the Member States, as an addition to the Structural Funds, the EIB loans and the other financial instruments. The total commitment of the Community for this fund will be ECU 15.15 billion ($ 18.2 billion) in 1992 prices. The proposed breakdown of payments for each year is:[31]

1993: ECU 1.5 billion
1994: ECU 1.75 billion
1995: ECU 2 billion
1996: ECU 2.25 billion
1997: ECU 2.5 billion
1998: ECU 2.55 billion
1999: ECU 2.6 billion

[29] "Reluctant Redeemer". International Management
[30] "Annual report 1993. European Investment Bank"
[31] "Official Journal of the European Communities" No C39 9.2.94

The Fund will be supported by the Community's budget and will be in the form of grants. The rate of assistance granted by the Cohesion Fund will be 80 to 85% of public or equivalent (national, regional or local) expenditure.

No project can benefit both from the Fund and from any of the Structural Funds. However, a project can be financed by both the Cohesion fund and loans from the European Investment Bank. In this case, the combined assistance to a specific project is extended to 90% of the total cost associated with the project.

The Cohesion Fund will provide financial contribution in the fields of environmental projects and Trans-European transport infrastructure networks. The criterion for the Member States that can be eligible to receive grants under the Fund is to have a per capita Gross National Product of less than 90% of the Community average. The four Member States that meet this criterion[32] are Greece, Ireland, Portugal and Spain. There will be a mid-term review in 1996. If an eligible Member State's GNP exceeds the 90% of the Community's average, at that time, it will lose its entitlement for assistance under the Cohesion Fund. A second condition set by the Commission, is that the eligible countries must have a program leading to the fulfillment of the conditions of economic convergence. This second criterion is a weapon of the Commission, allowing it to put pressure on those countries that have an unsatisfactory economic performance.

The allocation of the Fund will be made based on population, per capita GNP, surface area and possible special needs in the transport infrastructure. An indicative allocation of funds among the eligible Member States is:[33]

Spain: 52 to 58% of the total (ECU 7.9-8.8 billion)
Greece: 16 to 20% of the total (ECU 2.4-3 billion)
Portugal: 16 to 20% of the total (ECU 2.4-3 billion)
Ireland: 7 to 10% of the total (ECU 1.1-1.5 billion)

The projects to be financed by the Fund are to be selected by the Commission in agreement with the beneficiary Member State. The total cost of a project, in order to be eligible must be over ECU 10 million ($12 million). Preliminary studies and technical support measures may be

[32] in 1994
[33] "Official Journal of the European Communities" No C39 9.2.94

financed at 100% of the total cost, particularly when they are undertaken at the Commission's initiative.[34]

3.2.4. Union Bonds

Towards the development of the Trans-European Networks, a proposal was made by the then President of the Commission, Jacques Delors, in December 1993 in Brussels, that the Commission should enter the international markets by itself, and borrow ECU 8 billion a year for the next six years. The borrowing would be done through the so called Union (or Brussels) bonds. The bonds would be guaranteed from the European Investment Fund and would have maturities cohesion between the expected returns of the project they were issued for, and the exercise period of the option. They could be performance-related through a share in the profits of the company or venture that executes the project.

The proposal caused major arguments, since it was considered as an attempt to set up a rival EU bank to the European Investment Bank and EIB officials were said to be furious.[35] The EIB has been accused of being too slow in approving new funding, but it disputes that strongly pointing out their fast reaction to the ECU 7 billion requested at the Edinburgh summit. The Ecofin (the finance ministers Council) rejected the proposal with the rationale that the EU should only look to raise extra funds if the EIB has reached its borrowing limits. However the Union bonds is an idea which might eventually be implemented, if the demand for additional funds becomes too strong.

The percentage of Community support over the total cost of infrastructure projects will be very high, especially in the countries which are eligible for the Cohesion Fund. In Greece, the Community financing, for 1995, will be ECU 1.6 billion for a total cost of ECU 2.2 billion for the planned projects, a percentage of about 60%.

