GOVERNMENT OF ROMANIA

MINISTRY OF ECONOMY AND FINANCE

Sectoral Operational Programme

"INCREASE OF ECONOMIC COMPETITIVENESS"

June 2007

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ABBREVIATIONS LIST

AFCOS	Anti-Fraud Coordination Service
ACIS	Authority for Coordination of Structural Instruments
BERD	Business Expenditure on R&D
BIC	Business Information Centre
CA	Certifying Authority
CAP	Communication Action Plan
CANSTAT	Statistical Bulletin - Central Statistics Office publication
CF	Cohesion Fund
CHUPIA	Central Harmonisation Unit for Internal Audit
CIF	Cost, Insurance and Freight
CIS	Community Innovation Surveys
CRM	Customer Relationship Management
CSF	Community Support Framework
DG REGIO	European Commission General Directorate for Regional Policy
EAFRD	European Agricultural Fund for Rural Development
EFF	European Fisheries Fund
EITO	European Information Technology Observatory
EMAS	Eco - Management and Audit Scheme - European Environmental Standards
EPO	European Patent Office
ERP	Enterprise Resource Planning
ESF	European Social Fund
ERDF	European Regional Development Fund
EU	European Union
EUROSTAT	Statistical Office of the European Communities
FDI	Foreign Direct Investment
FOB	Free on Board
FTE	Full Time Equivalent
GCR	Global Competitiveness Report
GD	Government Decision
GDP	Gross Domestic Product
GIS	Geographic Information System
GERD	Gross Domestic Research and Development Expenditures
GEANT	Gigabit European Academic Network (financed by the 5th Framework Programme)
GRID	Electronical Communication Technology in the Research Field
GVA	Gross Value Added
HR	Human Resources
IB	Intermediate Body
ICT	Information and Communication Technology
ILO	International Labour Office
ISO	International Standardization Organization
IT	Information Technology
MA	Managing Authority
MIAR	Ministry of Interior and Administrative Reform

MEF	Ministry of Economy and Finance
MESD	Ministry of Environment and Sustainable Development
MSMETTLP	Ministry for SMEs, Trade, Tourism and Liberal Professions
NACE	Nomenclature générale des activités économiques dans les Communautés européennes
NARMPP	National Authority for Regulating and Monitoring Public Procurement
NASR	National Authority for Scientific Research
NBR	National Bank of Romania
NCGF	National Co-Guarantee Fund
NASMEC	National Agency for Small and Medium sized Enterprises and Cooperation (actual Directorate within MSMETTLP)
NDP	National Development Plan
NFC	National Forecast Commission
NGO	Non-Governmental Organisation
NIS	National Institute of Statistics
NSPRD	National Strategic Plan for Rural Development
NSRF	National Strategic Reference Framework
OECD	Organisation for Economic Co-operation and Development
OLAF	European Anti-Fraud Office
OP	Operational Programme
PC	Personal Computer
PEOP	Pan-European Oil Pipeline
PPP	Purchasing Power Parity
PPS	Purchasing Power Standards
RDA	Regional Development Agency
R&D	Research and Development
RDI	Research, Development and Innovation
RCA	Revealed Comparative Advantage
RES	Renewable Energy Sources
ROP	Regional Operational Programme
SCF	Structural and Cohesion Funds
SFIT	Structural Funds Information Team
SME	Small and Medium sized Enterprise
SMIS	Single Management Information System
SOP HRD	Sectoral Operational Programme "Human Resources Development"
SOP IEC	Sectoral Operational Programme "Increasing of Economic Competitiveness"
SWOT	Strengths, Weaknesses, Opportunities and Threats
TA	Technical Assistance
TEN	Trans-European Energy Network
TT	Technological Transfer
TT&I	Technological Transfer and Innovation
UCTE	Union of Coordination of Transmission of Electricity
USPTO	United States Patent and Trademark Office
WEF	World Economic Forum
WG	Working Group

INTRODUCTION

The Sectoral Operational Programme "Increase of Economic Competitiveness" (further referred to as SOP IEC) is one of the seven instruments (OPs), under the Convergence objective, for achieving the priorities of the National Strategic Reference Framework (NSRF) derived from the National Development Plan 2007 – 2013 (NDP), which aims to strengthen the strategic focus of the Economic and Social Cohesion policies across Romania, and to make the correct and appropriate linkages to the European policies and the Lisbon Strategy for growth and job creation.

SOP IEC directly addresses the first priority of NDP "Increase of economic competitiveness and development of knowledge-based economy" and the second priority of NSRF i.e. "**Increasing the Long Term Competitiveness of the Romanian Economy**" and contributes, to different extents, to the implementation of all NSRF priorities.

SOP IEC was elaborated under the coordination of the Managing Authority for SOP IEC - Ministry of Economy and Finance (MEF), and is the result of the partnership consultations both with the strategic partners (ACIS within MEF, other MAs–ministries coordinating other OPs, institutions designated as Intermediate Bodies, other line ministries, and agencies, social partners, civil society organizations, potential beneficiaries, other stakeholders involved in this field).

The implementation of the programme is under the responsibility of the Managing Authority for SOP IEC within MEF. In order to carry out the programme efficiently, the Directorate for SF Management within the Ministry for SMEs, Trade, Tourism and Liberal Professions (former National Agency for SMEs and Cooperatives), Ministry of Education, Research and Youth – National Authority for Scientific Research, Ministry of Communications and Information Technology, and Ministry of Economy and Finance-Energy Policy General Directorate were designated as Intermediate Bodies (IBs) for SOP IEC.

The starting point for SOP IEC is the analysis of the current situation of entrepreneurship and innovation, with special emphasis on the small and medium-sized enterprises sector (SMEs), on resources for RDI sphere, on ICT sector, and on energy efficiency and environment protection issues in the energy and industry sectors.

It is followed by the SWOT analysis, on which the development strategy is built. The SOP IEC also contains a description of the priority axes, key areas of intervention and proposed operations, as well as financial tables, implementation provisions, partnership arrangements.

The **general objective** of SOP is **the increase of Romanian companies' productivity, in compliance with the principle of sustainable development, and reducing the disparities compared to the average productivity of EU.** The target is an average annual growth of GDP per employed person by about 5.5%. This will allow Romania to reach approx. 55% of the EU average productivity by 2015.

The specific objectives are:

- Consolidation and environment-friendly development of the Romanian productive sector
- Establishment of a favourable environment for sustainable enterprises' development

- Increase of the R&D capacity, stimulation of the cooperation between RDI institutions and enterprises, and increase of enterprises' access to RDI
- Valorisation of the ICT potential and its application in the public (administration) and private sector (enterprises, citizens)
- Increased energy efficiency and sustainable development of the energy sector

Taking into account both the identified possibilities for improvement of the competitive position of Romanian enterprises to cope with the challenge and to be able to use the opportunities arising from operating on the European Single Market and the areas eligible for the ERDF support, the following Priority axes have been identified in the SOP IEC:

Priority Axis 1: An innovative and eco-efficient productive system

Priority Axis 2: Research, Technological Development and Innovation for competitiveness

Priority Axis 3: ICT for private and public sectors

Priority Axis 4: Increasing energy efficiency and security of supply, in the context of combating climate change

Priority Axis 5: Technical Assistance

Technical Assistance (TA) will assist in the implementation and monitoring of the programme.

The priority axes of SOP IEC are in full compliance with the lines of action of the Commission's proposal regarding the framework for Competitiveness and Innovation 2007-2013, and take into account the guidelines put forward by the EU Council for the cohesion policy for 2007-2013.

The ERDF contribution to SOP IEC budget for the 2007-2013 programming period is 2,554 million Euro, which represents 13.3% of the Community contribution to the NSRF.

EX-ANTE EVALUATION

The ex-ante evaluation of SOP IEC was carried out by external consultants with support of PHARE RO-2004/016-772.04.03.01.06-EuropeAid/121373/D/SV/RO "Ex ante evaluation" during the second half of 2006, based on an assessment of written documents and a series of interviews. According to Article 48 of the General Regulation (1083/2006/EC), the main objectives of the evaluation were to "optimise the allocation of budgetary resources and improve programming quality".

The ex-ante evaluation of the SOP IEC has been carried out by the Panteia Consortium. Rolf Bergs (PRAC) has acted as the key expert and Professor Daniela Constantin as the Romanian short term expert.

The approach of that evaluation has been predominantly based on dialogue with the Managing Authority and the Intermediate Bodies designated for the management of the SOP IEC. The iterative approach has been embedded in three informal meetings with the Managing Authority and two de-briefing meetings in which the results of the evaluation and the respective recommendations were provided. Apart from that, a comprehensive institutional and inter-institutional analysis of the implementation system and its programme-specific feasibility was carried out.

The inter-active approach was ensured by a permanent dialogue on analysis results and recommendations and the discussion on their acceptance.

The main questions considered by the ex-ante evaluation were:

- *Relevance*: to what extent are the programme's objectives relevant in relation to the evolving needs and priorities at national and EU level?
- *Effectiveness*: how realistic is the programme in achieving its specific and global objectives by 2013 or earlier?
- *Efficiency*: how well are the resources (inputs) allocated with respect to outputs or results?
- *Consistence and Coherence*: are the proposed objectives and measures logically linked to the socio-economic analysis, are they mutually consistent (consistence) and are they well embedded in the regional, national and Community (e.g. Lisbon Objectives) policy objectives and interventions (Coherence)?
- *Utility:* are the expected and unexpected effects realistic and globally satisfactory in the context of wider social, environmental and economic needs?
- *Sustainability:* will the effects obtained in the proposed programmes remain, even after the end of the programme without further public funding?
- *Management and monitoring arrangements*: how they may affect the achievement of programme objectives & contribute the chosen processes to positive results?

The final evaluation report presents in general a positive assessment of the logic and coherence between the different chapters and elements of the SOP IEC. The report concludes that:

- The economic baseline analysis is already well focussed on aspects of competitiveness, i.e. not too broad and fuzzy as it is often the case in such programming documents;
- The SWOT table appears already focussed and comprehensive;

- The relevance of the economic baseline analysis and the SWOT is fully ensured;
- The strategic rationale of the programme is fully justified by the analysis of the economic situation in Romania;
- Internal consistency among the operations reveals a high level of synergy;
- As regards the national policies (SME policy, R&D policy and energy policy) things appear well co-ordinated. In the programme document a comprehensive analysis of coherence and policy synergies is given. There are no coherency issues regarding Lisbon, the CSG and the environment;
- The specific indicators at the programme level are sufficiently defined and quantified; the indicators and their quantification at operational level (priorities and related operations) are sufficient; the transmission from the output to the result indicators is implicitly visible for all priority axes;
- In general, the implementation system for SOP IEC meets the requirements of Regulation 1083/2006. However, the report also presents a set of recommendations for the future improvement of the implementation system, recommendations that will be taken into account during the implementation phase of the programme.

The recommendations received from evaluators have been accepted and considered in the improvement of the present version of the SOP IEC (February 2007). For example:

- the evaluator provided detailed advice to review and recast the Economic Baseline Analysis, including submission of data and instruction how to obtain and analyse Eurostat data;
- revision of the SWOT analysis in order to make more evident the link with the analysis;
- detailed advice for the revision of the strategy chapter, including a graphic system of objectives provided by the evaluator;
- the recommendation that equal opportunities be addressed in all priority axes;
- additions to the text with the purpose of providing clarity and consistency;
- reference to Jaspers;
- revision of indicators tables;
- avoidance of repetition from the analysis chapter;
- addition of references to territorial cohesion issues as addressed in the OP;
- clearer demarcation between PA5 and OP TA.

Some of the recommendations were not accepted, as mentioned below:

- transfer of clusters support operation from PA1 to PA2; reason: under PA1 clusters are expected to be industry driven, while poles of excellence, under PA2 are research driven;
- transfer of business infrastructure support operation from PA1 to PA2, not accepted for implementation reasons (Note: following subsequent changes in SOP IEC, the support for business infrastructures was redefined).

It is concluded that the ex-ante evaluation process has met its primary objectives and has resulted in numerous improvements to the document.

Strategic Environmental Assessment

The SOP IEC was screened for the strategic environmental assessment (SEA) procedure, as provided for in the Government Decision No.1076/2004 for setting up the environmental assessment procedure of certain plans and programmes.

The SEA evaluation of the SOP IEC has been carried out as a major component of the ex-ante evaluation process with the main objective to enable the integration of environmental considerations into this Operational Programme. SEA team has worked together with the evaluation and programming units from MA and with the inter-institutional Working Group (WG) set-up for this purpose according to GD 1076/2004. The web page of the Managing Authority was used for the public information and consultation, during the evaluation activity.

According to the national legislation, the public debate on SEA Report was organized on 19 January 2007, after the 45 days open consultation phase with relevant stakeholders.

The SEA report for SOP IEC identifies mostly positive and neutral effects on the environment following this programme's implementation. In order to achieve SEA objective, key mitigation measures were proposed for the relevant operations: projects to be screened for EIA; priority to be given to the investments that use Best Available Techniques (BAT), promotion of energy consumption minimization, increase energy efficiency, reduction of environmental emissions, and promotion of sustainable use of the natural resources.

On the SOP IEC environmental evaluation basis, proposals were made to bring minor modifications to the wording of some priority axes, specific objectives and major areas of interventions, that were accepted. A system for implementing the recommendations, in two steps (during project preparation and within official selection procedures) was proposed and accepted by the MA, wherever relevant. Environmental selection criteria will be introduced, where applicable, in the projects appraisal process, as specific criteria or as preference points, according to the type of operation.

Environmental monitoring indicators will be integrated in the overall monitoring system of the SOP IEC. They will help signal the potential environmental problems that may result from the proposed projects under SOP IEC that have not been identified during the ex-ante assessments and will allow for prompt implementation of corrective measures.

Pursuant to the Environment report analyses and the public debate, the SEA procedure for SOP IEC was completed on 5 February 2007.

1. ECONOMIC BASELINE ANALYSIS

1.1. Introduction

The revised Lisbon strategy addresses the relatively weak economic performance of the EU and aims to set out the appropriate answers to achieve higher growth. As a new member state, Romania assumes the European "growth and jobs" agenda and aims to push for the provision of the right competitiveness setting.

The Competitiveness of the Romanian Economy – international ranking

Romania does not enjoy an international reputation for being a particularly competitive country and does not score particularly well in the most widely known competitiveness benchmarking exercises. In 2006, the Global Competitiveness Report elaborated by the World Economic Forum ranked Romania 68th out of 125 countries (only before Bulgaria as compared to EU 27) down from 67th in 2005 and 63rd the year before.

Among the analysed determinants of Romania's competitiveness, the positive factors were related to macroeconomic stability and progress, while the negative factors were related to market efficiency, business sophistication, education, technology readiness and innovation.

A similar competitiveness ranking, although following a different methodology, placed Romania on the 57th place out of the 61 countries investigated (only before Poland as compared to EU 27)[1]. Again the factors pulling down Romania in the rankings were to a large extent related to market and firm level conditions, rather than linked to the macroeconomic perspective.

These preliminary remarks, based on both qualitative and quantitative indicators, suggest the existence of market failures, and provide the initial grounds for an investigation of a possible public intervention for enhancing the competitiveness of the Romanian economy.

The level of competitiveness of Romania within the EU-27

One way to assess the competitiveness of Romania within the EU is to analyze the openness of the economy and its trade structure and performance on the Internal Market.

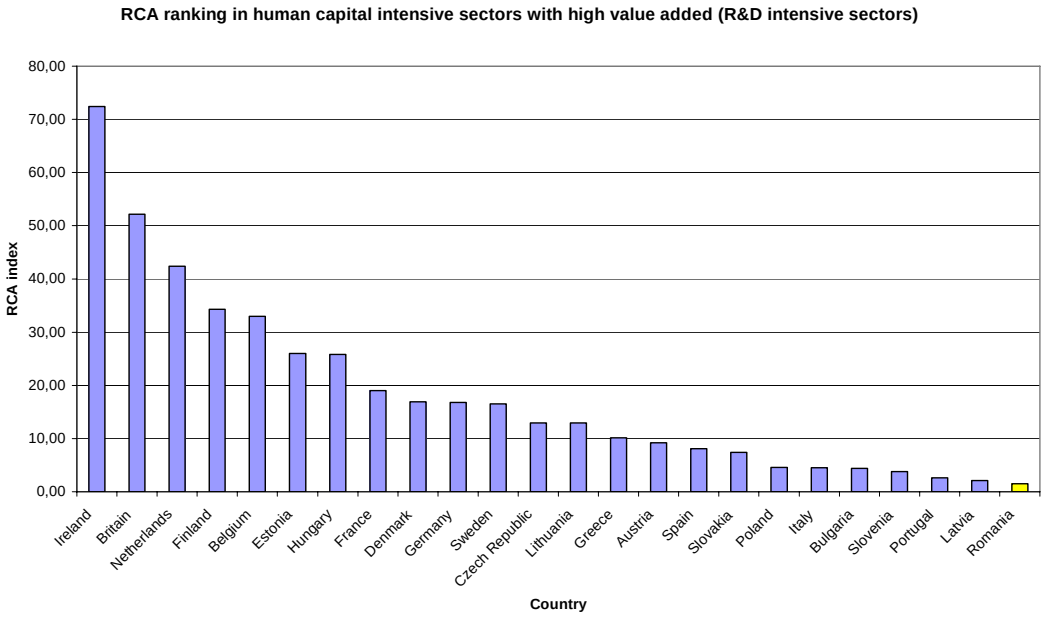
Trade structures are usually defined as of inter-industry or intra-industry type. Inter-industry trade takes place when countries export and import goods of different industries. This type of specialization can be explained by different factor endowment between the countries. Empirical research found a robust relationship between GDP per capita and capital-labour ratios. Countries, unequally endowed with capital and labour tend to have different productivities; for a relatively high (low) capital-labour ratio is tantamount to a high-low labour productivity. Trade liberalisation would contribute either to a widening productivity gap when the countries differ substantially in factor endowment, or to productivity convergence when they are similar[2].

[1] IMD World Competitiveness Yearbook 2006;
[2] Gabrisch H. and Segnana M.L., *Vertical and horizontal patterns of intra-industry trade between EU and candidate countries*, IWH, Halle-Salle, 2003;

As a result, convergence with more productive EU member states in terms of trade pattern is contributing to a more competitive economic setting. The higher the convergence, the more similar are the trade patterns within the Internal Market. In turn, this leads to higher Intra-Industry Trade (IIT).

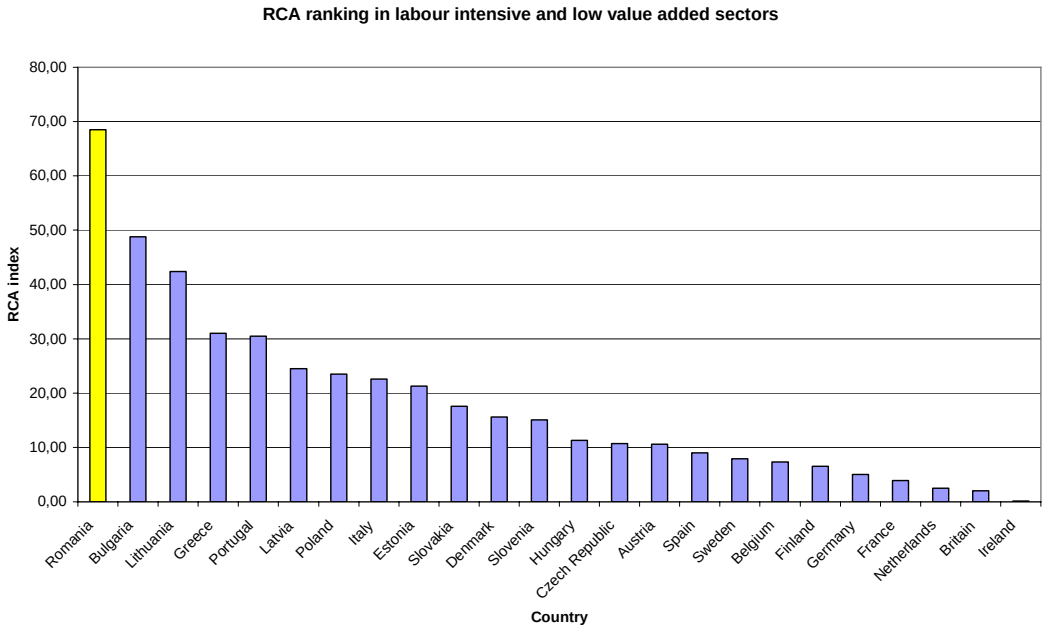
Recent studies[3], focused on highly disaggregated Gruber-Lloyd intra-industry trade (IIT) indices for CEFTA's trade with EU countries have shown a considerable increase in the period 1993-2003 for Poland (85%), Romania (61%), the Czech Republic (54%) and Slovakia (43%). However, given the low initial level of IIT, Romania has barely closed the gap with CEEC average.

A similar dynamics may be observed by measuring the Revealed Comparative Advantage (RCA), by using the Balassa index. Data from the period 1996-2002 suggest that among EU 27, Romania was a clear outlier, with the lowest RCA in high value-added sectors (e.g. R&D based) and the highest RCA in labour intensive, low value added sectors[4].



[3] See Molendowski E., *Intra - Industry Trade Between Cefta Countries and EU Member States Source:* Gospodarka Narodowa (National Economy) year: 2006, vol: 17, number: 5-6, pages: 75-92

[4] See Kaitila V., *The Factor Intensity of Accession and EU15 Countries' Comparative Advantage in the Internal Market*, Helsinki 2004



Source: Kaitila 2004, based on OECD 2002 data

More recent analysis suggests that in the last years Romania has adjusted its RCAs, in the sense that low value added industries have eroded their advantage, based on low labour costs, while high value added industries were revigorated by FDI and capital inflows linked to restructuring and to the imminence of Romania's accession to the EU. However, with a view to real convergence and market integration, Romania still has to bridge an important gap in order to reach a more competitive trade structure.

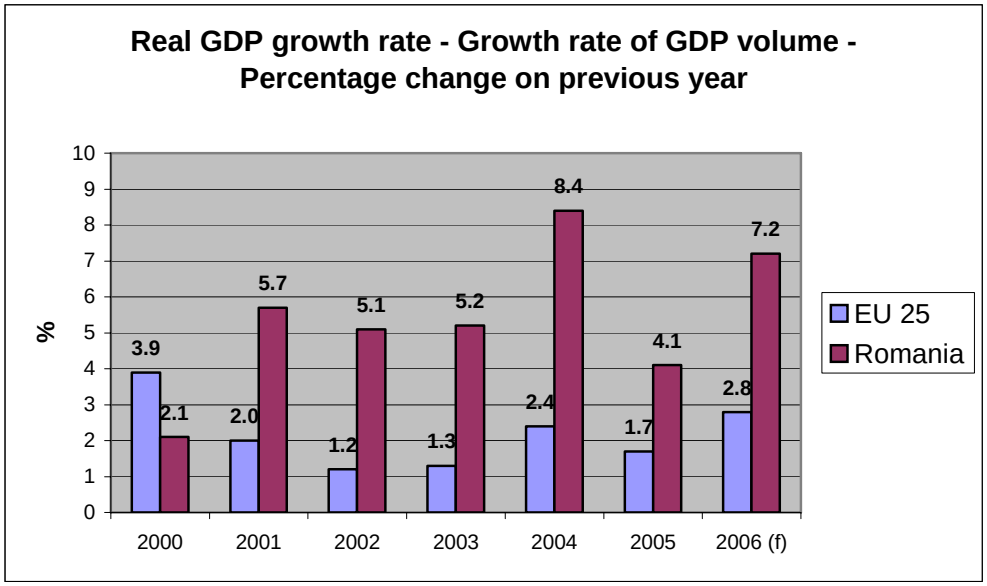
- Romania international rankings in terms of competitiveness suggest several weaknesses, especially related to market efficiency, business sophistication, education, technology readiness and innovation.
- Revealed Comparative Advantage and Intra Industry Trade analysis outline that the Romanian economy is still labour intensive, thus needing capital infusion in order to increase its competitiveness within the EU.

1.2. Macroeconomic overview

Convergence towards the EU is the paramount objective of Romania in terms of economic development. If nominal and institutional convergence is required in order to maintain stability and create a functional framework, real convergence is the path to prosperity. This section aims at investigating the convergence progress and to underline the status of competitiveness factors.