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[34] "Official Journal of the European Communities" No C39 9.2.94
[35] "Hands off, Mr Delors" Euromoney

CHAPTER 4

Financing and management of projects at the Member State level

The high costs associated with the development of the new European infrastructure necessitate additional funds to those coming from the Community sources, which were described in the previous chapter. These funds must be found at the Member State level. Moreover, the high cost combined with the limited financial resources create the need for optimum design and construction processes.

This need will be demonstrated through an example of a Member State (Greece) with problematic legal framework to handle the upcoming construction boom, along with the actions taken to improve it. The Community's guidelines on this issue and the opportunities that they imply for construction companies and the private sector, in general, will also be examined in this chapter.

4.1. General recommendations of the Commission of the EU

The Commission has identified two major problems hampering the implementation of the Trans-European Networks, and in the "White Paper for Growth, Competitiveness, Employment: The Challenges and ways forward to the 21st century", proposed ways of solving them.

It, first, realizes that the condition of the Community's and Member States' finances leave no margin to increase the public financing already planned. The members of the EU must look into other ways to complement their own and the Community's available funds.

Second, it believes that the inherent sluggishness of the preparation, planning, authorization and evaluation procedures creates major obstacles to the implementation of large projects.

The two problems are in a way integrated and create a loop. The solution to the financing problems is private financing. The second problem, in turn, prevents the infrastructure projects to

become attractive to the private sector. For this reason, the Commission proposed the following actions to be taken, as the only way of achieving the goal of the Trans-European Networks:[1]

1. It calls for a genuine partnership between all concerned: the public authorities at all appropriate levels, in accordance with the subsidiarity principle, network operators, users, service providers, financiers, and industrialists. The number of parties involved is large, but since they all have a benefit from the creation of the TENs, they should be able to combine their interests and resolve any possible differences of opinion. The nature of the partnership should be different for each of the three kinds of networks, since these face different problems. Transport networks confront basically financing problems, so emphasis should be given on the crucial role of factors mobilizing private investment. In the telecommunications sector the market does not really exist and needs to be created. The partnership should be between the network users (e.g. telephone companies) in order to enable the market to be developed in response to their expectations. In the energy sector the focus should be on network efficiency optimization, without diminishing the essential role of competition in the sector.

2. In the governmental field, the Commission urges the decision-making authorities at all levels (Community, national, regional, public authorities, economic operators, etc.) to participate in these partnerships with a pragmatic approach to the problems and willingness to find joint solutions. Furthermore, coordination among Member States is considered essential and the Community provides numerous support instruments for this purpose.

3. The private investment will be attracted to the European infrastructure projects by improving the financial market conditions. The projects should be planned in a framework favorable to the involvement of institutional and private investors. An innovative approach to guarantees and insurance (such as the European Investment Fund), interest

[1] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

rate subsidies for Community loans, or tax incentives to attract long-term capital will be helpful towards this direction.

4. The role of declaration of Community interest for projects must be enhanced. These projects will have easier access to Community financial instruments, which will result in more guarantees, thus less risk for investors. The binding timetable for completion that will be imposed will benefit the projects of Community interest and will make them more attractive.

5. Especially for the transport projects, which are proven the most difficult to attract investors, due to the uncertainty about the return and, hence, their profitability, the Commission proposes that each project should be evaluated on the risks that it involves and the possibilities for covering them under acceptable conditions. Implying clearly the Commission's urge to the governments towards the use of Build Operate Transfer, or co-financed contracting, the White Paper[2] states that "*It will also be necessary to identify the public financing sources that can be mobilized and the nature of the instruments that could be used to assess the expected revenue from the projected traffic and to consider the possible duration of the concession, the most appropriate legal formula for involving the interested parties, the management of the project, the administrative obstacles and the impact on the environment*".