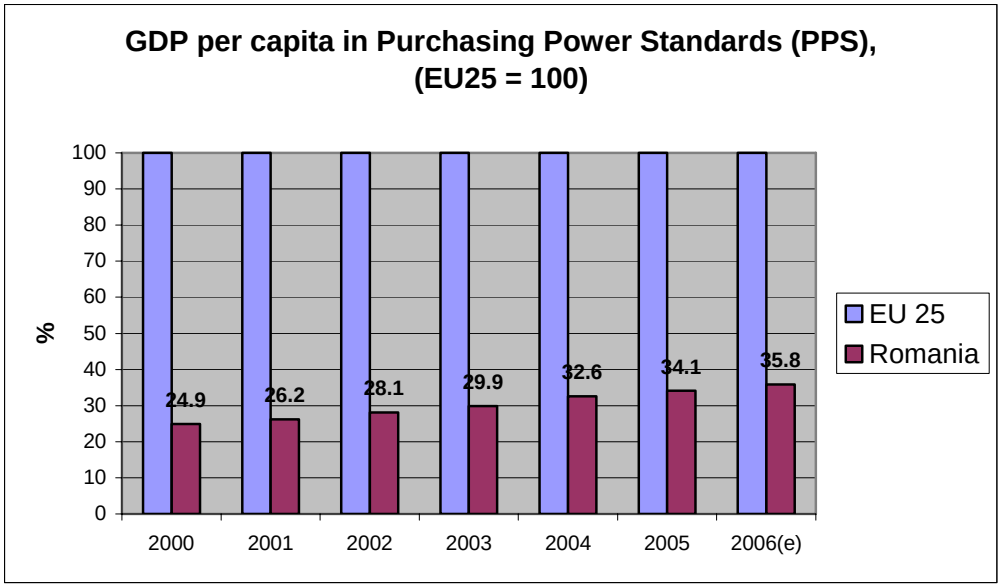
Economic Growth

Over the last few years, Romania has remarkably improved its macroeconomic framework, after finding itself close to financial crisis in 1999. Real gross domestic product (GDP) growth has averaged 6% over the last six years and is expected to follow the same trend in the medium term. As a result, Romania seems well-positioned for a fast catching-up trajectory towards the EU.



Source: Eurostat

However, despite the significant progress made in the recent years, Romania is still lagging behind the European countries, in terms of economical development, which is also proved by GDP at PPS that is slightly exceeding half the level of the new member states' GDP. The GDP per capita (PPP) was approximately 36% of the EU25 average in 2006, proving a remaining substantial gap compared to EU.



Source: Eurostat

Until a few years ago, the country's sustained economic recovery, following the late 1990s recession, was led by an export-driven economic growth. This was facilitated by the managed floating policy pursued at that time by the National Bank of Romania (NBR), which was designed to prevent the excessive real appreciation of domestic currency and thus preserved the country's export competitiveness.

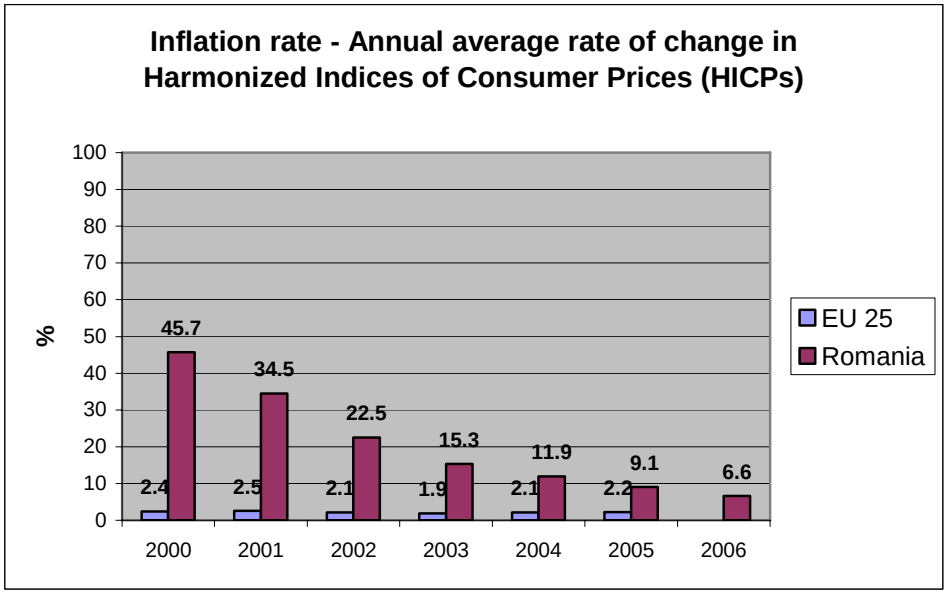
Over the last years however, investment and domestic consumption have taken the lead role in keeping the momentum going, being the main engines of economic growth. The growing attractiveness and easier access to domestic credit by households have led to an increase in their disposable income and this pushed up private consumption. Structural constraints on the domestic production side of goods and services meant that domestic supply could not accommodate the upward demand pressure. As a consequence, excess demand, helped also by a real appreciation of the RON, has continued to expand.

In part, this trend reflects years of under-investment in which the high cost of borrowing and limited access to credit prevented households to meet their investment needs, most notably in durable goods, whereas economic agents found capital purchases extremely costly.

Nominal convergence

Any analysis of macroeconomic competitiveness needs to take into account that on the medium term Romania will most likely join the Euro area. Conditions for adopting the Euro are tough, and will impose serious constraints on the economy. However, the outlook of the Maastricht criteria for the last couple of years indicates a constant narrowing of the gap: budget deficits and public debt are under tight control; inflation is rapidly shrinking and interest accordingly.

Considering the Maastricht criteria, high inflation used to be the most difficult obstacle against nominal convergence with the EU/Euro area. Since the adoption of inflation targeting by the NBR in the late 2005 disinflation has continued its downward trend.



Source: Eurostat

However, a stringent issue of concern for monetary authorities remains the evolution of domestic credit[5]. Credit growth has been particularly driven by strong demand for loans by households, reaching 66% in 2005 after a peak of 214% in 2003. This reflects, in part, a trend of falling interest rates and raising incomes.

From an operational point of view, the NBR is still left with a dilemma. Its attempt at a gradual shift towards using the interest rate as its monetary policy instrument, which is more consistent with an inflation targeting regime, have been hampered somewhat by its desire to maintain, implicitly, a band for the exchange rate, deemed to be appropriate for the economy. The incomplete structural adjustment of the Romanian economy meant that the exchange rate shock has dealt a blow to companies, which have been less competitive - these now face a race against time to restructure if they want to survive. The real exchange rate index, computed as a ratio of euro-zone to domestic consumer price levels, has appreciated by more than 20% since January 1998.

This has put a serious strain on the companies with poor exchange rate risk management and eroded exporters' international competitiveness.

[5] Between 2002-2005 real non-governmental credit growth averaged 34% annually and, although this figure looks impressive when compared to other countries in the region, it reflects to a great extent the initial level of small non-governmental sector lending. Total credit stock as percentage of GDP stood at 21% at the end of 2005, which is still very low compared to values observed in developed economies - in the euro area credit stock to GDP ratio is around 95%;

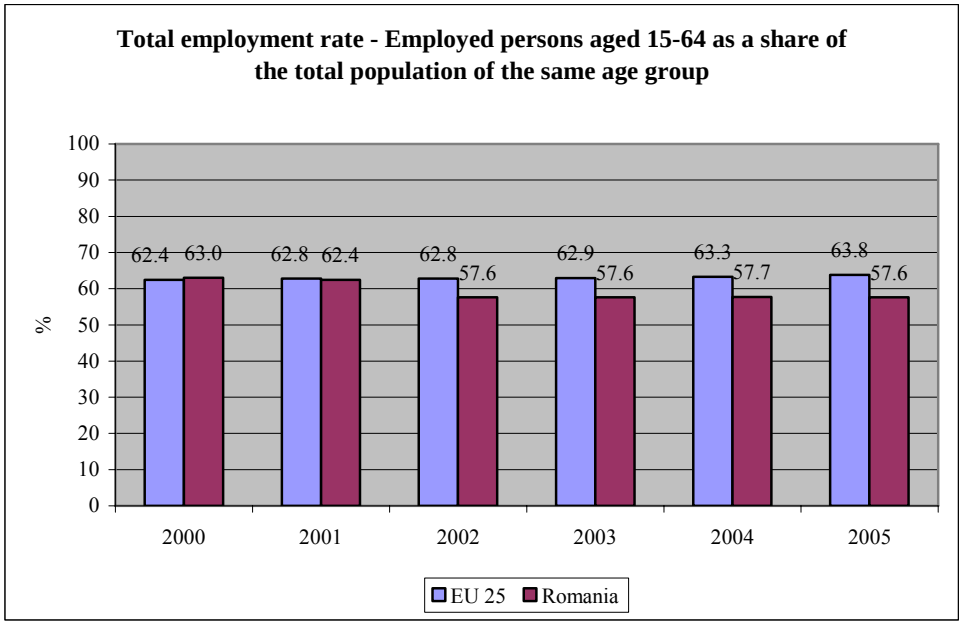
Employment

Human capital is vital for any effort to increase competitiveness. Labour resources remain a key factor of production, which needs to be well scrutinized for gaining insights on how to enhance economic competitiveness.

Romania's population trend has been negative since 1990, with no signs of reversing in the near future. If the trend does not reverse, Romania's population will gradually grow older, more public resources will be dedicated to social insurance and assistance and less workforce will be available on the market.

A second element contributing towards the aggravation of the population problem is the phenomenon of migration, which affects asymmetrically different age groups. Young persons have higher mobility and migration probabilities. In addition, Romania's accession may contribute to a further increase in migration pattern.

While in 2000, with the exception of the Czech Republic, Romania had the highest employment figure the population aged between 15 and 64 years old among the Central and Eastern European countries, in 2005 the picture has changed significantly. Romania is now among the low performers in terms of employment figures. Observers attribute the slow reversal of the trend in employment to the protracted enterprise restructuring process and the sluggish structural reforms in the public sector.



Source: Eurostat

An important objective set by the Lisbon summit is to increase the participation of women and older workers, aged between 55 to 64 years. Romania's women employment rate is low compared to the EU-15 and EU-25 average, at less than 52% in 2005 down from 58% in 2000, and it is sensibly smaller than that of the males. The figure is a long way out from the Lisbon target. In 2001, older workers, aged between 55 and 64, had an employment rate of 48.2%. This did not depart significantly from the EU target of 50% participation rate by 2010. Unfortunately, after 2001 there has been a significant drop in the employment of older workers, which shrunk to around 40% in 2005.

One has to be cautious in interpreting the employment rates of women and older workers. First, the two rates have been decreasing since the beginning of transition. Romania, unlike most of the EU countries, had a tradition of high women participation rates. The drop in the activity of women was largely involuntary, attributable to the decline in output and employment opportunities following the collapse of communism, and the concomitant severe deterioration in living standards and increase in long-term unemployment. At the same time, the participation of women and older workers in the subsistence agricultural sector is even larger than in the case of men. The correlation between the decrease in agricultural employment on one hand, and the decrease in female and older worker participation, on the other hand cannot be coincidental[6]. This suggests that the employment figures in the two cases hide bigger imbalances than at a first glance.

The dynamics of unemployment affects the overall labour market participation. Although in Romania open unemployment emerged inevitably because of enterprise restructuring and output contraction, in recent years it appears to have stabilized at around 7-8% of the labour force. This is less than the EU average figure.

At the same time, the decline in employment has not been matched by a proportional rise in unemployment, as long term unemployment spells discourage people from actively looking for jobs, and pushes them out of the labour force or into subsistence agriculture. The large informal economic sector, estimated at about 20% of GDP, may also explain the low formal employment figures and the low unemployment paradox. The grey economy appears to provide a large number of low paid jobs to mostly unskilled individuals who cannot find formal employment. External migration and the high economic growth rates achieved in the last years are other factors that explain the low unemployment figures. At the same time, more than 50% of the unemployed are long term, with unemployment spells of more than one year, indicating a profound mismatch between skills and labour demand.

Analyses show that the Romanian labour markets still require significant restructuring. Bringing back into the labour force the categories affected severely by the transition is also a challenge. The present economic climate is beneficial, as Romania's economy has been growing robustly for six consecutive years, making the task of encouraging job creation easier and financially more affordable.

While the creation of new jobs per se is important, the quality of the human capital they embody is equally central. The distribution by levels of education of the labour force is positively correlated with value added, and hence with the overall competitiveness of an economy.

[6] See the next sub-chapter for a detailed analysis of sectoral employment composition.

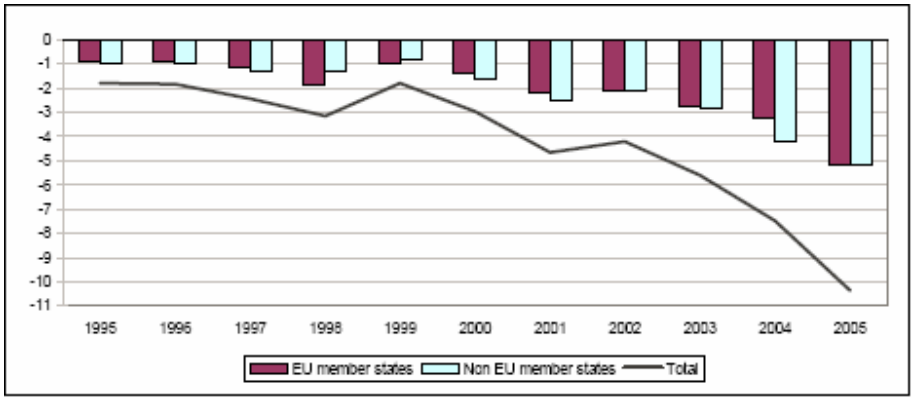
According to a recent survey, Romania has the highest percentage of early school leavers in the region, with 23% of the population between 18 and 24 leaving all forms of education, and the lowest percentage of life-long learning. In 2005, the participation in continuous vocational training was only 1.6%. Expenditure on education is one of the lowest among EU countries, at around 3.4% of GDP.

Long-term unemployment among recent graduates indicates a mismatch between the skills the education system provides and the labour market demand. To address this challenge, the education system is undergoing a comprehensive reform, which has already produced significant changes, especially in compulsory educations.

External trade

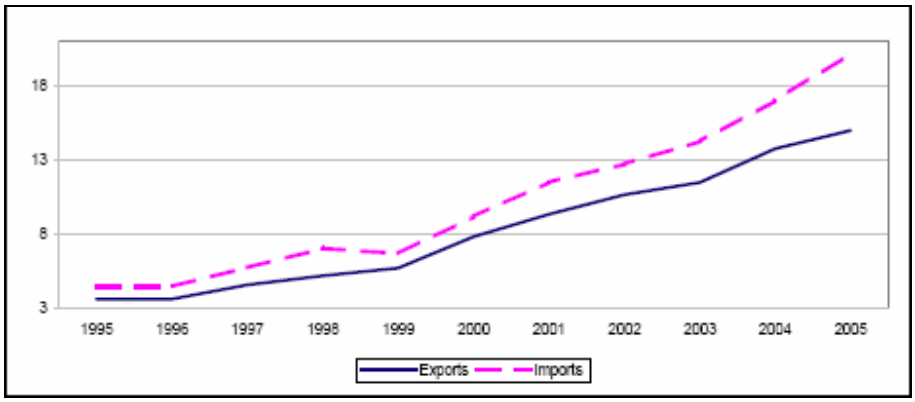
Exports have been increasingly outpaced by imports in recent years and the current account deficits are expected to rise to about 9% of GDP in the medium term, mainly due to the vigour of consumption dynamics and the need for capital and equipment investments. Although financing the deficit has not been a problem so far, largely due to sizable inward foreign direct investments, the situation may change in the years to come following the end of big privatization deals.

Trade balance (EUR bn)



Moreover, although trade integration with the EU is increasing (see also previous section), the trade balance with EU member states has worsened in the recent years. However, data suggest that Romania has imported more and more capital-intensive goods, which may lead in time to technological update and higher productivity.

Trade with EU Member States (EUR bn)



- Disciplined monetary and fiscal policies pursued over the last years have improved considerably the macroeconomic picture. Over the last two years, domestic consumption has taken the lead role in keeping the economy growing, being the main engine of economic growth.
- In spite of positive achievements, the macroeconomic outlook is still vulnerable to a number of factors. The Romanian economy needs more fixed investment and a better infrastructure for sustaining average growth rates of above 6% yearly, on longer term. Public support for productive investment may consolidate the current convergence process and ensure increased competitiveness.
- Human capital scarcity and propensity for migration may affect the economy if the economy will not become more capital intensive.
- Structural constraints on the domestic production of goods and services continue to exist. As a consequence, the persistence of excess demand has fuelled imports growth continuing to widen the current account deficit.

1.3. Specific Issues of Economic Competitiveness

If in the previous section the focus was at aggregate macroeconomic level, in this section the analysis will concentrate on the competitiveness determinants from a structural perspective. First, given that industry and services bring most of the value added into GDP, both sectors will be briefly reviewed. Second, the SME sector will be explored, in order to look for possible gaps. Third, given the acknowledged importance of pursuing Research & Development and ensuring the right Information Technology and Communication framework for boosting competitiveness, both these fields will be investigated for opportunities and potential of bridging market gaps. Fourth, given the strategic importance of the energy sector in today's economic life, the analysis will explore the efficiency gap and investment deficit vis-à-vis the EU in the field.

1.3.1. The Manufacturing Sector: Structure and Value Added, Investment and Productivity

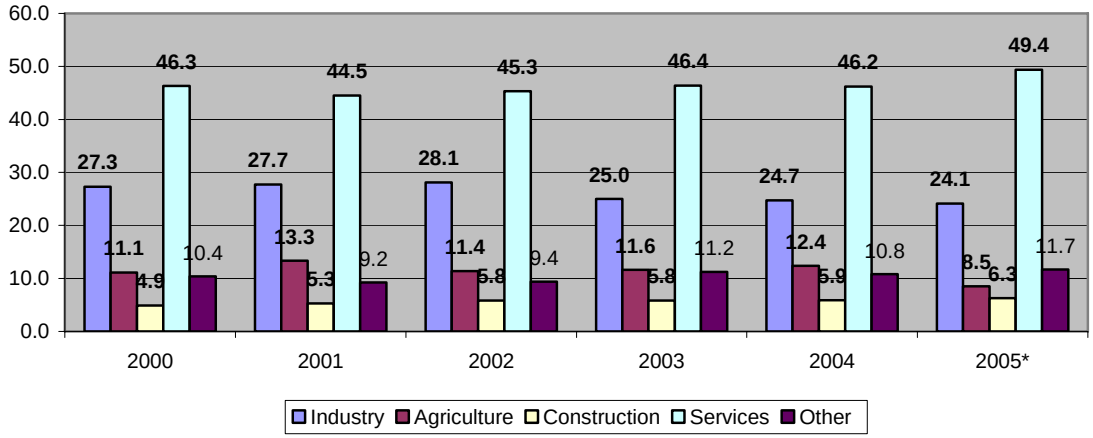
As noted in the previous parts of the analysis, Romania is on a trade convergence process with the EU. Given that industry contributes with approximately 97% to Romanian exports, it becomes clear that this sector needs to be investigated in order to assess the convergence gap.

Overview of Romania's industry

Industrial production has had a remarkable recovery following a series of large shocks. In a first stage, transformation was related to privatisation and restructuring. At a second stage, after 2004, a severe appreciation of the domestic currency caused by massive capital inflows and a sharp rise in energy prices (as a prerequisite of adjusting domestic relative prices to EU levels) have strained the industrial sector.

Due to a normal deindustrialization process, required because of the accumulation of non-sustainable and non-performing industry during the centrally planned communist system, the weight of industry in GDP has slightly decreased over the years. The industry in GDP structure went down to 24%, comparable to developed economies levels. On the period 2001-2004, industry has grown with an average of 5.2%, lower than constructions (8.2%) or services (5.5%).

Weight of Gross Value Added into GDP, by Sector

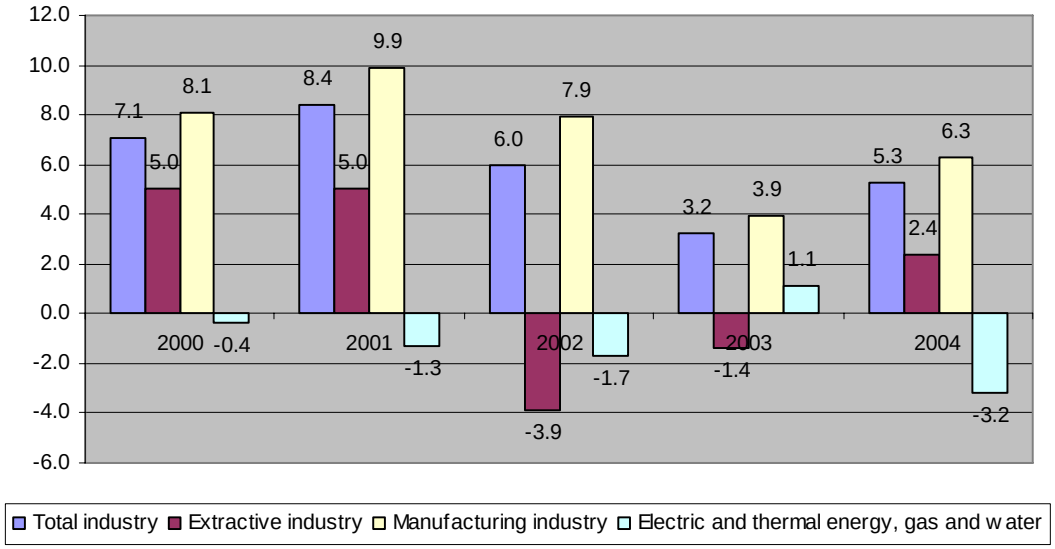


Source: National Institute of Statistics (NIS)

The labour productivity in industry increased by 11.6% per year, in the period 2000-2003, a higher percentage than in many other countries of the region (source: CANSTAT Statistical Bulletin 2003/4), such as Poland (9.8%), Czech Republic (7.7%) and Hungary (8.9%). Although the trend maintained also in 2004 (11.9%), Romania is still behind EU countries average, including the countries in the region, for most economic activities. Productivity growth depends both on technological development, carried out through tangible investments (equipment, new technology) and intangible investments (licenses, patents, trademarks and know-how), and on improvement of product quality, marketing and application of research / innovation and other sources that foster added value. Yet another source of productivity increase was restructuring and massive lay-offs, especially in the mining and quarrying sector.

In terms of industry dynamics, the industrial sub-sectors have followed different patterns. As mentioned above, both the extracting sector and the energy one were heavily influenced by the restructuring process, while manufacturing was the growth engine behind the industrial production. Given its relative importance to the industrial output, the manufacturing industry will be analysed in more detail in the next sub-section.

Overall Industry dynamics



Source: National Institute of Statistics (NIS)

Manufacturing industry

The evolution of industrial production shows that manufacturing industry triggered the general economic growth. Manufacturing is the main component of Romanian industry, representing in 2004, 79.4% of the industrial production and employing 85.4% of the total labour force in the industrial field.

In the period 2000–2004, a significant growth was registered in rubber and plastic materials production (201.3%); wood processing and furniture industry (180.3%); road transport equipment (151.0%); machines and electrical equipment (145.9%); chemical industry (149.0%), oil processing (122.3%); cellulose, paper and paper products industry (122.2%); radio, TV and communication equipment (140.9%); textile industry (121.7%); etc. (See Annex 1, Table 1).

Industry as a whole dominates the Romanian trade balance, as in 2005 industrial FOB exports in 2005 accounted for 98% of the total export, while industrial CIF imports represented 98.3 of the total import.

External trade balance (2000-2005)

	2000	2001	2002	2003	2004	2005
Export FOB (mil Euro)	11,273	12,722	14,675	15,614	18,935	22,248
% change	141.3	111.8	115.3	106.3	121.3	117.5
Import CIF (mil Euro)	14,935	17,383	18,881	21,201	26,281	32,562
% change	123.6	133.1	108.6	112.3	124.0	123.9
The degree of the imports coverage through exports (%)	79.2	73.2	77.7	73.6	72.0	68.3

Source: National Institute of Statistics (NIS)

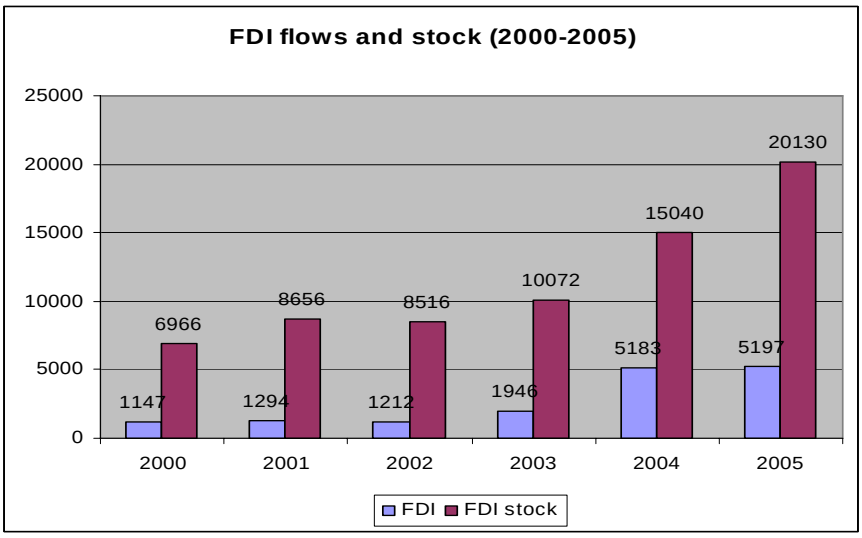
Manufacturing industry export represented in the period 2000-2005 over 99% of industrial export (Annex 1, table 2). The higher industrial export growth compared to industrial output growth points to an improvement of competitiveness of several industrial sectors. Textile and clothing remained on the first place during 2004, with a weight of 22.5% in total export. Machines/ equipment and electric appliances had a good evolution, with a weight in export of 7.2% each, from 5%, respectively 3.2% in 2000. A decrease of metallurgical products export, from 15.2% in 2000 to 14% in 2004 and of chemical products from 6.2% to 5.4% was registered in the same period. Despite the above, metallurgical products export ranks second in Romanian exports. The manufacturing industry exports structure still reflects the prevalence of traditional industrial sectors using low skilled labour force and a relative lack of high technology.