6. Finally, the completion of the Single Market procedures should be speeded up. The opening of new and competitive markets will help towards the development of the TENs, since it will be for the interest of both the consumers and the networks' operators.

Private financing, however did not seem to respond with much enthusiasm to the Commission's ambitious goals in 1994. The TENs projects are in the danger of long delays due to financing problems. Only five projects had ensured full financing until the end of 1994. The

[2] European Commission. "Growth, competitiveness, employment - The challenges and ways forward the 21st century (White Paper)"

reason is that private investors are reluctant to get involved into EU project financing, since they consider these projects to offer low return for the risk that they involve.

The ambitious goals of the Commission stated in 1993, are also threatened by an insufficiency of funds worldwide. The redevelopment that has started at the same time with the European plans, in many areas of the world, such as Latin America and the ex-communist countries of central and eastern Europe has created a very high demand for capital in the international markets. The world is facing an accelerated demand for capital, the highest in history, especially for the infrastructure projects sector[3], and for the first time the worldwide supply of capital will be lower than this demand, in the next years. An important factor adding to this problem is the "disappearance" of the Japanese investors from the capital markets, since they have turned to help the recently weakened Japanese markets.

4.2. The example of Greece

The importance and validity of the recommendations of the Commission of the European Union are especially true in the less developed Member States for two basic reasons. First, because, as a rule those countries have an inadequate administrative infrastructure to handle the increased number of large-scale projects that they are planning. Second, because those countries' poor public finances necessitate even more the private sector's participation in the development of the new projects. In the following section, Greece will be used as an example, through a short analysis of the problems it is facing and the steps taken towards their resolution.

[3] "Trans-European Networks: Financing is difficult". Ikonomikos Tachydromos

4.2.1. Description of the infrastructure activity in Greece[4]

Greece is the poorest of the EU members, and one of the countries receiving special attention from the Community, as one of the "cohesion countries"[5] - the others being Portugal, Spain and Ireland. Although it is the most isolated, geographically, Member State of the European Union, having no land connection to any of the other members, it has significant importance for the EU, since it plays the roles of the link between the Community and the western Asia countries, especially in the Mediterranean, and that of the financial and trading center in the Balkan region.

Major projects have been planned, or are currently underway, aiming at the upgrade of the - underdeveloped for the European standards - transport infrastructure and at the development of new infrastructure. Some of these are:

Athens Metro Expansion: Construction of two new lines of a subway train, in addition to the existing one, that will serve the broader area of Athens. Indicative cost of the project: $2.4 billion. Project Status: currently performed. Expected completion date: 2000. The project is financed by 50% from EU funds, 40% from the "Attiko Metro" company, which will be described in a later section, and 10% from the government budget.

Egnatia: Road axis of 660 km (413 miles) in Northern Greece included in the Trans-European Networks, passing through the cities: Igoumenitsa, Thessaloniki, Kavala, Alexandroupoli, Kipoi (Greek-Turkish borders). Estimated cost: $2.8 billion. Project status: 110 km have been completed, 52 km are in progress and 224 km were awarded in 1994.

P.A.TH.E: North-south road axis, included in the TENs, passing through the cities: Patras, Athens, Thessaloniki, Evzoni. Total length: 860 km. Estimated cost: $1.8 billion. Project status: 75 km have been completed, 97 km are in progress and almost 200 km were awarded in 1994.

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[4] Sources: "The progress of the major projects" Technical Chambers of Greece Information Bulletin; "The phase that the major projects are in." Ikonomikos Tachydromos

[5] Term referring to those countries that are eligible to receive support from the Cohesion Fund.

Rio-Antirrio Link: 2.5 km bridge over sea connecting the Peloponnese and the mainland near Patras. Over 2 million vehicles and 6 million passengers cross this sea link annually[6]. The bridge will reduce the cross time from an average time of 45 minutes to 4-5 minutes. Indicative cost: $540 million. Project status: The contract has not been signed yet. The project is planned to be constructed by the co-financing method. The government will contribute $240 million, and the financing team will operate the bridge for 35 years. The project is expected to be completed 5 years after the contract is signed.

Preveza-Aktio Link: Undersea 1 km tunnel (2.3 km including the road segments). The tunnel is expected to reduce the cross time from 30 to 5 minutes. Indicative cost: $48.2 million. Project status: The contract has not been signed yet. The project is planned to be awarded as a design-build project. It is expected to be completed 5 years after the contract is signed.

Stavros-Elefsina-Spata artery: 70 km peripheral road around Athens that will help to reduce Athens traffic congestion. The design includes the future development of a high-speed train railway for a length of 12 km. Indicative cost: $1.6 billion. The project is planned to be awarded by the co-financing method (the Government will contribute $900 million). It is expected to be completed in 4.5 years after the contract is signed.

Other projects include irrigation projects, waste treatment plans, the Thessaloniki Metro, the construction of the natural gas pipeline coming from the Greek-Bulgarian borders and the new Athens airport (Spata) that will be examined in a separate section.

The projects described above have critical importance for the Greek economy. The major benefits from them are:[7]

- Greece will absorb huge amounts of the funds set up by the EU. According to the Minister of Public Works the plans for infrastructure projects until the year 2000 concern

[6] Until now the transportation of vehicles and passengers was done by ferries.
[7] "The major projects and their meaning" Ikonomikos Tachydromos

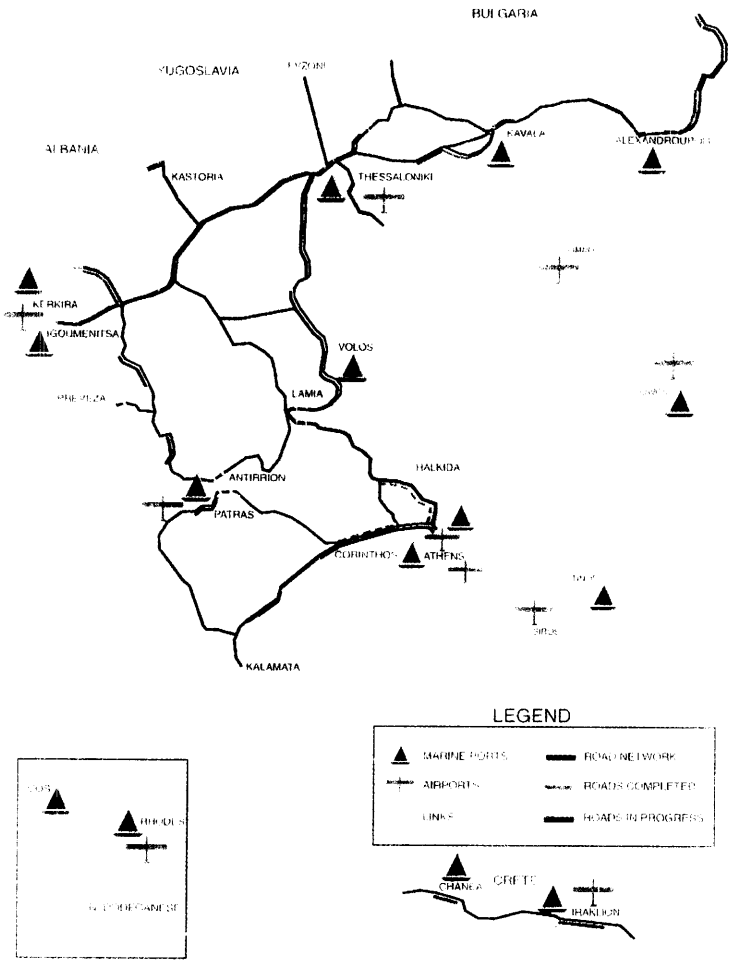

Figure 4.1. Major transport projects (Roads, Seaports, Airports)[8]