The manufacturing industry import was of 22,788.4 MEuro, 86.7% of total CIF import in 2004 (Annex 1, table 3) and 27,477.8 MEuro, 84.4% of total CIF import in 2005. The import was mainly due to „green field" investments and temporary import for inward processing. Machines and equipment prevail in the import structure, with a weight of 34.84% in 2004 compared to 31.5% in 2000, due to modernization and refurbishment efforts, including capital goods promoted by foreign capital penetration. Textile products imports still rank second despite a reduction of 4.5% compared to 2000. Next, come chemical products, plastics and rubber. At the same time, the weight of mineral products import decreased, from 23.5% in 1996 to 13.43% in 2004. The most important changes in the import structure were the increasing weight of machines, equipment, vehicles, and control instruments group and the reducing weight of textile products.

The decrease of domestic and external market, financial difficulties and the harmonization efforts with new market economy conditions determined profound changes materialized in the sometimes dramatic decrease of output, closing down of capacities, massive layoffs, low level of modernization.

Foreign Investments

In 2004 the manufacturing industry attracted 40.6% of total FDI and 75.5% from total investments in industry as follows: steel industry 13.2% of total, means of transport 5.7% of total, building materials sector 4.0% of total, wood industry 3.4% of total, chemistry 2.6% of total and light industry 3.3% of total.



Source: National Institute of Statistics (NIS)

In 2005 (according to the National Bank of Romania Report), the stock of FDI in manufacturing industry accounted for 48.8% of total FDI. It is worth noting that FDI is heavily concentrated in Bucharest area, accounting for 60% of total stock. Moreover the bulk of capital intensive FDI (especially green-field FDI) does not appear to be particularly concentrated in export-leading sectors, but appears more targeted at the local consumption market. This suggests that FDI may not have the potential to support a desired high growth of productive investment, needed in order to secure convergence with the EU.

The main sectors that attracted green-field foreign investments are tires, auto components, telecommunication equipment, wood processing and construction materials. The investments of multinational companies were expected to generate substantial spill-overs, but the results were by no means spectacular.

Multinational companies operating in Romania usually sub-contract local companies only to a small extent mainly because of their insufficient managerial, marketing and technological abilities. Better results in terms of supplier chains were obtained in automotive and electrical industries. Emerging cluster-type agglomerations may grow in the textile, wood processing or ceramics/pottery sectors. Public intervention in these fields may improve the value-added chain, and provide a synergy between foreign and domestic capital.

Value-added, large companies and productivity

Gross value added in industry grew from 30.9% in 2000 to 35.1% in 2004. The weight of GVA in manufacturing industry out of total industry evolved from 68.3% in 2000 to 79% in 2004.

The most important manufacturing sectors, from this point of view are metallurgy (27%), consumer goods (26%), chemistry (20%), machine building (11%), and electronic-electrotechnics (4%).

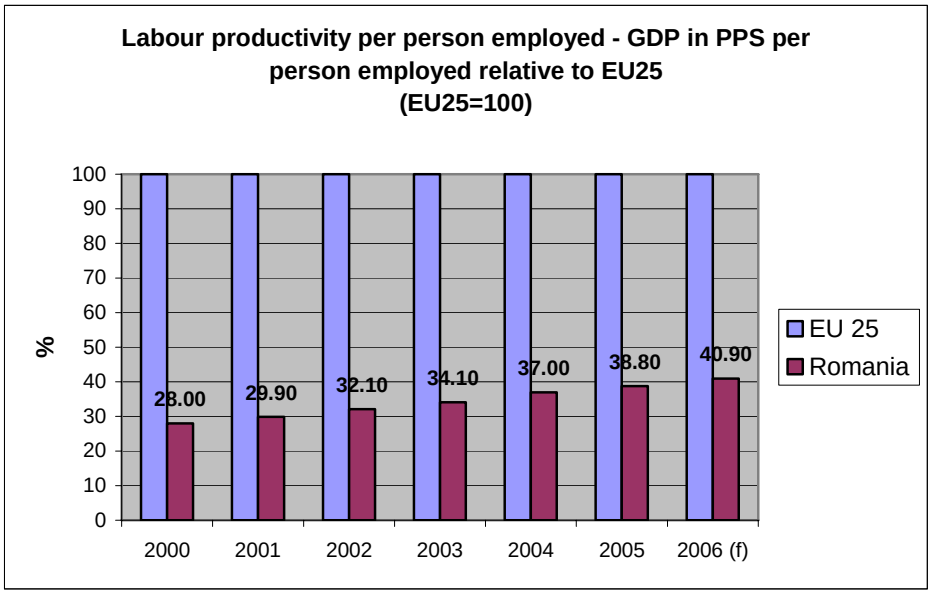
The average number of employees in manufacturing industry continuously decreased in the period 1999 - 2004, from 1628 thousand persons in 1999 to 1491.3 thousand persons in 2004, especially in metallurgy, means of transport, chemistry and machines and equipment sectors.

The reduction of personnel in the specified sectors was due to companies restructuring externalization of activities, production modernization and better managerial performance imposed by multinational companies. On the other hand, in the textile, footwear, garments and electrical machines and appliances sectors, the number of employees remained at the level of 1999. The existence of an increasingly ageing workforce requires programs targeting employment.

The structure of active enterprises in terms of staff number changed, through an increase of the number of SMEs, as a result of large companies restructuring and due to incentives provided to SMEs.

From the size point of view, only 2% of manufacturing industrial companies are large but they employ 54% of the work force and achieve about 62% of the turnover (according to 2004 data). Additionally, more recent (2005) statistics of the MEF indicate that in manufacturing industry, mining and energy there are 1270 large companies, of which 675 (53%) employ between 250 and 499 people, 366 (28.8%) employ between 500 and 999 people and only 229 companies (18%) employ over 999 people. Another specific characteristic is that only 7.87% of these large companies have a turnover over 50 MEuro. In the above context, the increase of manufacturing industry competitiveness depends to a significant extent on the technological modernization of large enterprises.

There are at least three arguments for supporting large companies, based on the current situation of the Romanian manufacturing industry. First, larger companies may provide the economies of scale and scope needed to go beyond the domestic market and push for European level competitiveness. Second, large companies may help in terms of knowledge diffusion, by passing know-how to subcontracted SMEs. The current information asymmetry identified in Romania may be redressed by providing incentives for state-of-the-art productive investment (based on new equipment and technology). Third, large companies may be more efficient in building value-chains, if they have the right set of incentives.



Labour productivity in industry recorded a growing trend mainly due to staff reduction, but also, to a smaller extent, to modernization of production and better management. In the period 2000-2004, labour productivity increased annually by about 7.5% (Annex 1, Table 4). However, productivity in manufacturing industry is about 4.5 times lower than EU average. A highly needed increase of labour productivity requires new technologies, new manufacturing and marketing methods, application of quality and environment standards, better energy efficiency, use of information systems and application of innovation.

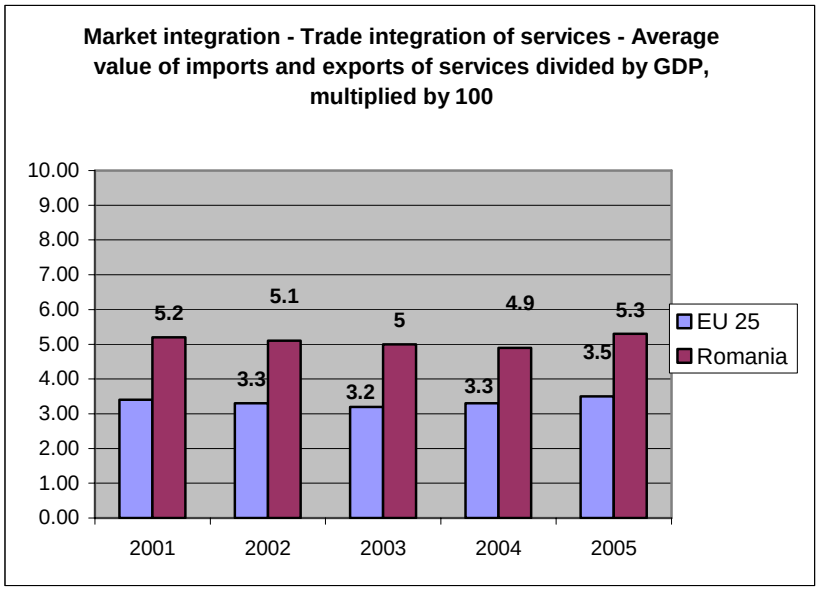
Conformity with environment standards is essential for industry competitiveness and will require significant financial efforts. The speed of innovation's dissemination is crucial for productivity and growth and requires both the implementation of the R&D results and purchase of patents, licenses and new equipment and technology. Research-driven innovation in manufacturing industry is sustained both by own research activity within companies and by the 43 national R&D institutes (at the end of 2006), specialized in different S&T fields, with the capacity to generate applicable results in economy. The transfer rate of these results to industry is nevertheless unsatisfactory because the enterprises' financial capacity to implement them into production is very low.

- Manufacturing is the main component of Romanian industry, representing in 2004, 79.4% of the industrial production and employing 85.4% of the total labour force in the industrial field
- Productivity in manufacturing industry is about 4.5 times lower than EU average. The increase of manufacturing industry competitiveness depends to a significant extent on the technological modernization of large enterprises. Only under 8% of the Romanian large companies exceed the turnover threshold of SMEs (50 MEuro)
- Conformity with EU standards is essential for industry competitiveness and will require significant financial efforts

1.3.2 Services Sector

The starting assumption for the analysis of the services in Romania is that this sector is by far more adaptive and integrated with the EU Internal Market than industry. As a result, the possibility of having entrenched, medium term market failure in the services sector is lower than in the case of manufacturing.

Beyond the economic theory, empirical data confirm that the market gap against EU in terms of trade integration of services is low.



The recent large increase in consumption expenditure and final domestic demand has not only caused a parallel increase of imports, but also a boom in consumer-oriented services and internal trade. In 2005 only consumer services have grown by 18.6%, retail trade by 17.6%, hotel and restaurants by a huge 26.4%. This increase did not come with a parallel growth in production services, mainly because of the lack of sophistication of the manufacturing companies. It is obvious that the development of services has a superior dynamics as compared to the manufacturing sector.

The sound progress in the services sector was acknowledged by the 2006 Trend Chart report, funded by DG Enterprise and conducted by the United Nations University and Maastricht University joint research centre.

The report developed the Service Sector Innovation Index (SSII), an indicator comprised of a combination of 24 other indicators, 22 of which are taken from the 3rd Community Innovation Survey, and divided into seven themes: human resources, innovation demand, technological knowledge, non-technological changes, sources of knowledge, commercialisation, and intellectual property.

The report reveals that Latvia and Romania are among the most innovative countries in the services sector, ahead of France, Germany and the UK.

Nevertheless, the report plays down these findings, saying that innovation in the services sector cannot really be compared across borders because good results can simply mean that lagging countries with poorly developed service sectors are catching up, whereas companies in countries with a highly developed services sector have much less room for innovation because they are already near the limit of best practice.

- The service sector is better integrated in the Internal Market, being adaptive, dynamic and even innovative.

1.3.3 A focus on the SME sector

SMEs are prevailing in Romanian economy, as well as in other European countries and represent over 99% of total enterprises with a substantial contribution to overall employment. In recent years, the SME sector has consolidated its role in the economy in terms of number of employees and average turnover per enterprise.

Evolution of the SME sector – selected data

	No. of SME in total enterprises %	SME Employees in total economy %	Employees /SME	Turnover /SME (Eur mn.)	% export in SMEs turnover
ROMANIA - 2002	99.5	51.1	5.9	0.145	10.6
ROMANIA - 2004	99.5	56.6	5.8	0.161	10.4
Europe 19	99.8	69.7	5.0	0.900	12.0

Source: National Institute of Statistics, SME European Observatory 2003

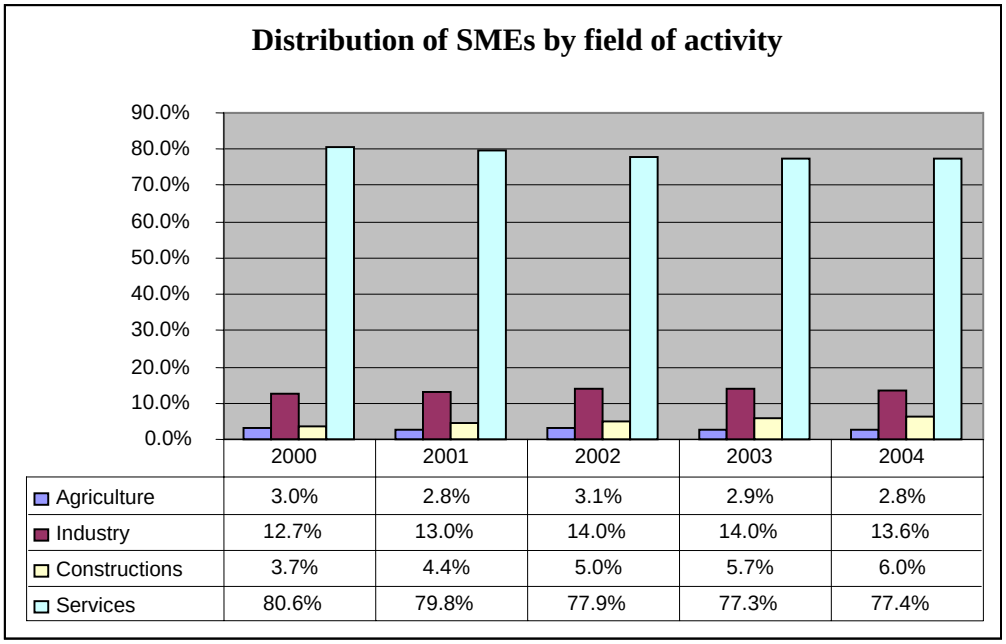
During 2004, almost 403,000 SMEs were active, meaning an increase by 24% as compared to 1999 and respectively a 13% increase as compared to 2003. The data series for the period 1999-2004 emphasise the continuous development of the SME sector.

Active private SMEs, by size

Enterprise size	1999	2000	2001	2002	2003	2004
Micro	294,597	279,893	280,448	285,207	313,485	358,242
Small	25,987	29,417	31,249	32,010	34,883	36,080
Medium	6,102	6,864	7,455	7,989	8,342	8,674
Total	326,686	316,174	319,152	325,206	356,710	402,996

Source: Ministry of Economy and Finance and National Institute of Statistics

The most recent statistical data on SMEs' demography show an important growth in the number of enterprises; in 2005, there were 448,000 enterprises, representing an increase of 10%, compared to 2004. As concerned the dynamics of SMEs by field of activities, a positive trend was recorded in 2004, showing an increase of the SMEs number in all the main activity sectors as compared to the previous years.



	2000	2001	2002	2003	2004
Agriculture	3.0%	2.8%	3.1%	2.9%	2.8%
Industry	12.7%	13.0%	14.0%	14.0%	13.6%
Constructions	3.7%	4.4%	5.0%	5.7%	6.0%
Services	80.6%	79.8%	77.9%	77.3%	77.4%

Source: Ministry of Economy and Finance and National Institute of Statistics

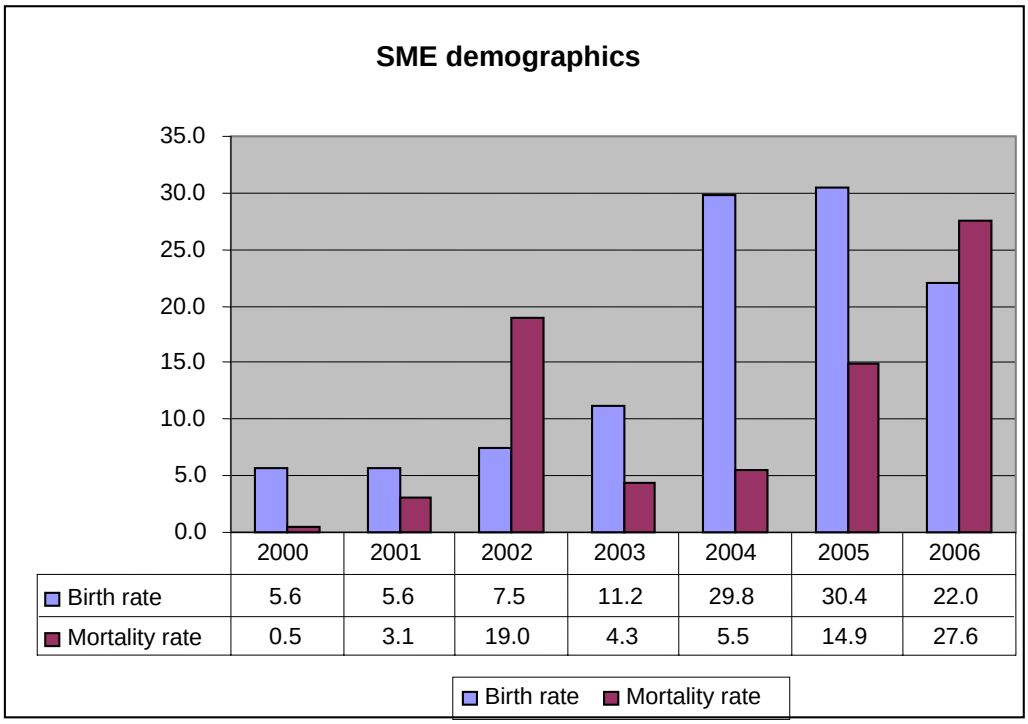
A cross-check on size and sector of activity reveals that SMEs belonging to the industry sector have a bigger size than those involved in services or other activities. With regard to medium companies, the largest number is active in the industrial sector (7.8%), followed by a share of 1% in the services sector. If medium and small companies are considered together, a similar conclusion may be drawn. Thus, small and medium companies active in the industrial sector accounted for 27.5% in 2004, in the construction sector 19.3% and in the service sector only 7.5%[7].

Otherwise, micro-enterprises form the majority in all relevant activity sectors. Their share varies from 73% in the industrial sector to 92.5% in the services sector; the latter is clearly dominated by micro-enterprises, which are involved mostly in trade activity.

SME demographics

In terms of SME demographics, one may notice a general positive trend. On one hand, the positive evolution of the birth rate can be explained by the general economic growth and by the improvement of the market entry process. The World Bank acknowledged in its Doing Business 2006 Report that Romania is a strong reformer in terms of improving the business environment. Market entry was reformed starting with 2002, while exit legal procedure was improved after 2004. The impact of these administrative regulations is emphasized in the graph below.

[7] Annual Report on the SME sector in Romania 2005, NASMEC;



Source: National Office of Trade Registry

As regards market exit, it is important to notice that year 2002 is an outlier because of an administrative decision to "clean" the Trade Registry by asking all companies to re-register. The companies which did not fulfil the second registration procedure in a two-year period were radiated from the Registry. Otherwise, there is no surprise that the mortality rate has increased in the last years, as the newly adopted bankruptcy/insolvency framework facilitated considerably market exit. Higher mortality rate is not a negative signal; on the contrary, it reflects a healthy increase of competition.

Territorial distribution of SMEs

Despite the considerable growth of SME's number in 2004 compared to previous years, the disparities between regions are still high, with a significant concentration in Bucharest-Ilfov region. The regions with positive SME demography dynamics are those where SME in processing industry are significantly present, whilst the weakest performances are those where the services SMEs are prevailing.

SME regional distribution in 2004, by size[8]

Development region	Micro	Small	Medium	Total
North East	51,098	4,023	973	56,094
South East	58,291	3,981	954	63,226
South	50,329	3,586	946	54,861
South West	38,579	2,204	478	41,261
West	41,365	3,609	929	45,903

[8] NB: different data set – taken into account registered SMEs and not active ones

Development region	Micro	Small	Medium	Total
North West	64,096	4,887	1,094	70,077
Center	56,274	4,742	1,161	62,177
Bucharest - Ilfov	97,680	7,353	1,762	10,6795

Source: NASMEC

There are still high discrepancies between development regions regarding the indicator SMEs per thousand of inhabitants. The interval limits are between the lowest level of 12 SMEs/1000 inhabitants for the North-East region and the highest level of 41 SMEs/1000 inhabitants within Bucharest-Ilfov region. Also, due to the impact of new regulations on market entry and exit, the regional density indicators recorded in 2005, values between 13.1 and 23.3 SMEs/1000 inhabitants. Thus, the new set of provisional data shows a diminishing of regions' disparities from the viewpoint of business development.

The same disparities are present when considering SMEs' regional distribution and the prosperity of the region, i.e. the GDP/capita.

Regional distribution of SMEs and GDP per capita, in 2004

Development region	Micro	Small	Medium	Total	No. SMEs/1000 inhabitants	GDP per capita (RON)
North East	51,098	4,023	973	56,094	12	7,860
South East	58,291	3,981	954	63,226	17	10,310
South	50,329	3,586	946	54,861	13	9,480
South West	38,579	2,204	478	41,261	14	9,470
West	41,365	3,609	929	45,903	19	13,040
North West	64,096	4,887	1,094	70,077	20	11,050
Center	56,274	4,742	1,161	62,177	20	11,850
Bucharest - Ilfov	97,680	7,353	1,762	106,795	41	21,770
ROMÂNIA					**19**	**11,372**

Source: NASMEC

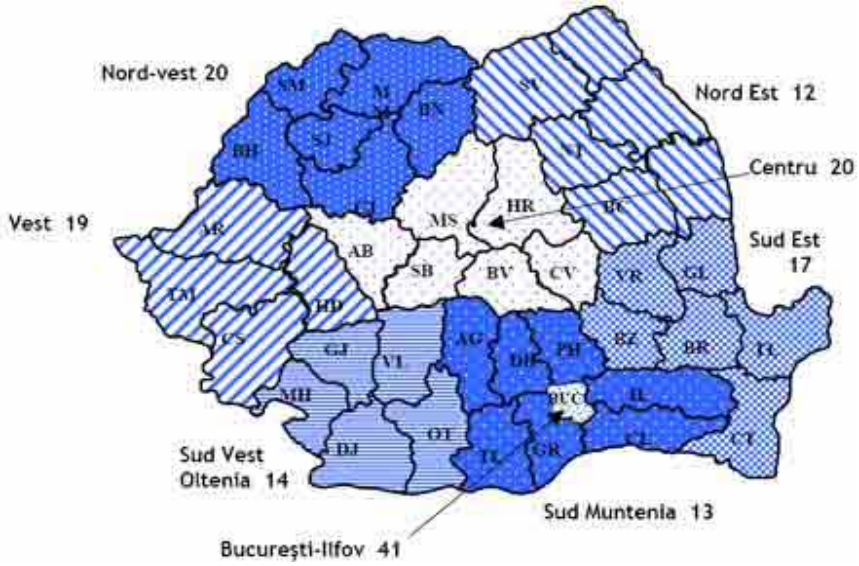
Besides the discrepancies registered between Romanian development regions, the country average of 19 SMEs/1000 local inhabitants, is much lower than EU 15 average of 52 SMEs/1000 local inhabitants.

Four out of the eight development regions are positioned around the national average, respectively the Centre and the North-West regions (20), West region with 19 and South-East region with 17 SMEs/1000 local inhabitants.

The positioning of the other four regions is very asymmetrical to the average, indicating a concentration and an increase in the imbalance between the Bucharest-Ilfov region and the other regions[9].

[9] Annual Report on the SME sector in Romania 2005, NASMEC;

SME density (number of SMEs/ 1000 inhabitants, 2004)



Source: National Institute of Statistics, NASMEC

SME Industry/Services regional specialization

The regional economic structure by industrial sectors in 2004, illustrates the following features:

- Textile and garments industry has a significant weight in the total industrial activities in the North-East Region (23.3% of total manufacturing units in the region), in the North-West Region (20.2%), in the West Region (19.2%) and in Bucharest-Ilfov Region (17.8%).
- The mechanical processing sector is dominant in Bucharest-Ilfov Region (23.5%), South-East region (22.7%) and South-West Region (19.6%). The wood processing sets the profile for the Centre Region (22.1%), the North-West Region (20.9%) and North East one (16.4%). All these regions could be defined by a traditional abundance of raw material.
- The food processing industry prevails in the South Regions, especially in the South West (27.2%), South East (26.1%) and East (25.4%).
- The chemical industry is well represented in Bucharest (28.9%) and lower in all other regions, at almost half the weight.
- The "other industries" category which is much dispersed regionally has the largest weight in the West Region (16.3%).