[8] Source: "The progress of the major projects" Technical Chambers of Greece Information Bulletin

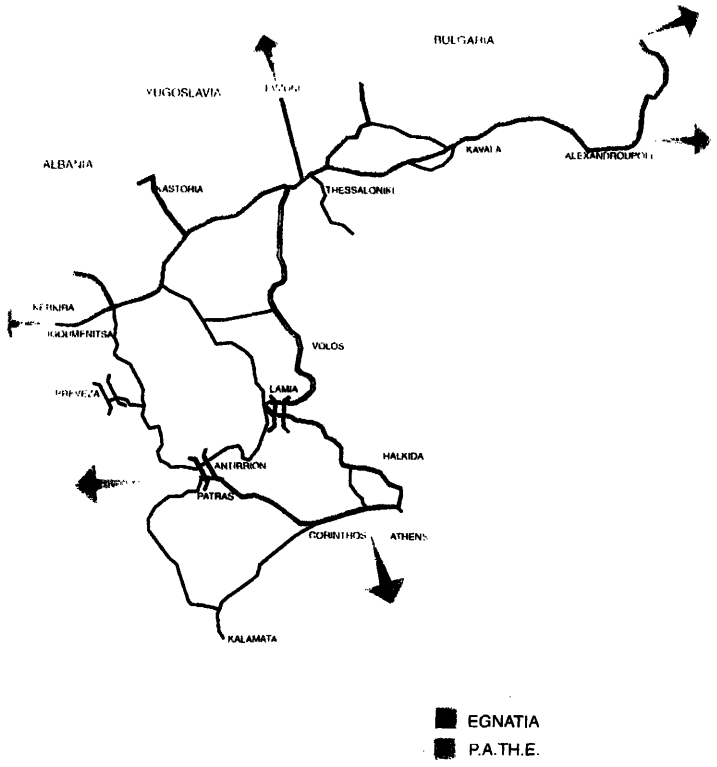

Figure 4.2. Highways. The two main axes. Egnatia and P.A.TH.E.[9]

[9] Source: "The progress of the major projects" Technical Chambers of Greece Information Bulletin

an amount of 3.2 trillion drachmas ($12.8 billion), which means that about $8 million should be absorbed every working day, an increase of the current rate by five times.

- These projects play a significant role to the distribution of national expenses and as a result, of the gross national product, strengthening the plans towards decentralization and the prevention of urban migration.

- Greece has to focus especially on the construction of the east-west axis in the northern part (Egnatia), since there are plans for a "competitive" road and rail connection between the Black Sea and the Adriatic Sea passing through Bulgaria, the Former Yugoslav Republic of Macedonia and Albania, and which could isolate Greece.

The construction boom in Greece has been welcomed by construction companies and private investors. It is worth noting here that more than 20 construction firms have gone public in the last three years, increasing the number of construction firms in the Athens Stock Exchange to 24, from 2 in 1990. However, the construction industry faces major problems due to the lack of effective awarding and monitoring mechanisms as it will be described below.

4.2.2. Problems in the public works industry of Greece

The traditional method (i.e. the most commonly used method) of awarding public construction projects in Greece is based on a fixed budget, calculated by the unit price method. The design of the projects is performed by individual engineering firms that are awarded the project by a direct award method. After the design is complete, the engineering firm calculates the cost, using standard unit prices for material and labor and prepares the necessary documents for the request of proposal (RFP). These are submitted to a government agency, that approves the design and publishes the RFP. The bidders have, then, to provide a "discount" on the fixed budget, reflecting the actual cost that they estimate that the project will have, during construction.

The law allows for other awarding methods[10], such as design-build and Build Operate Transfer, but these are used rarely and only in very important projects.

Until now, it was usual that bidders would give enormous discounts (even up to 80%) on the budget of a project, in order to be awarded the project, but increased the final cost through claims for "unpredictable conditions", or change orders. Furthermore, the quality of the projects constructed was very low, since it was controlled by a weak mechanism of government agencies, thus allowing more profit to the contractors who did not need to follow any strictly imposed quality standards. One of the key roles in this situation was the inefficient and many times incomplete designs and the fact that geotechnical and environmental studies was performed either after the technical design, or, sometimes not at all.

The unrealistically high discounts caused the reaction of the Commission of the EU, because it seemed to them that the government agencies were, either because of inefficiency, or deliberately, increasing the budgets of projects, so as to prevent foreign construction companies from bidding (since the latter would never attempt to give so high discounts) and also to allow for more claims.[11]

4.2.3. The New Athens airport[12]

During the preparation of this Thesis, the Greek government awarded one of the largest projects to be constructed in Greece in the next five years. The award of this project is examined separately, because it is one typical example of the "priority projects" included in the Trans-European Networks and because it complies with the Community guidelines about the TENs.

On December 23, 1994, the Greek Government announced that a consortium led by the German firm Hochtief AG would construct the new international Athens airport at Spata. The project is expected to be completed in 1999. It is based on a fixed price contract of $2.3 billion, based on 1993 prices. The airport will be situated on a site of 1,680 hectares 15 miles east of

[10] "Government Journal of the Hellenic Republic, No. 23, 29 February 1984."
[11] "The major projects and their meaning" Ikonomikos Tachydromos
[12] Sources: "Contract to be signed for the airport at Spata" To Vima; "Hochtief group chosen to build new Athens airport" Athens News Agency; "The Spata airport to Hochtief" Express

Athens. It will initially have two runways and its terminal capacity will be of close to 16 million passengers annually.

The new airport will be constructed with the co-financing method. The Hochtief consortium will deposit ECU 180 million ($216 million) as own capital participation. A company that will be set up by the Greek Government (55%) and the consortium (45%) will operate the airport for a period of 30 years. After this period, the operation of the airport will be transferred in full to the government. The Board of the company will comprise of nine members, of which 4 will be appointed by the Greek government, 4 from Hochtief and the ninth, whose vote will be critical for the decision making, will be of common approval.[13]

The risk that political decisions add to the projects and the validity of the Commission recommendations about the essential role of partnership, mentioned above, are illustrated in the Athens airport example. The Hochtief group had been re-awarded the project in July 1993, from the previous conservative government, but that deal was canceled after the current government came into power. The previous agreement called for the same capital contribution from the consortium, giving it, however, 60% of the stock in the company that would operate the airport, and a joint operation period of 50 years. The total cost of the project was ECU 50 million ($60 million) higher than the one agreed recently.

4.2.4. Actions towards improvement of public works execution

The Greek government, after special suggestions from the European Community, is moving towards radical changes in the way that public construction projects are designed, financed, awarded, controlled and executed. These changes have a significant impact on both engineering and construction firms. As the first step, it established the "Large projects Committee" which is comprised by the ministers of public works, transport and communications, and finance. The Committee is bound towards the EU to implement the following:[14]

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[13] "The Spata airport on the table" To Vima

[14] Sources: "We are tied up to the EU for the major projects" Ikonomikos Tachydromos; "Revision and addendum to Law 1418/1984" Government Journal of the Hellenic Republic No. 138, 31 August 1994; "Private consultants for the projects" To Vima

Full technical studies. From now on, the technical study will be considered complete only if the preliminary studies have been done in time. The responsible party for the compliance with this rule will be the engineering firm that performs the design. Furthermore, the bidding process will be done only after the full technical study is completed. In this way, it is expected that it will be harder for the contractors to increase the project's cost basing their claims on errors and omissions of the design. The quality of the design will also be improved through the establishment of new standards.

Supervision of projects. In some important projects, the engineering firm that performed the design will be also required to supervise the construction process, as to if it complies with the approved design.

Point system. As a further step towards better design, a point-system will be established for the engineering firms, depending on performance in previous projects. If the final cost of a project is significantly deviated from the cost that was estimated by the original design (more than ±10%), the firm's failure will be noted in records kept for each company.