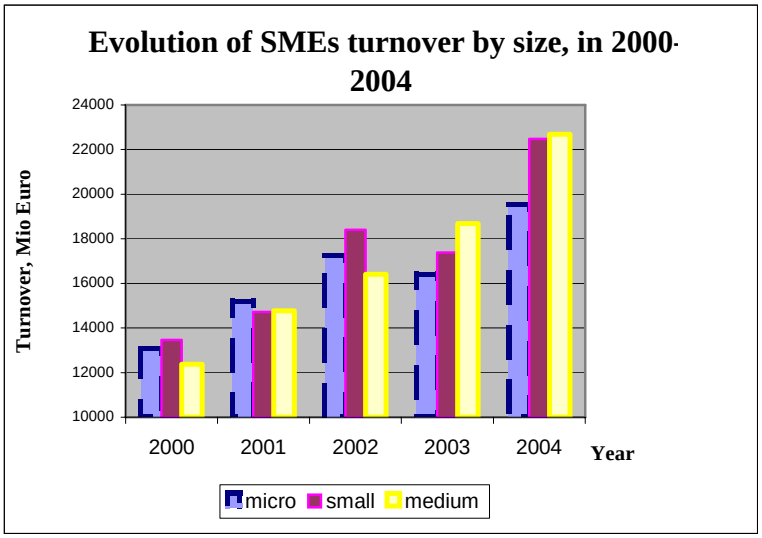
The regional specialization in the industrial sector, in 2004, indicates that less than 30% of the firms, in any region, are involved in the productive sector. Taking into consideration that industry is one of the largest contributors to GDP, it may be advisable to ensure public support for the entire productive sector in order to stimulate SME involvement.

The regional economic structure by service sectors in 2004 is the following:

- trade represents the most important component in the services sector in all development regions, (South West - 72.1%, East - 71.5%, North East - 68%), in the more economically advanced regions trade begins to lose weight in the competition with other types of services, even if it still remains at more than 50%.
- the "other services" category is better represented than the trade sector in more developed regions such as Bucharest-Ilfov (39.4 %), Centre (26.3%), West (26.9%) and North West (24.5). Due to its geographical position next to the major commercial flows, the North West Region has a higher weight of transport services.
- except for the Bucharest-Ilfov Region, tourism services display rather similar values in all regions, indicating a development potential of this SME category in almost all the regions of the country.

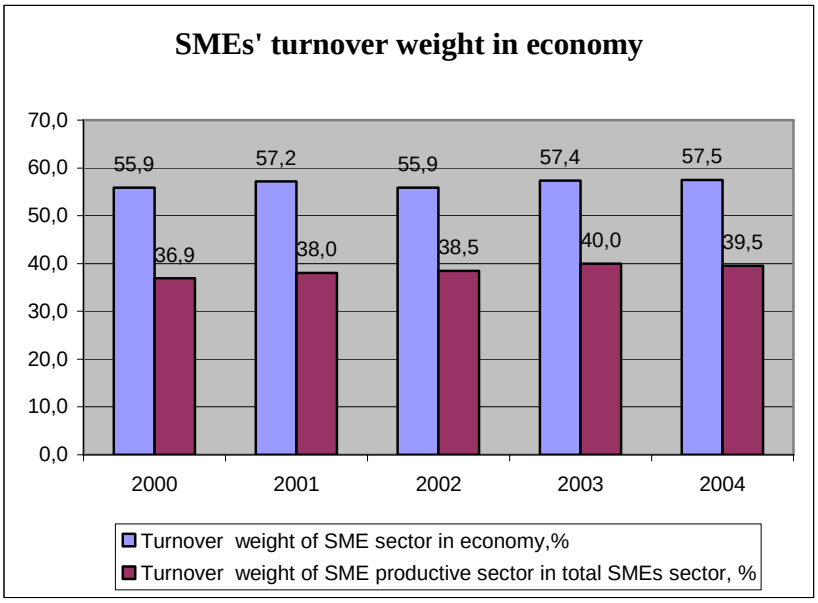
Turnover evolution in SMEs sector

SMEs turnover in terms of value appears to be quite balanced between the three categories of size (micro, small, medium), with a slight prevalence towards small enterprises pointing out the ascendant trend between 2000-2004. Statistical data for 2004 indicate a total turnover of MEuro 65,055 for the SMEs sector, out of which MEuro 19,498 (30%) for micro-enterprises, MEuro 22,524 (34.6%) for small enterprises, and MEuro 23,033 (35.4%) for medium sized enterprises.



Source: Ministry of Economy and Finance and National Institute of Statistics, The Annual Report on SMEs sector in Romania, NASMEC 2005

By economic sectors, SMEs' turnover reached in 2004, MEuro 45,028 in the service sector, MEuro 13,835 in industry and MEuro 4,758 in constructions, which in all represent more than 50% of the total economy. It should be mentioned that the manufacturing sector turnover registered a positive trend.



Source: National Office of Trade Registry

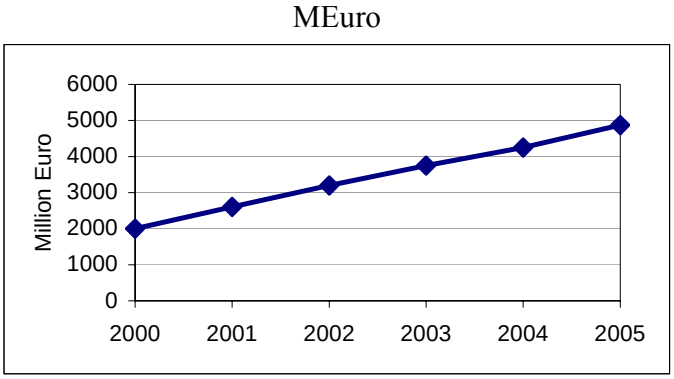
In 2004 the average productivity (turnover to number of employees) of SME sector was of Euro 27,823 (highest for small enterprises and lowest for medium enterprises). The size differentiation of productivity can be explained by the involvement of medium enterprises mainly in productive sectors (with obsolete machinery and technologies and overloaded working force), whilst the small firms are not usually involved in the manufacturing sector.

SME Export and Investment

The SME sector recorded in 2004 an export value of MEuro 6,754.8, representing 35% of the total volume of Romanian exports. The manufacturing industry sector accounted for 63.1% of the total SMEs export volume; 23.1% of the manufacturing SMEs were involved in outward processing in 2004. The available statistical data for 2005 indicate a total SMEs export volume of MEuro 7,365.4, that means an increase of 8.4% compared to 2004.

In 2004, SMEs carried out mainly small size investments: 46.1% of SMEs made small investments, while only 14.3% made higher value ones. A relevant percentage of SMEs (37.9%) did not make any investment at all in 2004. Micro-enterprises have the lowest percentage regarding large investments (13.0%) and the highest weight of enterprises that did not make any investment (39.4%), while the percentage for medium-sized enterprises that made large investments grows to 35.1% and the weight of enterprises that did not make any investment decreases at 19.7%.

SME Exports in Manufacturing Sector



Source: National Institute of Statistics and National Customs Authority, NASMEC aggregated database

SMEs exports from the processing industry sector amounted to 4,850.9 MEuro, in 2005 ,which represented 65.8% of total SMEs sector exports. Textile and clothing was the largest exporting sector with 2,214 MEuro (49% of total value of exports).

A survey carried out by NASMEC in 2004, highlighted that SMEs are involved mainly in small investments 46.1% of SMEs, whilst only 14.3% make higher value ones. Micro-enterprises have the lowest percentage regarding large investments (13.0%), while the percentage for medium-sized enterprises that made large investments is about three times more (35.1%).

By type, the majority of investments, i.e. 88% of the total value in each SME category, is represented by tangible assets. Tangible assets have the following distribution: industry 93.9%, constructions 89%, and services 86.9%.

Intangible assets have a marginal role in SMEs investments, while financial intangible assets account for 9.5% of investments in micro-enterprises, 8.3% in small enterprises and 9.1% in medium ones. Intangible assets have an important role in services, of 18%, while in industry a modest one, of only 1.5%. Financial assets are important in services with 11.4% and in construction with 9.9%, while they have a less relevant role in industry with only 4.6%.

Access to finance

Most SMEs are severely undercapitalised, despite some national initiatives and support programmes. The shortage of finance, lack of business support services, limited entrepreneurial skills and experience and insufficient knowledge of how to enter markets are the main factors for the low rate of businesses survival, lack of growth and competitiveness.

A survey conducted in 2006 by the National Council of Small and Medium Size Private Enterprise in Romania underlined that a large number of entrepreneurs (20.8%) considered public intervention should focus more on making easier the access to credits, grants and other financing instruments.

This is not a surprising finding, as interests and collaterals for a loan in Romania are much higher then in other countries of the European Union.

In March 2007, a gap assessment study was carried out under the JEREMIE (Joint European Resources for Micro to Medium Enterprises) initiative, in order to assist in choosing the most efficient innovative ways to support SMEs access to finance in Romania.

The role of micro-finance institutions (MFIs), given the sector's excellent repayment rates and a wide distribution across the country, is important. Overall, in 2005, the micro-finance market portfolio reached approx. 27.4 MEuro, 60% higher compared to 2003.

Despite recent improvement in targeting SMEs, commercial banks do not provide sufficient business development support to their SME clients and their exposure to risk is very low. Small firms generally find it also hard to access capital; the guarantees required by commercial banks are often beyond the means of entrepreneurs.

A survey carried out in 2006 shows that approx. 78% of all enterprises financed themselves through own resources, as compared to only 47% which declared that they used bank credits.

The context of competition within Internal Market leads to the expansion of SMEs loans demand and the acceptance of nom-tangible collaterals. Insufficient capacity of the existing credit guarantee institutions adds to the problem. Currently there are four credit guarantee institutions providing products for SMEs in Romania, out of which the most prominent is the National Credit Guarantee Fund for SMEs, which provides guarantees for bank loans with one general credit guarantee programme for all SMEs irrespective of their stage of development, sector, technology or region. Since its start in 2002, the fund take-up has significantly increased especially during 2005 and 2006. Compared to 2004, the guarantees given in 2006 (based on estimate figures) represent an increase of more than 13 times in number of guarantees, and about 14 times in the total value of guarantees. At the end of 2006, the total number of guarantees granted to SMEs was 1931, in a total value of 164.87 MEuro. In terms of territorial availability, at the end of 2006, the National Credit Guarantee Fund for SMEs had 12 territorial branches and 3 subsidiaries.

As regards venture capital, until recently, investors in this field were reluctant to invest in Romania because of the unavailability of professional skilled management teams and limited alternatives on exit. Besides the general shortage of venture capital, other problematic issues characterize the financial market in Romania, such as: systematical denial of financing to companies from manufacturing sectors, uncovered early stage gap, lack of liquidity in the development stages of the companies and even a management gap.

Business infrastructure and support services

There are several types of business infrastructure providing premises and logistics for SMEs (e.g. business incubators, industrial parks, science and technology parks[10]). The business support infrastructures in Romania are still poorly promoted within business environment and their advantages are not enough well understood by potential entrepreneurs. Thus, incubators are underdeveloped and under populated by SMEs. The existing business incubators were set up under different sources of financing (Phare funds, World Bank, Romanian budget) as tools to enhance entrepreneurial initiatives.

A number of industrial parks have been developed in order to encourage economic development and to reduce unemployment particularly in areas affected by the industrial restructuring process. Currently, there are 34 authorised industrial parks at various stages of development and these have a disproportionate regional distribution (with 11 parks in both South and Central Regions and only 1 park in the West Region). 14 of these parks are currently operating, while 7 are in the process of being lent. 13 sites are still green-field projects awaiting development. Some of them have difficulties in operating, due to lack of finance and a too small number of SMEs using the facilities. Moreover, few of them shelter companies and clusters capable of competing in international or even national markets.

There are currently 21 business incubators spread around the country and most of them are located in South West (24%) and Centre Region (19%). These incubators host about 11 SMEs each, which is far below EU average of 34. However, many of these incubators suffer from lack of resources and expertise in business development, thus being unsustainable. Nevertheless, some incubators have succeeded to prosper and perform.

The average surface of a business incubator in Romania is of 1,630 sqm (mostly used for production and office activities) compared to 3,000 sqm, the EU-15 average. Most incubated SMEs operate in services and industrial sector and there is no clear specialization for possible incubees. The existing incubators offer general business-consulting services, such as start-up advisory services and preparing business plans. Only 10 of the incubators offer ICT services as well.

The SMEs demand for business advisory services is focused on consultancy in finance, marketing, production and design. The availability of support to small businesses is particularly poorly developed. Out of 80.4% of SMEs using consultancy services, only one third offered to employees training services and even fewer provide other consultancy services as business planning (21.7%) or technical assistance for certification and product standardisation (20.3%). There is a lack both in the offer and the quality of expertise in these services to support successful SME development in a market economy. Moreover, the distribution of consulting firms is uneven across the country, most of them operating in Bucharest region and to a far less extent in other regions (e.g. in South or South West).

[10] Science and technology parks will be analysed in the R&D sub-section;

On the demand side, given that the entrepreneurial culture is still weak, managers do not acknowledge enough the importance of consultancy, partnership and cooperation. As a result, not only business communities are fragmented, but also considerable synergy opportunities are not exploited.

Cluster type behaviour has started to emerge, but public intervention may be needed to bridge such market gap through stimulating more cooperative behaviour, including the support for SMEs to become long term suppliers for large companies.

- Given the limited existing support, most SMEs are still severely undercapitalised and have difficulties to meet the EU's standards. Support to the SMEs sector for productive investments and EU standard compliance is fully justified given the existing market gaps.
- Access to finance is worrying for micro and small and medium enterprises, start-ups and for innovative green-field initiatives.
- The insufficient and poorly diversified entrepreneurial base causes serious problems for the economic development of the country, especially in certain regions and areas that are lagging behind in terms of economic development.
- SMEs survival on the market is very difficult, mainly because of a shortage of finance, lack of business support services and limited entrepreneurial skills and experience.

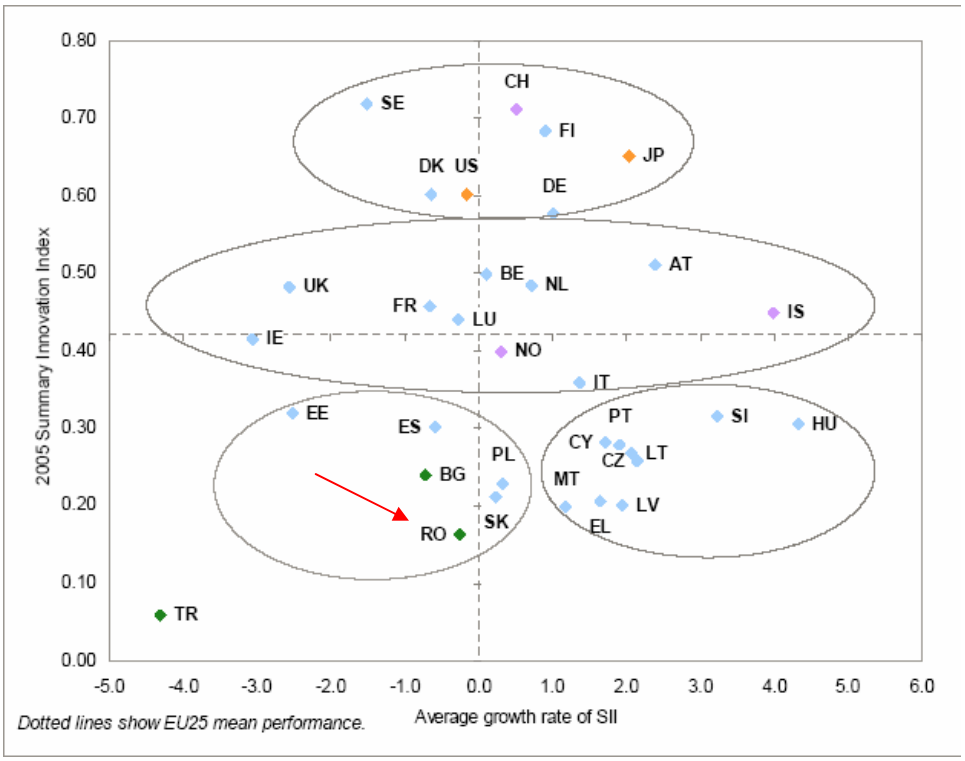
1.3.4. Scientific Research, Technological Development and Innovation

The evolution of the R&D and innovation (RDI) field in Romania is undergoing important changes, mainly due to the context of EU accession**.** The analysis of present RDI situation reflects the political and economical efforts necessary for responding to accession requirements and for ensuring the necessary conditions to achieve the overall Lisbon objectives, thus aiming directly at increased competitiveness and growth.

Overview

As regards the capacity for innovation, despite the efforts to push for a knowledge-based economy, Romania's situation deteriorated from 2004 to 2005. If in the 2004 European Innovation Scoreboard (EIS) Romania was considered a catching-up economy from the viewpoint of innovation dynamics, in the 2005 EIS she was downgraded to the status of "losing ground". Romania ranks second to last on the Summary Innovation Index (SII) out of 33 countries (EU including accession and candidate countries plus Norway, Iceland and Switzerland).

Summary Innovation Index 2005



Notes: The circles identify the four main country groupings: top = leading countries, middle = average performers, bottom right = catching up, and bottom left = losing ground.
Source: European Innovation Scoreboard 2005

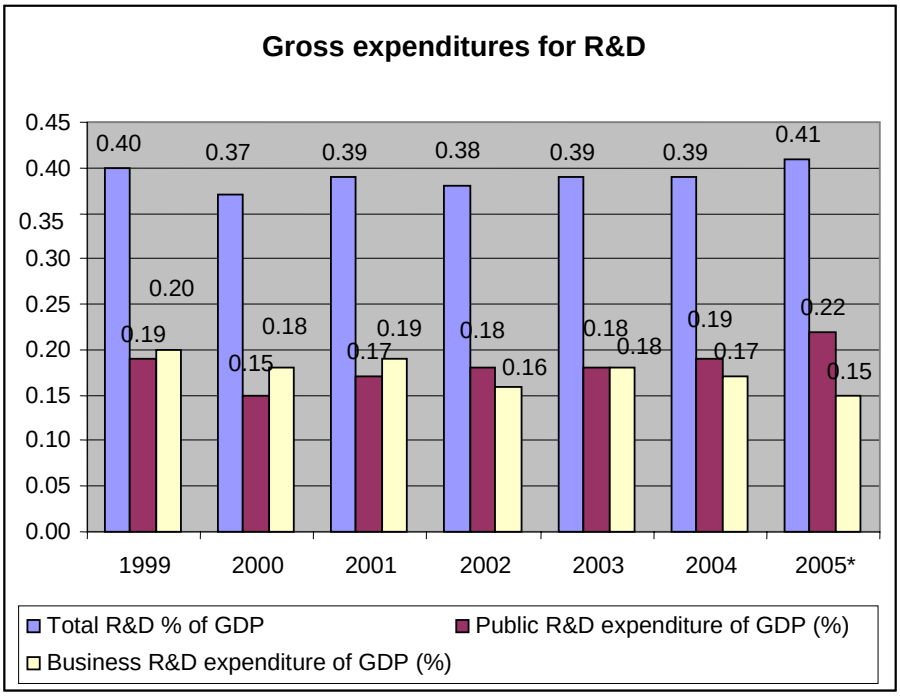
According to the calculation of the European Commission, Romania seems more efficient in terms of innovation output than on innovation input. Innovation efficiency can be measured as the ability of firms to translate innovation inputs into innovation outputs.
The ratio between the EIS composite index for inputs (education, investment in innovation, etc) and outputs (firm turnover coming from new products, employment in high tech sectors, patents, etc) provides a measure of this relationship for national innovation systems. However, this apparently positive feature of the Romanian innovation system may just be the cause of an advanced precariousness of the input factors.

Romania's worst performance is for intellectual property rights, with almost no patents (see Annex 3, Table 1). She also performs very poorly on innovation drivers, knowledge creation and on innovation & entrepreneurship and applications. Only two indicators of the EIS survey for Romania are above the EU average, namely the percentage of SMEs that have introduced non-technical change and the new-to-market product sales.

Public and private R&D

In the period 1999-2005, the yearly gross domestic R&D expenditures registered a relatively stable but very low level, which started to increase to more than 0.40% of GDP only in 2005. Generally, there is an equal contribution of the two principal sources of funds, public and private.

A significant increase of public funds allocated to R&D occurred in 2006 (0.38% of GDP compared to 0.22% of GDP in 2005). This tendency will continue in the future due to the commitment of the Government for the implementation of the Action Plan for reaching the 3% objective of the Lisbon strategy. The national policy in this respect is to reach the 1% objective foreseen for public expenditure in 2010.



Sources: Statistical Yearbook of Romania 2003 and NIS Bulletin „The research activity of R&D in 2004", 2005.
Note: *) Preliminary estimation of NIS

In line with the Lisbon Strategy and the Barcelona objective, the Romanian Government set as a political target to bridge the gap between Romania and the EU in terms of R&D expenditure.

For this purpose, the Government is acting at two levels. First, there is a clear commitment to increase the public R&D expenditure to 1% of GDP by 2010. The level of public R&D expenditure as percentage of GDP more than doubled in the last 2 years from 0.22% of GDP in 2005 to approx. 0.50% of GDP in 2007, and show the determination of the Government actions in this respect.

Secondly the goal of the Government is to stimulate company spending on R&D and to enhance the firms' capacity for innovation. The stimulation of the private investment in R&D was included as a specific priority of the National RDI Strategy.

Several studies[11] analysed the relation between public and private spending in R&D. Two conclusions are generally agreed: first, that the business R&D expenditures react usually with a lag of 2-3 years after the public push; second, that the efficiency of the public R&D is a key to boosting the private sector appetite for R&D.

[11] e.g. OECD, 2004;

The estimates suggest that after a lag period, starting with 2008-2009, the private sector will also catch up in terms of R&D investment. In this way, by 2010, business R&D expenditure may grow at a high rate, reaching a level of 0.5% of GDP. Following the same reasoning an increase of BERD to 1% of GDP by 2015 looks feasible.

R&D personnel

The research potential in 2005 was represented by a total personnel employed in R&D activities of 41,035 or 33,222 FTE ("The Research activity in 2005", National Institute of Statistics 2006), out of which approx. 9,000 PhDs. Around 52% of total personnel are active in the field of technical and engineering sciences, which could be a comparative advantage for responding to research demand coming from the economic environment.

In 2004, the researchers' weight was 3.13 per 1000 employed population, which represents about 58% of the EU25 average (5.4). The R&D personnel had a slight increase compared to previous years.

Employees in R&D activities

	1999	2000	2001	2002	2003	2004	2005
Number of employees, of which:	48,113	37,241	37,696	38,433	39,985	40,725	41,035
Researchers	26,492	23,179	23,597	24,636	25,968	27,253	29,608
Certified researchers*	10,341	8,926	8,507	8,513	9,219	9,318	10,339

Source: The Statistical Yearbook of Romania, 2004 and NIS Bulletin "Research activity in 2005", 2006
*) They receive different professional qualifications following an examination of their scientific performance.

In 2005 the R&D personnel was distributed as follows: 13,889 in higher-education institutions, 10,258 in public institutes (national R&D institutes and institutes of the Romanian Academy), 16,647 in enterprises and 241 in private not-for-profit organizations with R&D activity.

The research personnel active at enterprise level was distributed in 2005 mainly in the manufacturing industry (58%), followed by agriculture, forestry, fisheries (18.5%), services (13%), and extractive industry (4.6%) according to NIS data. The employment in medium and high-tech manufacturing is still lagging about 20 percentage points behind the EU average. As regards only employment in high-tech services, Romania achieves only about 45% of the EU average (EIS 2005).

Low salaries, inadequate research infrastructure for high performance, as well as the opportunities offered by research programmes of other countries, led to a gradual increase in the average age of R&D personnel, so that at present the persons older than 45 represent approximately 50% of the total number of researchers.

The regional distribution shows a major concentration of R&D organisations (about 41%) and R&D personnel (about 50%) in Bucharest-Ilfov region. For the other regions, the weight of R&D personnel is between 4-5% (South-East and South-West regions) and 11% (South region).

Patents

The number of Romanian patents is only about one percent of the EU average; as regards the US patents Romania's performance is even worse.

The intensity of patents is one of the central indicators of the capacity, quality and market maturity of R&D. As long as Romanian R&D fails in catching up in patents, the important structural change through innovation is at risk.

The number of patent requests (and obtained) is very low, situation partially explainable by the lack of awareness at the level of enterprises. Although the cost of patenting is not high (approx. Euro 30,000), the number of requests for patents is not increasing.

In terms of the number of patent application (both EPO and USPTO) per million inhabitants, Romania has the last position in EU-27. Moreover, even after March 2003, when Romania became a member of the European Patent Convention (EPC), the situation continued to be critical, as for instance in 2004 there was no patent obtained from EPO[12].

In terms of absolute figures, Romania seems to out-perform the Baltic States, but if counted at million inhabitants, the results are dramatic. The figures show that in the last three years Romania obtained only 7 patents from EPO, while it has filed 23.

Number of patents per one million inhabitants in Romania

	2000	2001	2002	2003
Patents EPO	0.81	1.32	1.35	0.33
Patents USPTO	0.09	0.31	0.13	0.01

Source: EIS 2005

Therefore, Romania exhibits a serious weakness in the applicability and use of domestic R&D.
The main cause for the low level of innovative expenditure within SMEs and the scarcity of patents is the low financing of RDI activities during the last decade. The alternative of providing fiscal incentives is not yet possible, as the general policy of the Government after the adoption of the 16% flat tax in 2005 is to avoid any preferential fiscal treatment by levelling the playing field. As a result, public intervention in terms of financing patent applications will remain the main instrument for bridging this important technology gap, and is fully consistent with the provision of the 2007-2013 RDI Strategy.

Innovative enterprises

In terms of innovation in businesses, Romania lags behind other European countries. During 2002-2004 only 20% of companies undertook innovative activities. This percentage is far behind the EU15, where in 1998-2000, 44% of companies were considered innovative.

[12] Also in 2004 there was no USPTO patent application from Romania;

A large part of innovative companies (86%) are SMEs out of which 55.2% are small enterprises and 30.9% are medium sized enterprises. The majority of innovations made by companies refer to innovative products and processes (67.5%). SMEs implemented innovative solutions related to product design (8%), innovative process (21.1%) and 57% implemented innovative products and processes. Despite the improvement, according to Networked Readiness Index (2004), Romania still ranked 53rd out of 104 countries, compared with 61st out of 102 countries in 2003.

At European level, 51% of production enterprises are technologically innovative. In Romania the innovative enterprises' weight is still low, but the tendency is to increase from 17% (2000-2002 innovation resulted from the survey according to EUROSTAT CIS 3 methodology) to 19.3% according to 2002-2004 survey (EUROSTAT CIS 4 methodology). At the same time, the activity's structure changed as follows:

Innovation survey	Innovative enterprises in industry	Innovative enterprises in services
2000-2002	19%	13%
2002-2004	21%	17%

Source: Innovation survey in industry and services, NIS

The majority of expenditures related to innovative activities were made for purchasing outfits, equipments and software (62.2%). R&D expenditures represent 24%.

The weight of sales of new or improved products (new for the company or new for the market) is an important indicator to characterize the innovation state. In this respect, Romania is better placed in terms of new products either for the company or for the market, both in manufacturing industry and in services (Annex 3, Table 2). A special importance is attached to high-tech products and services. The high-tech products export represents only 3.3% of total Romanian exports that is much lower than EU25 average (18%). The new EU member states registered data comparable to Romania's, with the exception of Hungary (21.7%) and Czech Republic (12.3%).

As regards intellectual property, SMEs are less willing to adopt protection measures than large enterprises.

In industrial innovative companies the mostly used methods are the registration of industrial models and designs/trademarks (17% of companies), but related to application of at least one (domestic) patent, 13% were large companies and 87% SMEs.

Although the entrepreneurial spirit is relatively well developed in the country, SMEs need more and better economic instruction and knowledge of market potential, especially in the services area. Insufficient access to finance is a problem for the SME sector in general, but is particularly worrying for micro-enterprises and the innovative green-field initiatives. In addition, most SMEs are still severely undercapitalised and face difficulties in meeting the EU environment standards.

The insufficient and poorly diversified entrepreneurial base poses serious problems to the economic development of the country, especially in certain regions and areas that are lagging behind in terms of economic development.

Last but not least, although there are a lot of SME support programmes, a well documented survey conducted by the National Institute of Statistics shows that only less than 10% of dedicated SME public support reaches innovative companies.
The innovative enterprises' structure by size and NACE classification and the regional distribution of innovation expenditure are shown in Annex 3 (Table 3 and Table 4).

Partnership between R&D units and the productive sector

The direct involvement of industry in research activities is limited and decreasing. In 2005 only 50% of R&D activities were performed directly by businesses, down from some 70% in 2000. 15% of research activities were carried out by Universities whose role has nevertheless increased compared to 2004 (10.1%).

There are three main reasons for the low level of R&D and innovation activities in enterprises:

- the public research base is not oriented to the demands of the economy, and in many fields is poorly developed,
- the enterprises hesitate to increase their competitiveness based on research and innovation activities because of high market risks, and technological uncertainties,
- the financial markets are not supportive.

In order to determine a significant increase of the volume of R&D and innovation activities developed by or for the enterprises, the government policies in the R&D and innovation field pursue the following main directions:

- stimulation of R&D activities achieved in partnership between R&D profile organisations and enterprises;
- the development of the activities and infrastructures specialized for technology-transfer and innovation.
- direct support for RDI activities in enterprises;
- investments in public, and private research infrastructures.

Fiscal incentives for RDI activities have not been envisaged until now, although their importance is recognized.

The main cooperation framework between research and the productive sector consists of the national RDI programmes and direct orders (RDI procurement). The main national programmes which promote and support cooperation enhancement between research units and the productive sector are the National Plan for RDI (1999-2006), and the Programme "Research of Excellence" (2005-2008). The co-financing funds from enterprises represented about 30% of the total budget of the National Plan for RDI. The Second National Plan for RDI 2007-2013 will address these failures in a coordinated way with the other instruments available, including SOP-IEC.

R&D infrastructure

At the end of 2005 the number of organizations with R&D activity was 806, of which:

- 44 national R&D institutes coordinated by various ministries;
- 66 institutes and research centres of the Romanian Academy;
- 78 public higher-education institutions (including university clinics);

- 7 private higher-education institutions;
- 34 private not-for-profit organizations;
- 563 enterprises (of which 166 public, and 397 private owned).

The statute of the national R&D institutes is defined by GO no 57/2002, approved by Law no 324/2003 as a new form of organization specific for the R&D domain. The national R&D institutes are public institutes with activity oriented on certain S&T fields, and economic sectors, and are coordinated by various ministries. Their scientific performance is periodically evaluated.

Starting with 2001 the National University Research Council is running the programme for developing "*excellence centres*" regarding the evaluation and certification of research centres from higher-education institutions according to criteria as: research capacity, scientific competence and research performance (no funding involved). This process identified 40 excellence centres distributed thematically as follows:

- Innovative materials and processes = 13,
- Health = 8,
- Socio-economic research and humanities = 6,
- Agriculture, food security and safety = 5,
- ICT = 5,
- Environment = 2,
- Biotechnology = 1.

They are located in Bucharest, Timisoara, Cluj, Iasi, Alba Iulia and Craiova.

One of the new policies of the NASR is the improvement of R&D infrastructure, in order to reduce the large gap between the Romanian R&D entities and similar ones in EU. The participation of Romania in European research networks and in the construction of pan-European infrastructures will also be encouraged.

This objective was approached in different steps, starting from the evaluation of available human resources and of its R&D performance and from the evaluation of the development perspectives of different scientific domains, both in the national economic context and the international one set by EU accession. The Programme "Research of Excellence" (2005-2008), with the main aim to structure and consolidate the Romanian Area of Research, provided some measures for improving management skills in research institutions. These first actions must be followed by a coherent policy for enhancing the administrative capacity in public research organizations.

The financing channels and the level of financial resources allocated to RDI in Romania have been so far closely related to the type of R&D activities concerned:

a) Applied research, and technological development carried out by National R&D Institutes, public research institutions and private firms with R&D activities. This type of research is funded on a competition basis by NASR through its various funding instruments (mainly the National Plan for RDI).

b) Pure research oriented to natural and socio-humanistic sciences carried out in the institutes co-ordinated by the Romanian Academy and partially by the branch academies (Academy of Agricultural and Forestry Sciences and Academy of Medical Sciences).

It is funded predominantly on an institutional basis, through priority projects that address complex scientific and cultural issues with impact on the national level and the Grants programmes for the scientific research of the Romanian Academy.

c) University research carried out within the programmes co-ordinated by the National Council for Academic Research (CNCSIS) and funded on a competition basis from specially allocated funds.

TT&I infrastructure

The technology-transfer and innovation infrastructure, namely the organisations specialised in the dissemination, transfer and valorisation of R&D results in economy is still poorly developed. The setting-up of TT&I entities shows a slight improvement after the approval of GD no. 406/2003 concerning the set-up, evaluation and certifying of TT&I entities: TT centres, centres for technological documentation, industrial liaison offices, technology incubators. By 2004 there were 26 functional and certified entities.

The process of setting-up science and technology parks was also encouraged (GO no. 14/2002 concerning the organization, and functioning of science and technology parks, approved by Law no. 50/2003). There are 7 science and technology parks with temporary certification in: Galati, Braila, Slobozia, Brasov, Bucharest, Timisoara and Iasi. Three of them (Galati, Iasi, and Brasov) are already operational.

The National Programme "Development of TT&I Infrastructure – INFRATECH", approved by GD No.128/2004, also provides financial and logistical support to set-up and develop specialized TT&I institutions: TT centres, technological information centres, liaison offices, technological incubators, science and technology parks.

INFRATECH supports two types of projects:

a) institutional building projects for increasing the capacity of the TT&I entities by procurement of goods, services, equipments;
b) technological services projects for supporting the specific activities of the TT&I entities (not for science and technology parks).

Nevertheless, the resources allocated are rather scarce in comparison to the required investment.

- The partnership in R&D activities between enterprises and universities/R&D institutions is at a low level, and mainly based on scientific collaborations. The cooperation driven by economic demand is very poor.
- R&D infrastructure is obsolete and provides poor performance against similar EU infrastructures.
- The direct involvement of industry in research activities is limited and decreasing.
- The R&D human resources covers in general all thematic areas and basic sciences, with an important advantage in the field of technical and engineering sciences, but is characterized by a high age average, and a low growth rate of R&D personnel.

1.3.5. Information and Communications Technologies (ICT)

According to Lisbon Strategy, ICTs are vital to boosting productivity, improving competitiveness and reduce regional economic disparities. Economic gains from ICT stem directly from growth and innovation in markets for ICT goods and services and from the use of ICT in raising the performance of businesses.

ICT sector development

Even if Romania has one of the highest dynamics of ICT sector at regional level, the total IT expenditure as percentage of GDP is almost 2/3 from the EU25 average (3%) and PC availability and broadband Internet penetration still lag well behind the EU25 average.

The situation of ICT use is reflected also in the 2005 Economist Intelligence Unit Report, where Romania received 6.25 points for business environment, 2.25 points for ICT uptake by population and business environment and 5.75 points for e-services support. With an average of only 4.19 points, Romania was on the 47th place, behind most European states.

The ICT contribution to economic growth depends both on ICT sector development, ICT use in economy and businesses' access to ICT facilities. The Romanian progress in information society and its future opportunities are far from being satisfactory. The lagging behind especially regards Internet access, Information Society services and up-take of IT applications in economy.

The low expenditure level in the IT field is one of the hindrances in developing an information society. In 2005, IT expenditure was 1.9% of GDP, less than two thirds of EU25 average (3%). Even if IT expenditure had a remarkable positive dynamics, from 0.89% in 2000 to 1.9% in 2005, it continues to be one of the lowest in Europe (according to Eurostat).

From this perspective, IT investments are required in order to facilitate the development of a true knowledge-based society, especially for spreading of IT equipment, services and software applications. It is extremely important to increase investments in the ICT field and to reduce the gaps between the actual expenditure level and the desired development level.

Annual data on telecommunication expenditures for hardware, equipment, software and other telecom services show a significant growth in the last 4 years reaching 6.3% of GDP, which is double as compared to EU25 level. This growth will directly influence the sector competitiveness and development. In the context of declining tariffs for international telephony, mobile services, and Internet access, this growth indicates a substantial increase in consumption, which is expected to continue in the following years.

An important issue to be considered in this context is the lack of financing and low ICT investment in the public sector, as well as the companies' reduced use of information technology.

Data confirms that ICT solutions are hardly available for general business uptake and infrastructure is limited to narrow areas of urban concentration. However, where ICT solutions are available, the companies have decided to invest and use them to build a competitive advantage. This situation is also explained by the fact that in Romania ICT development was pushed more by private initiatives rather than by public investment.

As a comparison, in Bulgaria ICT infrastructure was supplied more under the form of public goods, with a more limited involvement from the private sector. The current situation confirms once again the high potential of the ICT market in Romania and gives hopes for strong development and uptake of ICT.

Nevertheless, Romania is still confronted with a high digital divide. Beyond low levels of technology penetration (PCs, mobile phones, Internet etc.), there are large urban-rural and intra- and inter-regional disparities and also low assimilation of digital technology by older population.

There are good reasons to believe that Romania has engaged on a convergence path, as success stories have already emerged in the domestic IT industry. Software companies have emerged as international players. However, the ICT sector in Romania is still the sum of disparate corporate investments, as opposed to the case of Bangalore, India, where branding the region as an ICT hub contributed significantly to gaining the competitive edge.

Access to information and communications technologies

Despite the considerable progress scored by Romania in developing ICT, the information technology infrastructure and use still remains far from the level of older EU member states.

Romania lags behind in terms of computer penetration and electronic communications infrastructure access, not only compared to EU-25, but also to the new Member States average. Computer penetration is much lower than the EU 25 levels (24 PCs/100 households at the end of 2005 compared with approximately 58 PCs /100 households, even though the average sales growth was more than 31% in 2005 compared to 2004 (European Information Technology Observatory 2006). This has a negative impact on national competitiveness, as computer usage and Internet access are important factors for economic development.

Electronic communications market liberalization has triggered an increase in the number of electronic communications networks and service providers operating on the market. The Romanian telecommunication market was fully liberalized in 2003 and as a result, the regulatory environment has changed significantly since then. Currently, the telecom market is split in the following segments: 61.7% mobile telephony, 33.5% fixed telephony, and 4.8% Internet and other data transmission services.

At the level of 2005, the fixed telephony penetration rate (20.3%) was much lower than the EU 25 average (51%), limiting the number of households that could eventually subscribe to broadband services provided over fixed telephone lines. The fixed telecommunications infrastructure is very poorly developed in rural areas (which represents about 40% of the Romanian population) leading to higher investment costs for ensuring the access to broadband.

During 2001-2005, the penetration rate for the mobile telephony increased by 30% annually, but is still lower than EU25 average (61.8% compared to estimated 83%). In spite of this, the coverage of the mobile broadband services is limited because the operators prefer to address only to big cities and main cities at county level. Unfortunately, a large number of users are excluded in this way.

Concerning Internet access, the situation is far from being satisfactory, both for households and for enterprises, the territorial gap continuing to persist, mainly in rural and remote areas.

In 2005, only 17% of the population used Internet weekly, more than half of EU 25 average (43%). As for enterprises, in 2004 52% had Internet access, compared to 89% in EU 25. A major difference is noticed between SMEs and large enterprises: 90% of large enterprises have access to Internet, while only 50% of SMEs use this mean of communication (Eurostat).

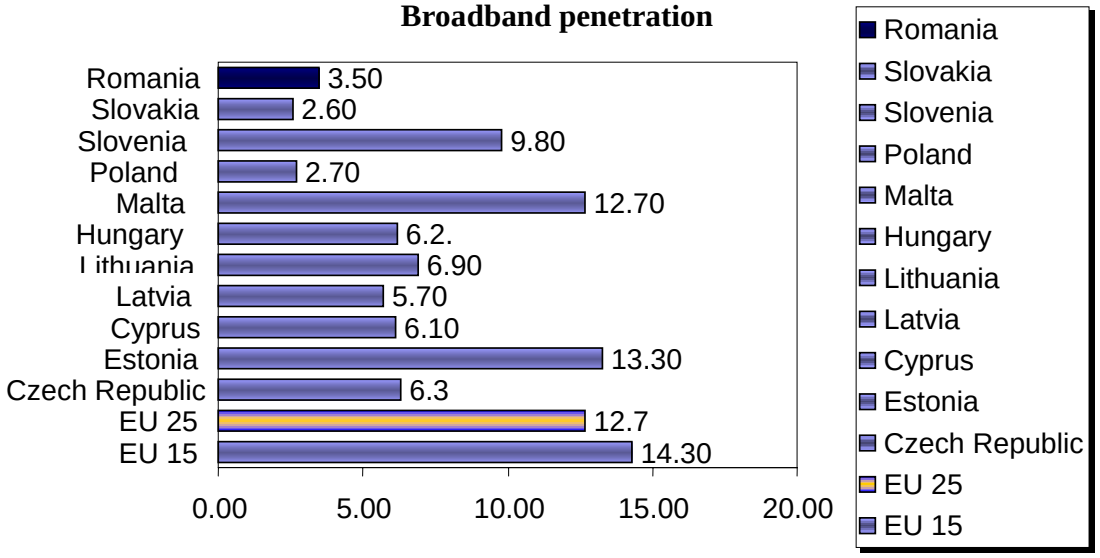
Many of the underdeveloped areas do not have the basic infrastructure to ensure Internet access and, in some cases, they do not even have access to fixed telephony. Romania has a policy for establishing tele-centres for community's access to telephony and Internet services as an interim solution before fixed telephony can be generally available to households.

Those significant infrastructure gaps are remediable only through major investments, both from private companies and from public institutions.

From the total Internet access connections, the percentage of broadband connections represented almost 41% in 2005[13]. This share was partly a result of Cable TV connections doubling and the inclusion of the CDMA mobile dial-up connections in the figures.

Considering the entire population, broadband penetration rate (number of connections/100 inhabitants) was approximately 3.5% at the end of 2005, lower than EU 15 average (14.3%) and EU 25 (12.7%).

Regarding the percentage of enterprises with broadband connections, if in 2004, the rate of penetration registered a very low level (7%) compared to EU 25 average (52%), the gap has decreased in the last years.



Source: Eurostat, NRACIT

[13] These rates are based on the broadband definition (National Regulatory Authority for Communications and IT), respectively a data transmission rate exceeding 128 kbps.

In spite of an increased offer dynamics, and consequently, of broadband communications services market, the focus of growth was permanently on urban areas. Under such conditions, high commercial attractiveness of urban areas compared to a low level of profitability estimated in suburban and rural areas, have led to a significant divide between urban, suburban and rural areas.

A first estimation[14] regarding the size of digital divide at the end of 2006, carried out on the basis of a methodology similar to the one used by the European Commission, indicates a ratio of the broadband services coverage of 2.5:1 for the urban/suburban comparison, and of about 6:1 for the urban/rural comparison (it is worth mentioning that the estimated broadband penetration rates in rural areas are very low for ADSL – 15% and CATV – 1.2%).

The market failure areas should be addressed mainly through public intervention; until now, there were initiated several projects targeting some under served areas. The most important projects are Knowledge Based Economy Project (initiated by MCIT in 2005 for facilitating the access of the disadvantaged communities to knowledge based economy and society) and the tele-centers carried out by National Regulatory Authority for Communications and Information Technology (NRACIT) in order to ensure universal service access in the field of electronic communications.

Given the high investment need in the market failure areas, there is strong rationale for further public intervention to ensure equal opportunities for broadband access to Internet, the availability of broadband services being one critical element in assisting local communities in attracting businesses, in enabling tele-work, providing healthcare, improving education and government services and a critical link to information.

ICT services and applications

The IT society development was marked in 2001 by the settlement of the legal framework for supporting the development of e-government and e-business applications. However, there has been a lack of investment by the public authorities in e-government, e-health and other similar services.

Although the e-business sector has constantly developed, the degree of interconnection between the business environment and ICT is still insufficient. Romania needs a safe and dynamic e–business environment**,** which can be achieved by increasing the number and level of exploitation of e-business opportunities by companies in general and SMEs in particular.

A wide spread broadband infrastructure is essential for the development and delivery of services and applications as e-Health**,** e-Business**,** e-Government and e-Learning. Those types of services are essential for Romania's development and lead to sustainable growth and better jobs, as stated in the revised Lisbon Strategy.

E-government

There is a growing consensus that e-government is now becoming a key factor for increasing competitiveness.

[14] Diagnosys Analysis – National Broadband Strategy, Roland Berger Strategy Consultants

The multiplier and leveraging effect of the public sector on overall productivity and competitiveness is even increased by the use of ICT, which has become the main driver of productivity growth.

For the development of e-Government applications significant steps have been made, for instance the National Electronic System, the one-stop shop portal for electronic access to public administration, or services as electronic assignment of international transport licenses, online visas, online customs declarations, online processing of driving licenses, online payment of local taxes and health related services. Another example is the e-Procurement system with more than 1300 registered public institutions and over 1000 private companies, at the end of 2006.

But at the level of central public administration, from the total number of 616 services, there have been identified 240 services provided through electronic means, representing a percentage of about 39% of which 70 are only in the stage of information, 137 are unidirectional, 29 are bidirectional and only 4 allow online transactions.

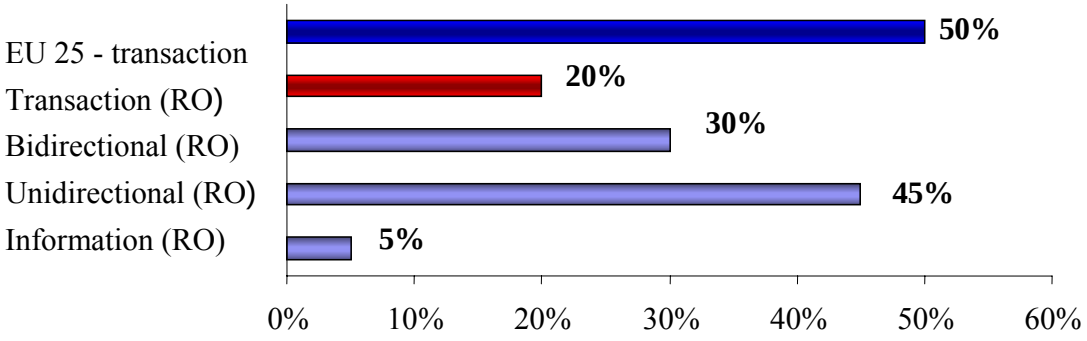
According to a study of the National Association of IT Specialists from Public Administration, at the end of 2005 only 9.65% of the local public institutions had access to a broadband connection[15], the lowest penetration being registered at the rural level (4.15%).

At the central public administration level, Romania has a low degree of sophistication of the public services available online – 20% availability compared to 50% in EU 25.

As for the demand side, the population has shown an increased interest but still slow, in e-government applications: in 2004, according to Eurostat data, 5.8% of the individuals who used the Internet in the last three months, accessed it for interaction with public authorities (downloading official forms), whereas for enterprises this percentage was 22% (EU 25 comparison figures are 20.1% and 41% respectively).

The reason for the difference between the two categories (citizens /enterprises) is that most of available online services are for the business environment. This is a situation also indicated by Economist Intelligence Unit in its market study related to e-government in Central and Eastern Europe. According to this study, Romania ranks 9th out of 10 scoring 4.08 points in e-government for citizens and 6th, scoring 6.16 points, in e-government for business.

Sophistication level of public services - EU and Romania



Source: Eurostat

[15] Over 128 kbps data transmission rate

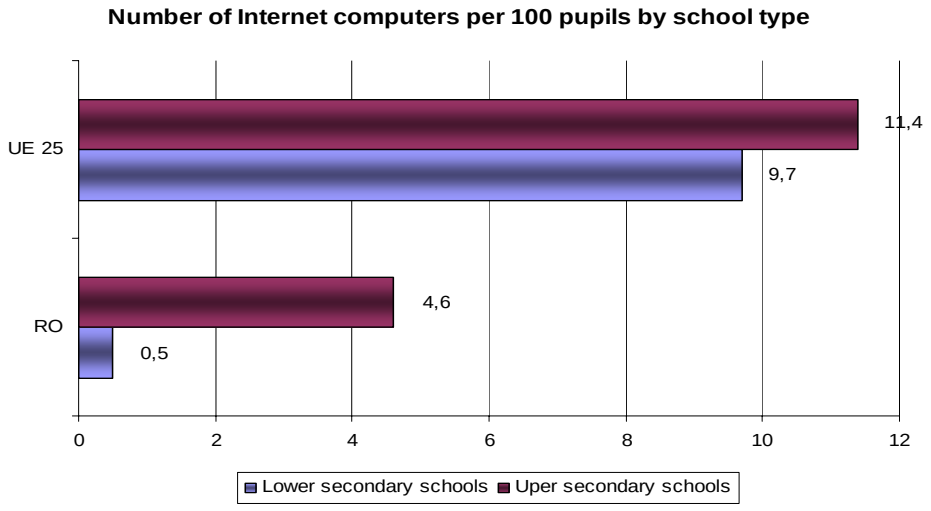
At the moment, e-government development in Romania is confronted with problems such as underdeveloped infrastructure, lack of interoperability between different available services and reduced number of available applications.

E-Learning

A competitive knowledge society needs mobility, flexibility and adaptability with regard to skills of its citizens. E-Learning is an efficient and cost effective tool for fostering workforce development that can lead to cost savings through better usage of a user's time, efficiency in personnel resources in institutions providing education and training. In this sense, e-Learning is becoming the underlying enabler of a knowledge society and a key lever for competitiveness.

Since 2001, e-Learning has been developed in Romania, the Information Educational System, representing the most important project in this field at national level. Due to this project 610 high schools are connected to Internet, and are using the AEL – Educational Assistant for Schools and High schools. Through this project, 530 digital lessons have been made available, covering 40% of the curricula. In order to implement successfully this project, training programs for teachers have been organized. Even in these conditions, significant disparities between urban and rural areas have been noticed.

As for the educational sector, there are 2.75 PC per 100 pupils in lower secondary schools compared to 10.8 in EU 25 and 8 PC per 100 pupils in high schools compared to 12.5 in EU 25. The internet penetration rate in educational sector is also higher in EU25, which has an average level of 96.2% for all school types while Romania has only 30.16% of schools connected to the internet, the penetration of information technology being more significant and better funded in universities.



Source: Ministry of Education, Research and Youth, Benchmarking access and use of ICT in European Schools in 2006

However, according to Eurostat in 2004 out of the users who accessed the Internet in the past 3 months, only 5.6% used it for educational purposes - 4 times less than EU 25 average (20.7%).