Quality control on the design will be performed by consultants that will be assigned to groups of projects.

Quality control on the material used and the construction work will be performed to all public work projects by independent firms, specializing in this field. Strict rules on this issue are expected to create an obstacle to the phenomenon of projects of lesser quality.

Unpredictable conditions. The law sets a ceiling on the amount that a contractor can claim for "unpredictable conditions" to 50% of the original contract price. This law was abused by the contractors, that many times reached the ceiling in their claims. The new regulation is stricter about the justification of the claim, but it does not eliminate the ceiling of 50%.

High discounts. The problem of bidders giving extremely high discounts is expected to be resolved by an addition to the existing law requiring the three lowest bidders to explain and justify their bids, if necessary, i.e. if the discounts are too high. In the case that the justification is

inadequate or inaccurate these firms will be disqualified from the bidding process of the specific project and the case will be noted in the firm's file.

Finally, yet most importantly, for each of the large-scale projects (over $100 million), a company will be set up, having the freedom and flexibility to make any decisions necessary about the project. The operations of these companies will be:

- Full or partial design, construction, expand, maintenance, organization, and operation of the infrastructure project, as well as its management, supervision and control.

- Full or partial award, directly if the law allows it, or through competitive bidding of the necessary services (design, construction, maintenance, operation, management, etc.) for the project that they are assigned to.

- Provision of consultants and recommendations on the issues mentioned above.

These companies will have as a model the "Attiko Metro" company that is set up for the construction of the Athens Metro, and which comprises of all the interested parties: the construction consortium, government technical agencies, the project management team[15] and the financing groups. Attiko Metro is responsible for every issue concerning the construction of the project and will joint operate the Metro, together with the government, after its completion. It is worth mentioning here, that although project management is used for years in most of the advanced countries, this is the first time that the Greek government officially imposes its use for public works.[16]

The companies can cooperate with any legal or natural person in any way, represent any other company, domestic or foreign, having the same or similar purposes, sign contracts for financing in which the Greek government can play the role of guarantor, and hire consultants, domestic or foreign. The second company of this kind, to be established will be the one concerned with the construction of the east-west road axis in northern Greece (Egnatia).

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[15] which in this case belongs to Bechtel

[16] project management was only used in the private sector until now.

Schemes of the kind described above consist an innovative approach on contracting methods. They are based on the Build Operate Transfer (BOT) concept, only the owner (government) participates in the financing and, hence in the operation of the project from the beginning. The organization chart of this method is shown in Figure 4.3. This method has as advantages that the government has to deal with only one entity, it avoids the two separate selection processes for the engineering firm and the contractor, and it has no liability for change orders. Furthermore, the major disadvantage of BOT, which is that the owner looses flexibility in and control over the design and construction processes is eliminated due to the fact that the government participates in the project company.