A better situation was registered in the case of using Internet for attending courses and training sessions related to employment opportunities (9.4% - almost 2 times lower than EU 25 average rated at 17.7%). The causes are two folded: lack of adequate infrastructure and reduced number of educational offers, especially for the employees.

A reflection of this is the score Romania obtained, only 1.6 points for Life Long Learning, in the European Innovation Scoreboard 2005 - 6 times lower than EU 25 average.

E-health

Integration of modern information and communication technologies in the health system or e-Health is the key to optimize the processes within the entire healthcare system and to provide higher quality at less cost. This will offer important opportunities for improved access to better health systems which include tools for health authorities and professionals as well as for patients and citizens.

E-Health developments are improving the right of access to quality healthcare, regardless of citizens' personal condition or geographical location, facilitating mobility, allowing to choose the appropriate health resource in a framework of equal opportunity and knowledgeable participation

In Romania, the percentage of population over 16 years old using Internet to search information on health is only 2%, compared to 4% in Central and Eastern Europe (December 2003). According to eEurope+ report, in December 2003, 16% of general medical practitioners had Internet access in their medical offices and 5% of them have been using Internet to interchange their patients' medical files. In addition, the percentage of practitioners using patients' electronic records was 49.2% in Romania, compared to 59% in the new member states.

The low ICT penetration in the health system is mainly due to insufficient budgetary funding. In 2004 only 43% of hospitals and 33% of clinics had Internet access. The present situation has negative consequences on treatment efficiency, inter-institutional communication and control.

The low penetration rate of ICT in the health sector creates an important potential for the development of e-health applications. There are also some notable success stories of ICT implementation in hospitals. Developments of specialized ERP systems - for the management of patients, observation sheets, medical investigations and treatments, management of drug consumption, human resources, administrative activities and accounting etc.

E-business

E-business does not only mean on-line commerce, but also electronic purchasing and supply chain management, processing orders electronically, handling customer service, and cooperating with business partners. It is, therefore, important to support SMEs to adapt to the structural changes enforced by new technologies.

While the percentage of enterprises that have Internet access in 2004, according to Eurostat, is half of EU 25 average, the percentage of those having a web page is even lower, only a third of EU 25 average.

Electronic commerce is still underdeveloped, but growing. In 2004, the share of e-commerce in the overall turnover was 1.3% in Romania compared to 2.1% in the EU25. The banks and card processors reported an increased number of transactions in 2005: 368,352 transactions cumulating over 45.6 mil Euro, with growth rates above 150% annually.

Nevertheless, according to the Romanian National Computer Network, in October 2006, there were only approximately 200 active traders that accepted online payment through credit cards. 30% of the counties did not have even one trader interested in business over Internet, and 30% of the counties had less than three such entrepreneurs. Also, there are over 8,5 million valid cards in use and only 4000 of them are activated (at the card owner's request) for Internet transactions in the 3D Secure.

The reasons are the insufficient number of e-commerce offers, incomplete legislation and lack of public trust in transactions security. While the legislative framework was improved by reviewing the e-commerce law and by launching a portal for the official time in Romania – necessary for electronic transactions, a lot has to be done regarding supply diversification, transactions safety and increase of public trust. According to Security Space Report, on October 2006, only 214 from 42,768 servers in Romania were secured, i.e. only 0.5%.

Expenditure for integrated applications has a major impact on the entire activity of an enterprise. Because of the high cost of integrated software solutions for corporations, the number of those who are using this type of applications is reduced. The level of new technologies uptake does not refer only to connectivity (even if this is the key element), but also to the capacity of the population and the business environment to use efficiently these technologies and to the way the Government encourages the use of digital technologies.

In order to reduce the gap between Romania and the EU average, it is necessary to invest in broadband infrastructure and content development.

Regional disparities

In the last years, Romania has faced the problem of growing inter-regional and intra-regional gaps. The most significant disparity is between Bucharest-Ilfov and the other regions. In Romania, at the end of 2004 there were 9,281 IT companies, compared to 8,438 in 2003 and 3,639 in 1999; 70 to 75% of the total turnover was concentrated in Bucharest.

As a result of the low socio-economic integration and weakness of ICT infrastructure, the existing opportunities in the Bucharest region were not extended to the adjacent areas. The same applies with respect to the urban and rural areas.

In Romania, the incidence of ICT has not been evenly spread across the country, leading to significant digital gaps between urban and rural areas. The ICT network rollout is particularly difficult because Romania is a large country with great geographical diversity and many small, unevenly distributed rural communities.

Presently, rural areas are confronted with a handicap from the point of view of copper infrastructure, coaxial cable and optic fibre compared to urban areas, so that (potential) suppliers of broadband services have not practically a platform from which investments can be initiated for the development of offers in rural areas.

Therefore, in the market failure areas - under-served rural and small urban communities (with extremely low broad band network coverage or with no coverage at all) the development of broadband communications can support economic and social integration by facilitating the access to new and better goods and services, as well as opportunities to participate in digital economy or information society.

It is recognized that ICT play a significant role in increasing the economic competitiveness and facilitate the development of a strong knowledge based economy. Also, there is a need to increase the ICT uptake at business and public administration level, and to put in place the broadband infrastructure necessary to enable the Romanian companies to compete with modern technology based economies.

- Romania lags behind in terms of computer penetration and electronic communications infrastructure access, not only compared to EU 25, but also to the new Member States average.
- Many of the underdeveloped areas do not have the basic infrastructure to ensure Internet access and, in some cases, they do not even have access to fixed telephony.
- The size of digital divide at the end of 2006, indicates a ratio regarding the coverage of broadband services of 2.5:1 for the urban/suburban comparison and of about 6:1 for the urban/rural comparison
- E-government has attracted individuals and enterprises by providing access for interaction with public authorities. However, the level of using e-government applications is still very low.
- The internet penetration rate in the educational sector is three times lower than in EU25, as less than a third of schools are connected to the Internet
- The low ICT penetration in the health system is mainly due to insufficient budgetary funding. In 2004 only 43% of hospitals and 33% of clinics had Internet access.
- The percentage of enterprises that have Internet access in 2004 is half of EU 25 average, the percentage of those having a web page is even lower, only a third of EU 25 average.

1.3.6. Energy sector overview and energy efficiency

Following the guidelines of the EU energy policy, this section will analyse the three main strategic pillars on which the energy sector should be based: security of supply, competitiveness and protection of the environment. Energy security is vital in the current global setting, as it provides the necessary stability for economic development. The efficient use of energy resources is directly linked with the overall competitiveness of the economy, the promotion of the environmental sustainability and the achievement of climate change objectives. Last but not least, sustainable development depends directly on the evolution of the energy sector, as negative externalities from energy production can be considerable.

Energy production and consumption

In 2004, the electricity production to meet domestic demand was 55.3 TWh[16], while the total electricity production was 56.48 TWh. 60.9% of electricity was produced from fossil fuels (coal, oil and gas) at high production costs. An amount of 29% of the national electricity production was produced in the hydro power plants, while electricity produced in Unit 1 of the Cernavoda nuclear plant accounts for 9.8% (Annex 4, Table 8).

The gross consumption of natural gas was 17.604 million cubic meters in 2005, with a national gas production of 12.458 million cubic meters (2005) and imports of 5.146 million cubic meters in 2005 (28.5% of the internal demand).

In 2005, the primary energy import was 2% higher than in 2004, and it represented 35% of the total energy resources[17]. Taking into account the dependency of imported primary energy resources that will reach around 50% of total primary energy consumption by 2015, according to estimations, and the expected yearly increase in energy consumption of about 3%, the following lines of action are essential: a better capitalization of renewable energy resources and an improved energy efficiency.

Most of the energy production capacities in Romania are outdated - they have run for over 30 years. Only 10% of the installed capacity in thermo-power plants has been upgraded/refurbished in the last years.

Energy efficiency

An efficient, flexible, safe and clean energy infrastructure is a necessary precondition for economic development as it boosts productivity, and thus competitiveness. Reduction of primary energy intensity means more efficient energy production, transport and distribution, technologies and equipments at the end-user. As a direct result, industrial consumers would benefit from both a better quality and security of supply as well as from a reduction of energy bills through energy savings, implicitly leading to increased productivity.

Romania has low energy efficiency in comparison with EU countries. This is both the result of a low efficiency during transformation, transport, distribution and use of energy carriers and especially of the national economy structure where the share of energy intensive industries remains high.

During 1999-2004, energy efficiency increased by about 1% per year due to the closing of inefficient enterprises, the emergence of new companies which use energy efficient technologies and the education activities of the consumers to this purpose.

In 2004 the energy intensity[18] of the Romanian economy was 1226.95 kgoe[19]/1000 Euro 1995 at constant prices compared to EU 25 average energy intensity (204.89 kgoe/1000 Euro, 1995), and the same indicator for EU15 was 187.48 kgoe/1000 Euro, 1995[20] (Graph 1, Annex 4).

[16] National Institute for Statistics data
[17] National Institute for Statistics data
[18] Gross inland consumption of energy divided by GDP

The relatively low performance of energy production capacities leads to a lower energy efficiency in Romania, compared to EU member states. In 2004, the primary energy intensity in Romania was 0.511 toe/10^3 Euro 2005 and the final energy intensity was 0.358 toe/10^3 Euro, 2005 (the latter was 3 times higher in Romania compared to the EU 25 average which was 0.109 toe/10^3 Euro 2005) (Annex 4, Table 2).

Most thermal power units (approximately 82%) were installed between 1970 and 1980 and have been in use for more than 20 years (see Annex 4, Graph 1). Most of these units exceeded their rated operating life, have low technological performances and a negative impact on environment. The same situation is valid for hydro power plants, out of which 37% have exceeded rated lifetime. This will be addressed by national funding.

The installations belonging to National Electricity Transmission Grid have a high degree of wear and tear and still register an important level of losses (see Annex 4, Table 5). The growing trend of the electricity consumption (about 3%/year) will justify the future replacement of an important number of 220 kV lines with 400 kV lines and the investment in refurbishment/upgrading of 400kV stations will become a priority. The under-developed areas of National Electricity Transmission Grid are mainly the remote areas (north-west, east) where the present density of the Grid is average.

The Electricity Transmission Grid has a technological level of the '60s and '70s and its equipment has exceeded the rated lifetime; wear and tear is 50% for electricity lines and 60% for electric stations. In this context an important number of installations of the National Grid must be upgraded or refurbished in the next 20 years.

Distribution grids, especially the medium and low voltage ones, also have a relative high degree of wear. In 2004, the average technological consumption (including commercial losses) in distribution grids was of 12.6%, compared to the EU average of 7.3% (Annex 4, Table 1). This important difference suggests a market failure, which may be addressed by public policy.

The areas with the highest electricity consumption load on the distribution grids are Oltenia, Muntenia Nord, Muntenia Sud, Transilvania Sud, Bucharest, some towns in Moldavia (Botosani, Iasi, Vaslui), Constanta, Calarasi, Danube Delta and they are also the ones with the highest supply interruption risk.

The expansion of the gas transport grid and of the number of the measurement-adjustment stations (SRM) was relatively slow and 27% of the measurement and adjustment stations are older than 25 years. Approx. 69% of gas transport pipes and 40% of the distribution grids have exceeded the rated lifetime.

The national pipeline system for oil transport has a capacity of about 24 mil. tones/year. However, market opportunities have yet to be exploited as the oil transport infrastructure was used in 2005 only at 54% of its potential, also due to the need for further rehabilitation and modernisation. Attention should be given also to the expansion and upgrading of gas transport and distribution and oil transport grids.

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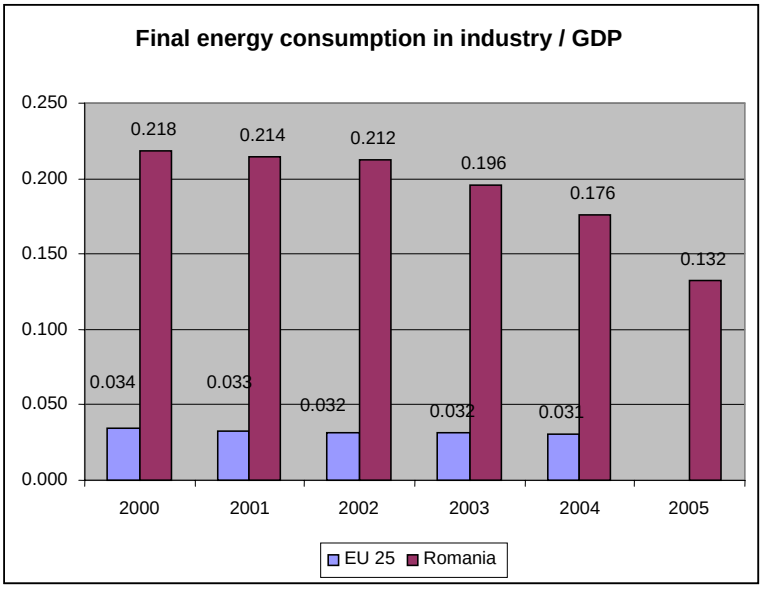
[19] Kilogrammes of oil equivalent
[20] Eurostat data

In absolute terms, over the period 2000-2005, the final energy consumption in industry has increased in Romania reaching a level of 10.505 mil. toe at the end of the period. However, in relative terms, if compared to GDP at market prices, the intensity of final energy consumption in industry has followed a downward trend. As a result (see figure below), the convergence towards EU 25 levels has accelerated, although the gap still remains considerable. The decrease of final energy consumption in industry relative to GDP was largely the result of a shift towards less-energy intensive manufacturing industries.

The evolution of the final energy intensity in industry in the last few years is less favourable than the evolution of the final energy intensity at national level.

Although the above dynamics confirm the decoupling of final energy consumption from GDP growth, public intervention is still required in order to further stimulate industrial energy efficiency.



Source: Eurostat
Final energy consumption – industry (ktoe); GDP (mio EUR at current prices)

Moreover, the highest consumption of electricity belongs to the industry sector (70% of the overall electricity consumption, according to the National Institute of Statistics).

The structure of final energy consumption in industry includes important sectors like construction materials, chemical products, food industry, metallurgy, cellulose and paper products, textiles, furniture (Annex 4, Table 3).

From the point of view of the ratio final energy consumption/gross value added, the industries that rank first, second and third are: metallurgy, chemical industry and the industry of products of non-metallic materials.

The potential savings from increasing energy efficiency in industry are about 1590 ktoe/year or 13% (estimated as percentage out of the total consumption). Thus, the estimations show a decrease in final demand of energy for the main industrial sectors in the next period (Annex 4, Table 4).

As a result of different programmes[21] financed from national or Community sources (under PHARE programme), the following reductions of specific energy consumption were registered in 2006 compared to 2002: ceramics - about 18%, wood industry-about 15%, pulp and paper industry - about 7%, glass industry - about 5%, lime industry - about 5%, cement industry - about 3%[22].

Investments needed for improving energy efficiency over the entire chain production - transmission – distribution - end use of electricity and thermal power are estimated at 2.7 billion Euro 2000 prices over 2004-2015 period. Investing in energy efficiency projects in line with the National Strategy for Energy Efficiency - will lead to savings in financial resources for primary energy resources. Thus, the estimations for 2004-2015 indicate a decrease by 3.4 billion euro 2000 prices of the financial effort to acquire primary energy resources, if the consumption of primary energy sources decreases by 25.4 million toe. Investing 1 Euro in energy efficiency projects can lead to national savings of 1.26 Euro for primary energy resources acquisition. This may have as a result the reduction of production costs and the increase of products and services competitiveness.

The improvement of energy efficiency is a priority of the national energy policy as a counterbalance to the trend of increase of primary energy consumption and of final energy consumption in the Romanian economy.

Environmental impact of the energy system

Energy and environmental problems are closely related, since it is nearly impossible to produce, transport, or consume energy without significant environmental impact. The environmental problems directly related to energy production and consumption includes air pollution, climate change, water pollution, thermal pollution, and solid waste disposal. The emission of air pollutants from fossil fuel combustion is the major cause of urban air pollution. Burning fossil fuels is also the main contributor to the emission of greenhouse gases.

The negative impact of the Romanian energy sector on environment is currently a source of concern. If the commitments undertaken during the accession negotiations are not fulfilled, and the energy production capacities will not be modernized /refurbished with less polluting equipment, a number of large combustion plants will have to be closed, which will compromise the safe operation of the National Energy System. According to a 2004 study of ICIM Bucharest[23], from the 72 large combustion plants (LCP) coordinated by central/local authorities, none complies with the provisions of the EC Directive 2001/80.

Large combustion plants release in the atmosphere a significant quantity of pollutants emissions (about 88% of all NOx and CO_2 emissions, over 90% of all SO_2 emissions and about 72% of dust emissions are generated from the coal based electricity production capacities (Annex 4, Table 6). The programs for environmental protection in the energy sector are extremely expensive. Targeted investments consist of flue gas desulphurization (DeSOx) installations, burners for reduction of nitrogen oxides from flue gases (DeNOx) and filters for dust retention.

[21] Mentioned in Government Decision no. 163/2004 approving national strategy on energy efficiency
[22] Source: MEF
[23] National Institute of Research and Development in Environment Protection

In 2005 (medium level hydrological year), the power plants under the coordination of central public authorities have produced around 64% of total installed power and ensured around 45% of electricity production respective to the total of the national energy system. These 72 LCPs under central public authority ensured, in 2003 (droughty year with a low level of hydro energy generation), 86% and in 2005 (medium level hydrological year) about 45% of the national electricity production operating based on the load curve during the whole year. In 2005 the energy production was twice higher than in 2003. The coal fired burners are using Romanian raw materials.

Until 2010, about 2,100 MW of low performance/obsolete energy units will be closed down in Romania, about 1,100 MW will be installed in new energy units and about 950 MW will be rehabilitated (according to National Energy Policy – Draft document).

Most of those LCPs are either located in mono industrial areas and thus with high unemployment risks, or providing energy for a large number of the population in important cities. Lack of financing for those LCPs would lead to closing them down with direct negative impact on the security of energy supply, employment, the business environment and also on energy market.

In this context, public intervention may offer proper incentives for producers to make additional investments to comply with energy efficiency and environmental standards in due time and to be prepared to participate on a competitive regional market and to use Romania's key geographic location for the transit of energy resources (natural gas and oil).

Renewable energy sources (RES)

The share of electricity produced from renewable energy sources in the total electricity consumption was about 29%, mostly produced in large hydro power plants (in 2004). In Romania, the valorisation of renewable sources (except hydro resources used in large hydro power plants) is low due to high investment costs. Combined with the improvement of energy efficiency and the rational use of energy, RES can replace fossil fuels.

Use of RES could lead to a decreased financial effort to acquire primary energy resources (coal, gas, oil) and environment benefits (green energy). Despite the diversity of RES available, resources other than hydro used in large capacity power plants have been exploited only to a small extent until now (not even the small hydro). It is necessary to increase the valorisation of as many types of available RES as possible. Furthermore, RES can help improve the competitiveness of industries and have a positive impact on regional development and employment.

Romania has five main types of renewable energy resources: wind, hydro, solar, biomass, geo-thermal. A recent study[24] explores the market potential for each of the above renewable energy resources, as follows:

- Biomass reserves are based on wood, wastes and agricultural crops. Biomass production is not only a renewable energy resource, but also a significant opportunity for sustainable rural

[24] ICEMENERG, 2006;

development. The power potential of biomass is approx. 7,594 tho. toe/year, out of which 15.5% is waste wood, 63.2% agricultural waste, 7.2% household waste and 7.7% biogas. Wood based biomass, as a energy resource, is available especially in the North-East (over 35% of total), Centre and North-West development regions. In the case of agricultural biomass, the richest regions are South-East, South and North-East.

- The wind technically exploitable power potential is estimated at about 8 TWh/year. The main areas suitable for windmills in Romania are:
    - mountain peaks,
    - Black Sea coast, Danube Delta, the Northern part of Dobrogea area,
    - Barlad plateau, East of Baragan plains, the Western border and hills.

- The hydro technically exploitable power potential is of 36 TWh/year (2/3 given by inner rivers and 1/3 by the Danube). The economically exploitable hydro energy potential is estimated at about 23-25 TWh, with an installed capacity of 8,000 MW. In 2005 approximately 70% of the economic potential was capitalized and hydro capacities comprising 600 MW installed capacity are being built, with a production potential of 1,870 GWh/year.

- The microhydro technically exploitable power potential is around 3.6 TWh/year, whereas the economic one may reach up to 1.2 TWh/year. In terms of territorial distribution, the Olt, Mures and Tisa-Somes rivers are considered to best fit the microhydro power application.

- The most relevant areas of implementing solar power applications are Dobrogea area, the Black Sea coast and the Danube Delta, areas where the solar power yearly average flow is above 1200-1250 kWh/m^2. In addition, also efficient for solar power exploitation are the Romanian Plain, the West Plain, the Banat region and a part of Transylvanian and Moldavian hill areas, with a solar power yearly average flow of over 1000-1250kWh/m^2. The energy potential of solar-thermal systems is estimated at about 1,434 thousand toe/year and that of the photovoltaic systems is about 1,200 GWh/year.

- Geothermal energy may be exploited especially in the Western Plains and the Eastern Carpathians. Romania benefits from an energy economic potential of approx. 167 thousand toe/year in geothermal resources of low and medium enthalpy, out of which 30 thousand toe/year are already exploited.

Source: MEF

Legend:

I. Danube Delta (solar power);
II. Dobrogea (solar and wind power);
III. Moldova (field and plateau: microhydro, wind power, biomass);
IV. Carpathian Mountains(IV1 – Eastern Carpathians; IV2 - Southern Carpathians; IV3 - Western Carpathians, high biomass potential, microhydro);
V. Transylvanian Plateau (high microhydro potential);
VI. Western Plains (high geothermal potential);
VII. Subcarpathians (VII1 – Getian Subcarpathians; VII2 – Curvature Subcarpathians; VII3 – Moldavian Subcarpathians: high biomass potential, microhydro);
VIII. Southern Plains (biomass, geothermal energy, solar power).

Romania has also a high untapped potential of biofuels, as current production is underdeveloped, mainly due to the current lack of processing plants. Moreover, the Government has assumed through GD 1844/2005, in accordance with Directive No 2003/30/EC, a target of 5.75% as the minimum share of biofuels to be marketed before 31 December 2010. As a result, public intervention is required in order to adequately stimulate the compliance with the adopted policy.

For the promotion of the production of electricity from Renewable Energy Sources, a system of Green Certificates is in place, including a purchase obligation for distribution companies and the obligation to fulfil an annual quota of purchased green electricity: at the end of each year, distribution companies have to deliver a certain amount of "Green Certificates" corresponding with the annual quota. Since October 2005, the certificates are being traded at the newly created electricity market administrator OPCOM. According to the Energy Law, all producers of electricity have equal access to the network. The tariffs are regularly adapted to the actual production costs by the Romanian Regulatory Authority, ANRE.

For the period 2005-2012, the annual maximum and minimum value for Green Certificates trading is 24 Euro/certificate, respective 42 Euro/certificate (Annex 4, Graph 2).

Gas and electricity interconnections

Admission in 2003 of the National Company of Electricity Transmission "Transelectrica" S.A, state owned company, as a full rights member in the Union for the Coordination of Transmission of Electricity (UCTE) and in 2004 in the Association of the Transport and System Operators (ETSO) contributed to its technical integration in European organisations, thus making possible the transmission through/to Romania of important electricity flows to/from Western and Central Europe. The map "Interconnected network of UCTE" in the electricity field and the map "Existing and future import directions" in the gas field are presented in Annexes 11 and 12.

Taking into account the existing international electricity transport capacities of National Energy System and the strategic favourable geographical position, Romania's target is a proper interconnected functioning within the UCTE, thus meeting the co-operation requirements regarding electricity exchanges.

The South Eastern European electricity market should have an appropriate transport interconnections infrastructure. The need for electricity exchange under secure conditions and increased transaction opportunities for all energy market participants can be achieved through the ongoing project of the 400 kV line (double circuits) between Nadab (Ro) – Bekecscaba (Hu) – Arad (Ro) and through future similar projects for high voltage electricity lines with Serbia and Republic of Moldova. The passing to 400 kV voltage level of the former 750 kV functioning of the Isaccea-Varna electricity transport line is also prepared to be commissioned, after the finalization of works on the Bulgarian side.

In order to increase the security of gas supply and to ensure the balanced functioning of the National Gas Transport System, it is necessary to diversify the gas import sources and to develop new interconnections with the similar transport systems of neighbouring countries (Hungary, Bulgaria, Ukraine, Republic of Moldova).

The Nabucco pipeline project could also be mentioned, with a view to improving the gas transport from the Caspian region and the Middle East to the European market, although it will not be supported under this operational programme.

- Romania has low energy efficiency in comparison with EU countries. This is both the result of a low efficiency during transformation, transport, distribution and use of energy carriers and especially of the national economy structure where the share of energy intensive industries remains high.
- Large combustion plants (LCP), with a key role in the safe operation of the National Energy System, release in the atmosphere a significant quantity of pollutants emissions. Most of those LCPs face the risk of being closed because of not fulfilling existing EU environment rules.
- Romania has five main types of renewable energy resources: wind, hydro, solar, biomass, geo-thermal, with considerable documented potential.
- The interconnection potential of the country, both for electricity and gas, should be further expanded given the need of consolidating the regional markets and improving security of supply, in line with EU energy policy.

1.4. Previous Experience in Programmes and Pre-accession instruments

Ministry of Economy and Trade (MET)

From the pre-accession financing instruments supporting Romania since 1998, Phare programmes are the most relevant ones in relation to SOP IEC. The Ministry of Economy and Trade (currently a department in the MEF), was appointed as Implementing Authority and coordinated the Phare funds dedicated to the specific fields of the ministry's activity such as energy, quality infrastructure, industrial policy, nuclear safety etc.

Based on the experience achieved in managing the pre-accession funds and the high level of absorption rate of the allocated funds, the Managing Authority for SOP IEC was established on the PIU structure.

Since 1998, PIU prepared and directly coordinated the implementation of more than 50 projects of different types (services, supply, works, twinning and grant schemes) with a total Phare financial allocation exceeding 92 MEuro. The energy sector benefited of considerable support through the Phare programmes amounting to over 80 MEuro, implemented in the following areas of activities: creating free market mechanisms in energy, restructuring and privatisation of the electricity and gas distribution companies, creation of operational power and gas markets, increase energy efficiency, promotion of renewable energy sources.

Also under Phare 1999, 2000, 2003, the PIU managed projects dedicated to quality infrastructure institutions for strengthening the institutional capacity and improvement of their role on the market, as well as supply with technical equipment. A grant scheme for certification of laboratories (1.5 MEuro) was also implemented.

The activities performed by PIU involved all the phases of the project cycle: identification of the projects, elaboration of the projects fiches, elaboration of the Terms of References/Tender Dossier/Applicant guides, contracting the projects (participating as members in the Evaluation Committee) implementation of the project activities and permanently monitoring and reporting the implementation status.

MET also managed, through the General Directorate for Industrial Policy, the national funds for "Increasing the Economic Competitiveness of Industrial Products", targeted to prepare Romanian companies for European market competition. This multi-annual programme started in 2003 within the limits established by the "de minimis" rule. The programme supports: the implementation and certification of quality/ environment/ health and safety /social responsibility and food hygiene/ information safety management systems, as well as other activities related to certification and/or obtaining of ecological label; benchmarking analyses for activities in the manufacturing industry; assimilation of new technologies and products; registering and protection on the external markets of marks, designs of industrial models, exhibitions or/and showrooms to promote industrial products. The programme has a real success among companies and it has improved the skills in managing public funds. The total amount of the public funds granted during 2003-2006 was about 23 MEuro for a number of 1263 projects (from a total of 2323) of companies from the manufacturing industry.

Another programme managed by the General Directorate for Industrial Policy with national funds was the Sectoral Plan for R&D in industry. The total amount of the public funds allocated during 2005-2006 was about 10 MEuro and the projects were granted to R&D institutes, universities and companies, based on competition.

MET managed, through the General Department for Energy Policy and the Romanian Agency for Energy Conservation, programmes for energy efficiency and for valorisation of renewable energy resources financed from national and international funds, as follows:

- The energy efficiency programme QIII: 14 projects for investment in energy efficiency (in district heating systems, industry, public lighting, and health) co-financed by Global Environment Fund which managed the funds allocated for Romania by IBRD (6.91 MEuro).
- *SAWDUST 2000* financed jointly by Denmark within the cooperation and common application of Framework Convention regarding prevention of climate changes and by Phare Programme 2001-Regional Development, Special Fund for Energy Development of MET. The total value was of about 14 MEuro.
- The National Programme for reducing the energy costs for population, by increasing the energy efficiency and use of renewable energy in 2006 was approved by GD 320/2006. The programme stimulates investments by co-financing maximum 30% of the projects 'related to urban systems' heating rehabilitation; the contribution of the state budget is 250 million RON/year. The programme is implemented by the Romanian Agency for Energy Conservation and promotes the use of renewable energy sources for producing thermal power for heating and hot water: biomass, solar energy, geothermal energy and also includes the high efficiency cogeneration in small and medium capacities.

Despite the low financial resources for implementing the above-mentioned projects, important gains were achieved, such as: improving skills for preparing viable projects; the increase of the beneficiaries availability to ask for loans for investments in these fields; the possibility of co-financing through financial instruments. At the same time, by implementing these projects, an important potential for energy saving was identified.

National Authority for Scientific Research (NASR)

The Ministry of Education and Research (currently Ministry of Education, Research and Youth - National Authority for Scientific Research (NASR) coordinates the national RDI programmes, the main instruments for implementing the RDI policies. The research budget administrated by MER-NASR was about 280 MEuro in 2006.

MER-NASR also supports the participation of the Romanian scientific community to international research programmes, as: the EU research framework programmes (FPs), COST, EUREKA, the NATO scientific programme.

Romania has 325 participations to FP6, in 248 projects. The total financial contribution of the Community to these projects was 34 MEuro (January 2006). Within the FP6/INCO call for the development of research excellence centres in the candidate countries (Romania, Bulgaria, Turkey) Romania obtained financing for 8 projects, with a Community contribution of 6.5 mil euro. The R&D fields covered by these projects are: ICT, biotechnology, nanosciences, new production processes and biology. NASR participates directly in 9 European ERA-NET and Coordination-Actions projects implemented at national level.

In the period 2004-2006 NASR also implemented 2 Phare projects, one for nuclear safety, and the second for strengthening Romania's participation to FP6.

Ministry of Communications and Information Technology (MCIT)

The experience in managing e-learning, e-government, broadband programmes is best represented by the "*Knowledge based economy*" project, initiated by the Romanian Government, through the Ministry of Communications and Information Technology, with the support of the World Bank. The project is financed by a loan of 70 million USD, for a period of more than 5 years with the mission to facilitate the participation of the disadvantaged communities to the knowledge based economy and society.

The Project finances the setting up of an e-network (LCENs) comprising approximately 200 local communities through which they will have access to services and technologies, including computers, Internet and communication services and other specific services for local administration, citizens, businesses and pupils in rural and small urban communities.

Starting with 2001, Ministry of Communications and Information Technology was involved in managing a series of national ICT projects with big impact (the most important being in the field of e-government – National Electronic System and projects related to implementation of eEurope Action Plan). In the field of electronic communications, a pilot project for implementing the Power Line Communications Network was started in 2005.

Also MCIT has participated in several Community programmes as e-TEN, IDA, e-Content. MCIT cooperated with USAID who financed the project "Riti dot Gov" in improving ICT access and implementing an innovative pilot project throughout the country (tele-centers in rural areas, implementing a number of eGovernment initiatives in local governments across Romania).

In order to stimulate demand for ICT, awareness campaigns addressed to potential beneficiaries and ongoing support given to the project promoters in preparing and implementing the projects were done.

National Agency for SMEs and Cooperation (NASMEC)

During the period 2001-2006 NASMEC (currently a department in the Ministry for SMEs, Trade, Tourism and Liberal Professions) was responsible for managing Phare technical assistance and twinning projects of about 9 mil euro, out of which for the period 2004-2006 the contracted value was about 7 mil euro. The projects improved the administrative capacity of National Agency for SMEs and Cooperation (NASMEC) concerning: policy making capacity, design of SMEs grant programmes, project cycle management, the monitoring process and communication skills of NASMEC staff.

In terms of managing the national-funded programmes for SMEs, based on lessons learnt from Phare projects, NASMEC implemented several multi-annual programmes, during the period 2002-2006, as follows: SME's support for exports, SMEs start-ups, SMEs access to training and consulting services, development of the National Credit Guarantee Fund for SMEs, entrepreneurial culture for women and support for young entrepreneurs, SMEs' competitiveness through implementing and certifying quality systems, SMEs support through reinvested gross profit. The total budget for 2006 was 60 MEuro.

The institution is also involved in international co-operation programmes in SMEs development financed by UNDP, UNIDO, Government of Japan, UNCTAD, etc.

The experience gained by NASMEC in the implementation of national support programmes for SMEs helped in identifying the sector gaps and designing accordingly the financing schemes within the SOP IEC.

Lessons learnt from previous programmes and Pre-Accession Instruments

The management and implementation of programmes mentioned above contributed to building useful experience necessary for the future management of Structural Funds, notably in the preparation of project development, procurement procedures, and the monitoring skills developed on the basis of strict procedures application.

- **Administrative capacity** remains a key issue in project management, staff recruitment and remuneration, training, establishment of clear procedures being among the features that need important consideration for efficient and correct management of the funds. Also, at beneficiary level, administrative capacity is very important as well, in many cases beneficiaries facing the same problems related to the number and training of people. The beneficiaries learned to identify non-reimbursable financing sources being aware of the availability of important amounts, contributing thus to the overall social and economic development
- **Planning and programming**. The multi-annual planning exercise facilitated by Phare programmes increased skills of efficient planning and correlation of activities regarding preparation, launching, contracting and implementation, based on efficient planning of resources.
- **Project preparation** is also a pre-requisite for a smooth and fast implementation of the project. It became clear that preparation takes time (especially for infrastructure-related projects), the necessary studies must be well developed, otherwise major problems can appear in implementation phase.
- **Maturity of projects** and status of obtaining by the beneficiary of different agreements and permits for projects were other factors that cause delays in implementation. Land property should be clarified and beneficiary should present valid proofs of the land ownership.
- **Co-financing** is another key issue and all the arrangements must be made before project application is submitted for approval.
- The new **public procurement** legislation needs to have clear procedures in order to be applied correctly and efficiently. However, the length of these procedures could raise implementation problems.
- **Institutional system** and setting clear roles of responsible authorities in the management and implementation of the projects is the most important factor in project management. Delays in preparation and approval of tender dossiers, public procurement issues, delays in signing of works and services contracts have been considered at the setting up of the implementation system for Structural funds.
- The experience of **EDIS** preparation brought an important input for establishing a proper financial control mechanism and a sound management of Structural Funds. The preparation for EDIS gave to the institutions involved in Phare programme management,

a basis for evaluating the gaps, by indicated areas where improvements are needed, including the estimated resources to adequately perform their future tasks.

- Considering the low involvement of business environment, academic stakeholders, social partners in programming and implementation of Phare assistance and the need to **strengthen this partnership,** efforts are needed to build a strong partnership mechanism.

The experience gained during implementation of pre-accession programmes represented a solid base for building the new implementation system, establishing clear role and responsibilities of various actors, preparation of project portfolio.

Existing management capacities will be needed to a certain extent to wind-up ongoing pre-accession projects, while new implementation structures have to get acquainted to new procedures and have to respond to increased funding volumes, decentralisation requirements, new areas of intervention and new national legislation (public procurement, state aid, etc).

2. SWOT ANALYSIS

STRENGTHS	WEAKNESSES
• Macroeconomic stability and sustained GDP growth as a platform for increasing competitiveness • Increased contribution of the private sector in the total economy • Relatively low factor costs in production on a short term perspective • Skilled workforce in the IT and energy sectors • Tradition in R&D and energy sectors • Significant natural endowment with energy resources (traditional as well and renewable) of good quality • Complex energy infrastructure	• Competitiveness and technological gaps compared to EU due to low market integration and low productivity o Low productive investment rate o Low productivity in the manufacturing sector o Obsolescence of technological endowment, especially for large companies o Insufficient access of SMEs to adequate finance (undercapitalisation) o Low level of compliance with EU standards in enterprises o Low level of internationalisation of business activities (notably in the SMEs) o Lack of institutional capacity to scale economies through co-operation/networking/business agglomeration o Insufficient development of a dynamic entrepreneurial base o Lack of business support and guidance • Insufficient development of the knowledge economy o Low public and private R&D expenditure o Obsolete R&D infrastructure and lack of skilled researchers with managerial qualities o Poor level of cooperation/partnership between research centres, universities and companies o Low number of patents and therefore insufficient valorisation of domestic R&D o Still insufficient and underdeveloped structures of technology transfer o Insufficient hubs/poles of research excellence o Limited and decreasing direct involvement of industry in research activities o Insufficient computer penetration and communication infrastructure access o Considerable digital divide (especially urban-rural) o Insufficient use of public 'e-services' (e-government, e-health, e-learning) o Low level of sophistication regarding IT access and entrepreneurial application (e-business) • Major inefficiencies in the energy sector o Outdated and polluting energy production technologies o High energy intensity in production processes o High losses in electricity/thermal energy, oil and gas transport and distribution networks. o Low valorisation of available RES

OPPORTUNITIES	THREATS
• Relatively large domestic market, with high internal demand • Advanced restructuring and privatization processes of enterprises • Benefits of a new EU member state (increased trade due to removed customs duties alongside with new investment sources, including Structural Instruments) • Highly adaptive and dynamic services sector • Participation in European research programs and implementing the European Research Area • Increased access to the global market through ICT • Energy sector liberalisation • Considerable capacity to exploit renewable energy resources, with the support of a functional market of Green Certificates • Potential regional hub in gas and electricity transport	• Romania's prevailing identity as a low value-added economic system, scoring poorly in terms of competitiveness • Vulnerability of the macroeconomic outlook: o Possibility of being affected by a deindustrialisation process caused by income growth, based on foreign capital inflows and EU funds (Dutch Disease) o The risk of widening the current account gap o The rise of new inflationary pressures due to the increase in private and public expenditure • Worrying demographic trend and possible reduction of the human capital endowment through migration and mismatch between labour supply and demand (including further brain-drain) • Low survival rate for SMEs, as a result of improper planning. • Coupling back growth with energy consumption • Increasing pollution due to inefficient use of (natural) resources in industrial production • Risk of closing several large combustion plants because of non-compliance with environmental standards.

3. STRATEGY

The Sectoral Operational Programme - Increase of Economic Competitiveness (further referred to as SOP IEC) is the main instrument for achieving the second thematic priority of NSRF i.e. Increasing the long term competitiveness of the Romanian economy, derived from the similar priority of the NDP**.** It also contributes, although to different extents, to the implementation of all other thematic and territorial priorities of the NSRF.

The assessment of the current situation and the SWOT analysis reveals slow or unfavourable development of certain factors supporting competitiveness. Although Romania has registered substantial progresses in the last years, the competitiveness gaps, when compared with EU member states, are still very deep. The reasons for this lagging behind are connected with all the supporting factors of competitiveness. Synthetically, these are reflected by low productivity, which can be seen as the emblematic issue of the Romanian competitiveness. The level of GDP in PPP[25] stands at about 50% of new member states average.

Despite the progress in privatisation, in increasing the efficiency and the regulation of the financial sector, the access of companies to capital remains limited. In addition, the use of outdated physical capital, with high energy-intensity, is drastically influencing the productivity in most economic sectors.

Hence, improving competitiveness should not be seen as a process of taking advantage of short term opportunities (e.g. lower labour cost), but more as a process of building up an economic structure based on capital investments and on research, development and innovation. In other words, the prospect of convergence on medium and long term and the successful market integration of Romania imply a catching up in terms of knowledge-based economy.

The socio-economic analysis and the SWOT synopsis point to the individual disparities of different components of economic competitiveness to the needs arising from them, as a basis for the most appropriate mix of actions.

The SME sector is the most affected, given its relatively low orientation towards productive activities, poor access to capital, technology and infrastructure, the expected adaptability to market needs by innovation and the low level of managerial skills. The low level of sophistication and of the purchasing power of domestic market is not pushing the companies towards certification, affecting their ability to adapt to the standards imposed by market integration and global competition.

The research and technological transfer are under financed, insufficiently oriented towards demand, and lacking the proper infrastructure for enabling research results to be transformed in applied innovation.

The share of innovative companies is three to four times less than EU average, the main disparities here consisting in the low level of property rights implementation and in the absence of structures supporting innovative start-ups; additionally, initiatives from the past did not have the necessary continuity because of inefficient planning and management.

[25] Purchasing Power Parity

Romania also lacks business infrastructure able to compete in the national and international markets, especially in innovative and high tech sectors. It should therefore be promoted, by a comprehensive but targeted set of measures. In particular, attention should be paid to the business support structures, which are in many cases insufficient, due to a lack of logistics, equipment, utilities, and space needed to carry out economic activities. At the same time, some of them are not fully operational, and need to be further assisted in order to be able to improve the services rendered to enterprises. Moreover, support will also be given to the development and creation of new business support structures of national dimension, providing advanced equipment and utilities and business services. The aim of this is to attract innovative enterprises, operating in national and international markets, which will perform or benefit from research activities.

As regards industry and supporting services, the Romanian economy shows positive development trends, but still insufficient in terms of covering existing gaps. Many economic fields are based on natural resources (e.g. wood industry, construction materials), or historically resulted from the artificial state push for industrialisation (e.g. machinery, metallurgy, chemistry, oil industry). Both driving factors did not stimulate a strong cohesion and cooperation inside these industries, affecting the reliability of the production chain and the ability to create added value.

Moreover, there are certain factors that are not the subject of this strategy, but which have a large impact on competitiveness. Transport infrastructure and environment protection are in very poor conditions, as result of decades of under investments. Access to tertiary education and life long learning remain below the regional average, the situation being worse when it comes to rural population (also confronted with the lack of minimal urban-like facilities).

The SWOT analysis confirms the weaknesses identified by the current situation assessment, but also reveals some of the strengths and opportunities, which Romania can take in order to increase its competitiveness. For instance, the liberalisation of certain sectors, even beyond the EU level, as in energy or telecommunications would enable larger investments, stimulating also horizontal development.

The SWOT analysis also reveals other positive evolutions as the increasing foreign investments, macroeconomic stability and the expansion of ICT sector, suggesting opportunities in these directions for increasing the potential.

ICT importance to economic development and competitiveness is confirmed both by Romanian progress in information society and by recent researches on the economic impact of the spread of the information society on productivity growth through capital deepening and total factor productivity growth generated in the ICT sector and through ICT use. This progress is still far from being satisfactory, according to the Analysis and SWOT chapters. Particular emphasis on broadband is considered, since high-speed internet connections are seen as the enabling source of the benefits of convergence, a technology trend expected to drive productivity gains and output growth in economy.

Broadband is expected to contribute significantly to ICT gains because it is a basic infrastructure and enables the delivery of innovative services and applications. The use of advanced applications and services in turn brings about productivity gains both for businesses and public administrations. It also creates new markets and increases demand for new ICT goods and services impacting on economic growth.

It is generally agreed that market competition is the best mechanism to foster broadband growth but also that some kind of public intervention may be needed in areas where broadband supply is inadequate. Public intervention can take many forms, ranging from demand aggregation policies to direct financial support in those regions where market forces fail to operate or markets do not exist.

The economic and social sustainable development directly depends on the strategic energy sector that, as resulting from the Analysis chapter, has a low performance in the light of the obsolescence of the production and distribution infrastructures and consequently leads to low energy efficiency over the entire chain, from production till the end users. There is a close link between policy initiatives related to energy, competitiveness and the environment. The need for new investments in generation (mainly environment related) and transmission capacity as well as addressing shortcomings in the gas and electricity markets features high among the challenges. The emissions trading scheme to fight global warming is also being reviewed to make sure it does not put both Romanian and European industries at a disadvantage over international competitors.

The above-depicted context of competitive development, based on the current situation and SWOT analysis, represents the starting point of the programming exercise and of the elaboration of the SOP IEC strategy.

In this context, the main goal of the strategy is to increase the competitiveness position of the country as a whole in a context of overall macroeconomic stability, while accompanying at the same time the natural process of FDI growth.

Moreover, the strategy will have to realistically consider and address the fact that Romania has become a part of globalised production chains and, rather than sectoral expertise, is developing sub-sectoral specialisation only in certain productive phases and its products are hardly recognisable in international markets through a self-evident branding strategy. So, one of the final objectives of the strategy will be to gradually modify the position of Romanian production in the international division of productive activities by increasing the quota of internal quality processing.

To achieve this goal, the strategy will have to:

- develop an entrepreneurial and innovative business base, through investments in higher added value products
- facilitate SMEs access to finance through adequate financing instruments
- address the weaknesses of existing industrial sectors and their outdated and often poorly eco-friendly and excessively energy-intensive technologies;
- further diversify the productive basis of the country to avoid overdependence on low value added products;
- bridge the gap between R&D activities and their industrial application and promote research-led innovative sectors;
- foster the pervasive use of ICT technologies;
- increase the efficiency and sustainable development of the energy system as a factor of overall competitiveness, while addressing at the same time energy efficiency issues at the end users.

This will require an articulated and synergic set of actions in capital investment, research and innovation and services differently addressing both traditional (low and medium value added) and higher value added sectors.

This will imply a generalised improvement of production processes, including upgrading and broadening the Romanian traditional range of products (by bringing them more upmarket and including more value added) and actions to make them more recognisable in international markets, and a parallel effort towards sectoral diversification (better and new products).

In other words, it is essential to create the premises, through SOP IEC, for further actions oriented towards innovation. In particular, with regards to traditional sectors, the strategy will support a gradual transition from the present specialisation in low value-added productive phases and anonymous subcontracting activities towards more integrated control of production (intermediate and final) and final customer-oriented and upmarket productions (including related marketing strategies), so as to answer to the demand for new markets at both the national and international level.

Besides intrasectoral upgrading and product innovation in traditional sectors for the Romanian economy, whose contribution to turnover and employment remains presently substantial, it is also necessary to decrease the prolonged reliance on low production costs, which can become unsustainable in a globalised economic environment. At the same time it is of great importance to foster a major diversification of productive activities both by supporting investments in insufficiently explored manufacturing fields in Romania and sustaining new firms (start-ups and spin-offs) and to support the technological upgrade in manufacturing companies.

Further opportunities for major technological improvements and transition from mere low labour cost-related competitive advantages will be strictly linked to energy efficiency requirements, as lower energy-intensive processes will entail the adoption of advanced technologies and ultimately result in operational cost savings and an overall restructuring of firms.

Finally, the pervasive and horizontal introduction of ICT in the productive processes can represent, as well, not only a way to innovate the traditional means and techniques of producing and commercializing goods and services, but also of improving relations and networking among firms. The investments in ICT represent preconditions to stimulate the demand and, more generally, to create an attractive environment for businesses and citizens alike.

This strategy will focus on SMEs but will also address large enterprises. The innovative potential of SMEs in terms of new activities and adaptability to the market, together with the obstacles and constraints they have to cope with in a broader competition, makes them the major target of the programme. But investment in large enterprises will also be required to allow reaching a critical mass of capital investments to diversify and technologically upgrade the manufacturing industry and improve overall energy efficiency. The two targets are expected to act in synergy, as large enterprises are one of the main actors in formal and informal technology and quality transfer processes having a large potential fallout among the Romanian SMEs.

As highlighted in the Analysis chapter, the regional density of SMEs at national level, SMEs/1000 inhabitants, is four times lower than the EU average. Even more, the density index shows discrepancies between the 8 development regions that may be grouped on three disparities levels.

The same classification results from analysing regionally another important indicator, i.e. GDP/capita.

In order to take into account and subsequently address regional disparities, a counterbalance intervention will be used to link competitiveness to socio-economic cohesion, by introducing a three level scoring in the selection procedure (particularly for direct support for productive investments) that will favour the applicants coming from the more disadvantaged regions. Should, over the programming period, statistics indicate a change in regional data, the modification will be properly reflected in the selection procedure. This approach will be followed by the similar national funded operations of NASMEC, thus not offsetting the balancing objectives pursued under this operational programme.

Additionally, SOP IEC addresses the territorial dimension also through specific operations such as broadband connection of underserved areas which will impact on the reduction of urban-rural gap.

The strategy is consistent with the CSG where it is recognized that the Community's aims for growth and job creation will require a structural shift in the economy towards knowledge-based activities[26]. For Romania, considering its high gaps with regard to EU 25, the cohesion goals can be reached through a transitional phase which can gradually push Romania towards a knowledge based-economy in the medium and long term.

The entire territory of Romania is under the Convergence objective and in these circumstances direct grants to enterprises retain their importance in order to improve their capacity in R&D and innovation absorption - as the guidelines underline; this is also true in traditional sectors exposed to global competition, which need additional efforts in order to be competitive, as well as in SMEs. It is important, as well, to reduce intensive use of traditional energy sources and to foster sustainable development. In addition, financial instruments to improve access to finance of SMEs will be put in place, with close cooperation in the EIF under the JEREMIE initiative.

Within the programme, direct support is combined with significant actions reinforcing business infrastructure and support services and actions in both the supply and the demand side to foster entrepreneurship and R&D activities and promote the information society for all. Infrastructural endowments in remote areas (for ICT) and interconnections (for energy) to make Romania a more attractive place to invest and work have also an important role[27]. The strategy is also consistent with the objective of attracting and retaining more people in employment since it avoids that a sharp shift in the economic structure could turn out a consistent share of labour force from production processes[28] (more detailed references in the table on consistency with the CSG and NSRF).

[26] Council Decision on Community Strategic Guidelines on Cohesion, no 11807/06, Brussels, 18 August 2006. Guideline: Improving knowledge and innovation for growth.
[27] Guideline: Making Europe and its regions more attractive places in which to invest and work.
[28] Guideline: More and better jobs.

3.1. Objectives

General objective

The present situation analysis as well as the conclusions of the SWOT analysis showed that Romania's economy competitiveness is much lower than the EU-25 average. Romania has to recover the significant disparities with regard to the knowledge-based society.

Productivity is a major component of competitiveness and determines both the level of an economy's well being at a certain moment, and its growth potential in the future.