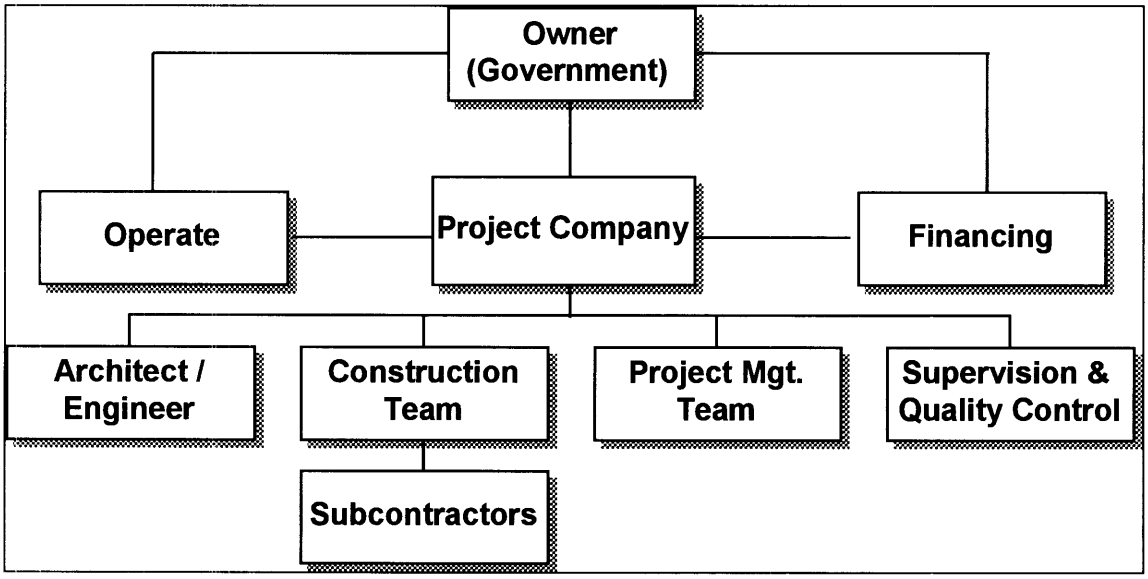

Figure 4.3. Proposed scheme for the administration of large-scale projects

4.3. Implications for construction companies

The increased construction activity in the European Union can only mean good news for the construction firms. The implications are numerous and important and well planned strategies are important.

The privatized financing methods that the EU is trying to implement due to lack of funds for the planned works, transfers huge risks to the companies that will want to participate. Revenue from infrastructure projects is not always predictable. Furthermore, especially in the transport sector where long term agreements with the end user can not be achieved, and since there is an upper limit to the amount that can be charged to the user of a highway, for example, the payback period on an investment can be too long. It is the Member States' obligation - in order to make the projects in their territory more attractive - but also the construction companies' benefit to shorten the joint operation periods by augmenting the revenue stream. When the Member State's and the Community's participation is not adequate, tax incentives, or transfer of tariffs from other projects can be employed to reduce risk.[17]

The construction firms will only be able to exploit the huge opportunities that are given to them if they are well prepared to face and fight risk. Some recommendation towards this direction are:

Construction firms should **pick the right project** with demonstrated need and demand, where there is a near monopoly situation in the provision of the product.[18] Most, but not all, of the EU infrastructure projects are need-based.

The procedures and negotiations can take a long time depending on the political situation and the overall environment in the country that the project is going to be constructed. **Identification and analysis of this environment** is, therefore crucial before beginning to work on a proposal or bid.

[17] "Time for a change" Bechtel Briefs
[18] Tiong, Yeo and McCarthy, Journal of Construction Engineering and Management

The capital is another critical factor. There are very few firms in the international level that can afford the required contribution from their own assets. There is a need for creation of **joint ventures** in order to bid huge projects like those included in the Trans-European Networks.

The firms will have to operate projects in order to be paid back for their initial investment. This means that they have to develop teams that can manage different kind of projects. The construction firms have, in a way, to expand above their services character and add an **entrepreneurial spirit** in their philosophy. Sometimes, construction firms have to manage and operate projects so diverse as highways and cemeteries, as is the case of Ferrovial in Spain.

Transport projects, in particular, have revenues depending on the end-user which is usually the general public. **Advertisement and promotion** of the project is therefore necessary for the projects to be successful. Promotion is done at the Community level, but sometimes needs to be done by the construction firm, as is the case in the Athens Metro project.

Finally, the engineering and construction firms should use **innovative skill** in the technical design. An optimal solution to the problems of a project should make the firm more attractive to the government that evaluates the competitive bids.

4.4. Further research

This Thesis brings up a deep and interesting issue, concerning the construction industry. The arising construction market in Europe requires huge investments and more efficient management. Further research towards the new management techniques that can emerge and constant observation of their progress and results, are not only recommended but also imposed from the need of regular updating in the way towards better management.

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