Thus, the general objective of SOP is the increase of Romanian companies' productivity, in compliance with the principles of sustainable development, and reducing the disparities compared to the average productivity of EU**.** The target is an average annual growth of GDP per employed person by about 5.5%. This will allow Romania to reach approx. 55% of the EU average productivity by 2015 (see Annex 5 for the methodology used).

Specific objectives

a) Consolidation and environment-friendly development of the Romanian productive sector

The key point of this specific objective is the support to the upgrading and innovation of existing enterprises leading to cost reduction and subsequent productivity gains, and the creation of new ones, especially SMEs in the manufacturing and business services sectors. The valorisation and the qualification of the productive equipment, based on its enlargement and upgrading, the innovation of productive processes and the support for the adoption of international standards, foster the increase of the products range. Improvement of specialized advisory offer and the support to internationalisation give a contribution to the process of increasing the market share.

b) Establishment of a favourable environment for sustainable enterprises' development

The key point of this specific objective is to provide a favourable framework for entrepreneurship by reducing the existing constraints in the areas of market failure - access to finance, innovative financial instruments, availability of qualified services, cooperation among firms – for the creation of new enterprises and for the development of the existing ones.
The fulfilment of the two above objectives may be quantified by the increase of SME's share within GDP by 10% in 2015.

c) Increase of the R&D capacity, stimulation of the cooperation between RDI institutions and enterprises, and increase of enterprises' access to RDI

The aim of this specific objective is to improve the overall performance with regard to RDI along with the productivity of enterprises through increasing the rate of innovation and the economic benefits from the exploitation of knowledge. The key points of this objective are the funding of R&D projects that will generate results directly applicable in the economy, the upgrading and development of RDI capacity and infrastructure, the improvement of the quality and range of the supply of innovative services, the stimulation of the potential demand of innovation coming from enterprises. The achievement of this objective will contribute to Romania's aim to increase the gross domestic R&D expenditures (GERD) to 2% of GDP by 2015.

d) Valorisation of the ICT potential and its application in the public (administration) and private sector (enterprises, citizens)

The key points are the improvement of infrastructure endowment in market failure areas (underserved rural and small urban areas), development and increase of the efficiency of public electronic services (e-government, e-education and e-health) and increase the ICT uptake by SMEs and development of a dynamic E-Business environment with rapid impact on the cost structure of economic operators.

The Commission communication „Bridging the Broadband Gap" rightly considers that wide broadband coverage in Europe is crucial for fostering growth and jobs. Therefore the target is the increase of broadband penetration rate in Romania (number of broadband connections/100 inhabitants) from 5% in 2005 up to 40% in 2015[29], ensuring the uptake of ICT in the productive system, in the administrative processes, in day-to-day life, and development of a new and better generation of products and services, able to compete on a globalised market.

e) Increasing energy efficiency and security of supply, in the context of combating climate change

The key points are to contribute to reducing the energy intensity through the implementation of new technologies in order to increase productivity, especially to industrial end-users and to increase the use of renewable energy sources. An important support will be given to implementing new technologies in order to reduce emissions of energy plants (essential to the National Energy System), and to diversification of interconnection networks in view of strengthening security of energy supply, which lies at the basis of any sound economic system.

The envisaged objective is to contribute to the following national targets: the reduction of the primary energy intensity by 40% compared to 2001, the 33% share of electricity produced from renewable energy resources in the gross national electricity consumption by 2010 and the reduction of emissions in the energy sector according to the National Programme for the reduction of sulphur dioxide (SO2), Nitrogen Oxide (NOx) and dust emissions from large combustion plants.

[29] This target is correlated with the draft National Broadband Strategy which provides as target for broadband penetration rate the level of 20-25% at the end of 2009

3.2. List of Priority Axes

Taking into account both the identified possibilities for improvement of the competitive position of Romanian enterprises to cope with the challenges and to be able to use the opportunities arising from operating on the European Single Market and the areas eligible for the ERDF support, the following Priority Axes have been identified in the SOP IEC:

Priority Axis 1: An innovative and eco-efficient productive system

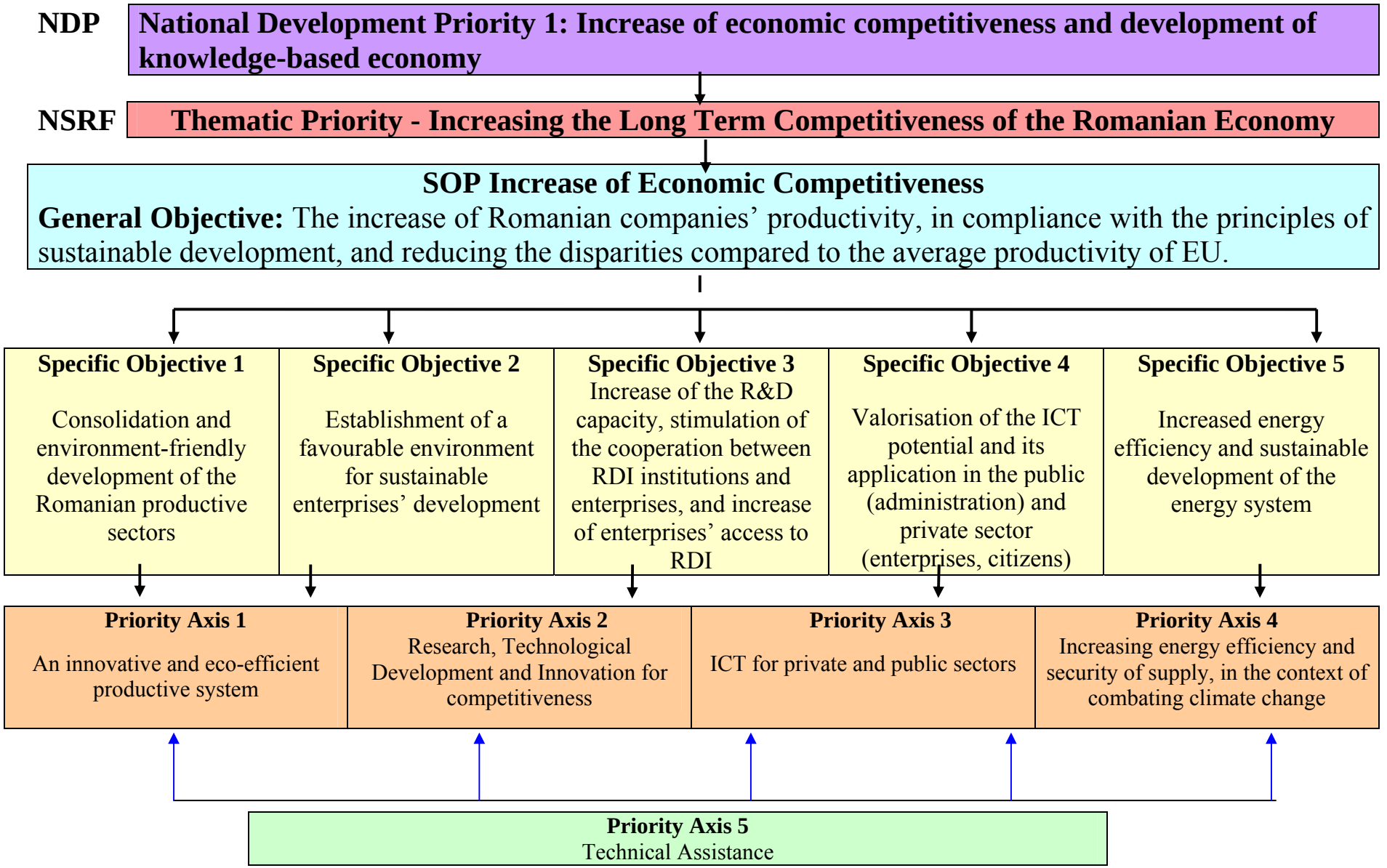
Priority Axis 2: Research, Technological Development and Innovation for competitiveness

Priority Axis 3: ICT for private and public sectors

Priority Axis 4: Increasing energy efficiency and security of supply, in the context of combating climate change

Priority Axis 5: Technical Assistance

The priority axes of Romania's competitiveness strategy are in full concordance with the lines of action of the Commission's proposal regarding the framework for Competitiveness and Innovation 2007-2013, and take into account the guidelines put forward by the European Commission for the cohesion policy for 2007-2013 as shown in the table under section 3.3.1.


NDP
National Development Priority 1: Increase of economic competitiveness and development of knowledge-based economy
NSRF
Thematic Priority - Increasing the Long Term Competitiveness of the Romanian Economy
SOP Increase of Economic Competitiveness
General Objective: The increase of Romanian companies' productivity, in compliance with the principles of sustainable development, and reducing the disparities compared to the average productivity of EU.
Specific Objective 1
Consolidation and environment-friendly development of the Romanian productive sectors
Specific Objective 2
Establishment of a favourable environment for sustainable enterprises' development
Specific Objective 3
Increase of the R&D capacity, stimulation of the cooperation between RDI institutions and enterprises, and increase of enterprises' access to RDI
Specific Objective 4
Valorisation of the ICT potential and its application in the public (administration) and private sector (enterprises, citizens)
Specific Objective 5
Increased energy efficiency and sustainable development of the energy system
Priority Axis 1
An innovative and eco-efficient productive system
Priority Axis 2
Research, Technological Development and Innovation for competitiveness
Priority Axis 3
ICT for private and public sectors
Priority Axis 4
Increasing energy efficiency and security of supply, in the context of combating climate change
Priority Axis 5
Technical Assistance

3.2.1. Priority Axis 1: An innovative and eco-efficient productive system

Objectives

- Consolidation and sustainable growth of the Romanian productive sector
- Establishment of a favourable environment for enterprises' development

Rationale

Increasing productive investments and improving enterprises access to market according to the principles of sustainable development are the key conditions of the competitive functioning of Romanian economy in the European Union.

The second economic accession criterion established in Copenhagen in 1993 highlights the imperative necessity that Romanian enterprises must be prepared to face the competition pressures within the Internal Market. The Internal Market competition may be beneficial to local enterprises only if they will manage to profit from the advantages created by the free movement of goods, services, people and capital.

Despite certain progresses in the SMEs sector, which Romania registered in implementing the European Charter for Small Enterprises, difficulties are still encountered, due to limited financial resources, significant technological gap and the lack of know-how in business development, that hinder the capacity of SMEs to rapidly adapt to the Internal Market requirements.

As the transition towards an open market needs an adaptation effort for all Romanian firms, support for SMEs access to the market by productive investments, proper financing instruments and qualified services as a *sine qua non* condition for the competitive success of SMEs is essential. Large enterprises, which will face the same competitive pressure, will be also supported in their technological investments

The present strategy aims at joining the efforts to transpose the EU policies into Romanian SMEs policy that means to foster the competitiveness and entrepreneurship capacities of enterprises, especially SMEs and the increase of their contribution to economic growth. According to the recent EC recommendations provided in "Implementing the Community Lisbon Programme - Modern SME Policy for Growth and Employment" (COM (2005)551) the support will be oriented to the SMEs growth potential from innovative start-ups to dynamic SMEs, which must not be blocked on local market and have real possibilities to integrate on the market segments offered by an ever-changing global economy.

This priority axis of SOP IEC refers to the efforts of supporting enterprises, especially SMEs, and will concentrate both on improving the market conditions linked to the development of the industrial base, in order to revive the business environment and generate new innovative enterprises, as well as on developing of the business sector, improving the access to capital and fostering technological development.

In order to meet market requirements and opportunities in terms of quality and range of products and services, within this priority axis support will be granted to tangible and intangible competitiveness factors including technological innovation.

Direct intervention through grants for investments in SMEs will be promoted, as well as, access to loans and innovative financial instruments. At the same time, actions to facilitate the access of enterprises to specialised services, know-how and management skills will be put in place, along with actions supporting the availability of appropriate business infrastructures.

In the above presented context, the target beneficiaries are both existing enterprises that need to modernize and develop their products and technological processes and new enterprises, especially from processing industry and specialized services that need qualified and integrated assistance by a proper development of business environment.

Considering the significance of large enterprises in Romania in terms of both, turnover and employment, in processing industry and the role that they can play in the diversification of the range of products and services, the operation addressed to direct productive investments will also target large enterprises, together with SMEs. The concept of large enterprises is nevertheless addressed broadly, covering for example any subsidiary of large company. This support to large companies should not exceed, nonetheless, 1/3 of the financial resources dedicated to the first Key Area of Intervention, the remaining being earmarked to SMEs. It will thus not exceed 20% of the overall financial allocation of the priority axis .

In order to ensure a high impact of the integrated support for the development of an innovative productive system, the financial allocations will be optimally distributed between the three key areas of intervention.

Key Areas of Intervention

- **Productive and environment friendly investments and preparation for market competition, especially of SMEs**
- **Access to finance for SMEs**
- **Sustainable entrepreneurship development**

Indicators

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Output					
Assisted SMEs for direct investments operation	number	-		SMIS	2,000
Assisted SMEs for certifications	number	-		SMIS	1,500
SMEs that participated in international fairs	number	-		SMIS	1,200

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Financial engineering funds supported	number	-		JEREMIE Fund/SMIS	approx.10
Newly created or empowered business infrastructures	number	-		SMIS	10-15
Enterprises benefiting of consulting services	number	-		SMIS	2,000
Result					
Jobs created / maintained in assisted enterprises	number / FTE	-		SMIS	23,000
SMEs certificated ISO/EMAS	number	-		SMIS	1,500
Share of supported SMEs in total number of SMEs	%	-		SMIS	12-15
Increase of turnover in assisted enterprises for productive investments (2 yrs after completion)	%	-		Beneficiaries	10

3.2.1.1. Productive and environment friendly investments and preparation for market competition, especially of SMEs

Given the tough competition on the Internal Market and the increasing level of consumer protection, the Romanian enterprises will have to improve significantly the quality and range of their products and services contributing to the assurance of an increased level of consumer and environment security and protection.

The consolidation and development of enterprises largely depend on the permanent acquisition of new equipment and technologies that allow the adaptation of production to the requirements of Internal Market. The support granted to enterprises in order to increase productivity is a key element in the acceleration of the process of convergence, with due consideration of state aid rules.

The voluntary implementation of European standards by enterprises represents an example of good practice that has proved its efficiency on the developed markets and contributed to the increase of commercial exchanges.

Thus, together with the support to investments, the implementation of quality and environmental management systems and products certification is essential to ensure the entrance of Romanian products and services to the Internal Market and to third markets.

Obviously, the development of an adequate certification infrastructure is an essential condition to overpass the financial difficulties involved by the certification process and implementation of quality and environmental management systems.
The following **indicative operations** are envisaged:

a) Support for strengthening and upgrading the productive sector by tangible and intangible investments:

- Support of investments in technology, equipment, machineries, outfits, production premises;
- Support for intangible investments: acquisition of patents, trademarks, licences and know-how.

For operation a), two state aid schemes will be designed, for large enterprises and for SMEs with more than 9 employees (micro enterprises will be supported under a similar operation in the Regional Operational Programme). The same distinction shall be considered in organizing separate calls for proposals, for SMEs and large enterprises, in order to control the financial allocation for each category.

For this operation, attention will be paid, through thorough economic and financial appraisal of the applications for funding and in accordance with the provision of art. 57 of Council Regulation No. 1083/2006, in order to avoid any financial support for:

1) Public funding which would lead to deadweight;
2) Investment deriving from delocalisation from other member States in order not to involve the Structural funds in such public funding;
3) Enterprises in financial difficulties.

b) Support for the implementation of international standards

- Support for implementation and certification of quality management systems
- Support for implementation and certification of environment management systems (or EMAS registration),
- Support for voluntary certification and eco-labelling of products and services,
- Support for developing and accreditation of calibration and testing laboratories.

c) Support to access to new markets and internationalization

- Consultancy services to SMEs for management systems improvement (logistic services for promoting products and services and identification of external suppliers and clients, websites, access to business networks),
- Support for participation in international fairs and exhibitions and economic missions.

For operations b) and c) large enterprises will not be eligible.

3.2.1.2. Access to finance for SMEs

Adequate financial resources for SMEs are crucial for their development and the increase of their competitiveness.

The creation of a favourable environment for the investments financing represents a step forward, compared to the approaches mainly based on direct investment support.

The access to credit is generally difficult for SMEs, credit granting conditions imposed by banks are hardly accessible to them due to their under capitalization and to the absence of the required collaterals. Small businesses face major obstacles in the increase and development due to the lack of tangible assets that can be used as collateral and to the considerable risks borne, which prevent them from obtaining a typical bank loan or escalate the cost of such a loan. There is a need to overcome these obstacles since innovative ideas, products and services, business models are often generated by start-ups and new companies. At the same time, a stronger involvement of financial institutions in risk financing is needed. In fact, the financing of enterprises' projects by financial institutions ensures qualified expertise and competence in the selection and validation process of competitive business models.

Although providing innovative financial instruments is crucial to exploit the growth potential of SMEs, the programming and implementation of these instruments request specific know-how in the evaluation of market failures and good financial management. Therefore, Romania has been working closely with the European Investment Fund in order to identify market failures in the SMEs innovative finance sector.

In March 2007, a gap assessment study was carried out under the JEREMIE (Joint European Resources for Micro to Medium Enterprises) initiative, in order to assist in choosing the most efficient innovative ways to support SMEs access to finance in Romania. The study was elaborated by a team of independent experts commissioned by the European Investment Fund and confirmed the existing problems on the access to finance market in Romania.

The need is to create a range of funding sources including micro loans to meet the various demands from SMEs. The national and local administration has to create the environment where the market can flourish and the desire is to attract the private sector to support these actions and benefit from the success and share the risks involved. Support is envisaged for an appropriate mix of instruments as identified in the gap assessment report.

The Romanian Government has decided to confer the role of JEREMIE holding fund to the European Investment Fund by the award of a grant in accordance with art. 44(b) of Council Regulation 1083/2006 and subject to specific conditions laid down in art. 43 and 44 of Commission Regulation No 1828/2006. To this end, the Managing authority intends to contribute with an indicative sum of 100 million euro to the holding fund. A funding agreement will be concluded between the Managing Authority and the holding fund and will make provision for the competitive-based appraisal, selection and accreditation of financial intermediaries.

The efficiency of the JEREMIE instrument shall be evaluated by the national authorities after 3 years of implementation.

The Romanian authorities will continue to monitor and encourage the development of other instruments aiming at facilitating SMEs access to finance.

Within this area, resources will be provided also for an awareness/promotion campaign regarding the opportunities of enterprises access to finance.

3.2.1.3. Sustainable entrepreneurship development

Important factors in fostering entrepreneurship are an adequate business culture, a favourable environment for enterprise creation, the availability of qualified services, high degree of interaction and cooperation between enterprises to disseminate knowledge and strengthen potentials.
Romania envisages to support the process of enterprise creation through: availability of adequate business infrastructures, development of managerial skills and business support services.

A key element of business development is the availability of value added consulting services. The support for consultancy to SMES will allow them to become more competitive on the market and to diversify their products and services.

Assistance to existing and emerging clusters is also important to consolidate the interaction process among firms favouring knowledge spread, increased external economies (lower costs of production factors and raw materials, lower transaction costs), higher productivity of activities, increase the number of suppliers and clients of the clusters. The financing of *soft* and *hard* investments is envisaged, tuned with SMEs needs.

Thus, they will benefit of an integrated approach including the advantages of corporate management, of proper financing sources, associated guarantees, technical advantages of information society services and of the active cooperation with different actors: competitors, organisations, institutions, including R&D entities.

The **indicative operations** envisaged are as follows:

a) Development of business support structures of national and international dimension

The operation, complementary to the one in ROP (supporting local business infrastructures), will focus on supporting business infrastructures of national or even international dimension with selection in terms of: partnership (cluster potential), national or international dimension, and the quality of the development strategy.

Business support infrastructures financed under SOP IEC will consist both of hard activities (building of new infrastructures and consolidations, refurbishing and modernization, equipments acquisition) and soft ones (services aiming at reinforcing the entrepreneurship culture such as: dissemination and information, best practices exchange, mentoring and coaching activities; know-how transfer; seminars and workshops). The presence of business infrastructures able to compete in the national and international markets is a vital factor in the increase of Romania’s competitiveness, within the framework of an enlarged European Union, and will create the basis for a better integration of the national economy within the European economy. To this end, availability of appropriate business structures essentially contribute to enhancing Romania's attractiveness as location for investment in economic activities, and a key tool for stimulating the business environment.

b) Consultancy support[30] for SMEs

SMEs will be supported for the acquisition of consultancy in fields like: elaboration of projects/business plans; products/services and enterprise strategies development; investments and financial issues; marketing and promotion activities; HR management; information technology and e-business; innovation and intellectual property rights.

c) Support for enterprises' integration in supplier chains and clusters

The aim of the operation is to strengthen networking and cooperation relations between enterprises, reinforcing value chains and supporting the process of cluster development. Support will be granted for the development of joint projects in the fields of production, consultancy and specialized services, logistics.

To improve the effectiveness of the priority axis, actions falling within the scope of assistance of the ESF may be financed in the limit of 10% of Community funding for this priority axis, according to the *flexibility mechanism* (art. 34 (2) of the Council Regulation (EC) No 1083/2006). Assistance will mainly concern highly-qualified training related to the needed skills and knowledge for projects financed under this priority axis.

[30] Excluding consultancy services for certifications and export promotion and internationalization, covered by the first key area of intervention under this Priority Axis

3.2.2. Priority Axis 2: Research, Technological Development and Innovation for Competitiveness

Objective

- Increase of R&D capacity, stimulation of cooperation between RDI institutions and enterprises, and increase of enterprises' access to RDI.

Rationale

The low level of funding (both public, and private) for research, technological development, and innovation (RDI) had as direct results the obsolete RDI infrastructure, the decreasing number and increasing average age of researchers, and the low performance of RDI activities.

The lack of funding also hindered enterprises' access to RDI activities and technology transfer.

These weak points together with the low participation of the private sector in funding RDI activities resulted in a large technology deficit of Romanian companies and in a low innovation score in enterprises.

In order to address these weaknesses this priority axis focuses on several issues meant to contribute to the following aims: the increase of research capacity by investing in the development of R&D infrastructure and attracting young researchers and high-level specialists both in R&D institutions (universities and research institutes) and in companies with research departments; the strengthening of knowledge supply from universities and research institutes; the stimulation of the technology transfer based on the cooperation between R&D institutions, and enterprises; the stimulation of innovation demand of enterprises; the creation and reinforcement of high-tech firms and the development of poles of excellence/competitiveness.

The contribution of the R&D dedicated axis within SOP IEC to the increase of BERD, in order to reach the national 2010 target of 1% of GDP, is done by stimulating demand and well targeting the private sector, as follows:

- by providing a direct financing of innovative private companies
- by supporting partnerships triggered by demand and not by supply, as the direct application of research result in the productive sector is a key selection criteria
- by bridging a market gap in terms of research infrastructure, in order to allow the development of clusters and poles of excellence, and the specialization of young researchers and technicians that will later on migrate to the business sector. The *2006 Innobarometer on cluster's role in facilitating innovation in Europe* shows clearly that the presence of public research labs is one of the ingredients of cluster based research.

There are important synergies between priority axis 2 and priority axis 1. Some enterprises supported under priority axis 2 "RDI for Competitiveness" could also go to priority axis 1 to seek support for productive investments and for access to new markets, ideally through integrated projects. Likewise enterprises supported under priority axis 1 could get support under priority axis 2 as their demand for knowledge grows.

There are also synergies between priority axis 2 and SOP Human Resources Development - priority axis 1 "Education and training in support for growth and development of knowledge based society", which is promoting doctoral and post-doctoral programmes in support of research, and priority axis 3 "Increasing adaptability of workers and enterprises", which supports development of entrepreneurial skills and training in new technologies.

In terms of sectorial approach, the national RDI strategy 2007-2013 identifies 9 thematic directions of particular interest for applied research and technological development (ICT; energy; environment; health; agriculture, food security and safety; biotechnologies; innovative materials, products and processes; space; socio-economics) and underlines the importance of basic research.

Interventions under this priority axis will mainly focus on a reduced number of thematic priorities: Health; Agriculture, food security and safety; Energy; Environment; Advanced materials, products and processes, which could have the most significant impact on the increase of economic productivity.

Key Areas of Intervention:

- **R&D partnerships between universities/research institutes, and enterprises for generating results directly applicable in economy**
- **Investments in RDI infrastructure and related administrative capacity**
- **RDI support for enterprises**

Indicators

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Output					
Joint projects realized by R&D institutions and enterprises	Number	-	-	SMIS	200
Total of supported R&D projects	Number	-	-	SMIS	600
Enterprises involved in assisted projects	Number	-	-	SMIS	300
Supported high-tech start-ups and spin-offs	Number	-	-	SMIS	50
Public expenditures in assisted RDI projects	MEuro	-	-	SMIS	640
Result					
New jobs created / maintained in assisted beneficiaries	Number FTE	-	-	SMIS/beneficiaries	1,200
Direct private expenditures in supported RDI projects	MEuro	-	-	SMIS/beneficiaries	170
Contribution to total increase of BERD	%	-	-	SMIS/beneficiaries/surveys	12-15

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Patent applications resulted from assisted projects	Number	-	-	SMIS/beneficiaries/surveys	50
New research infrastructures supported	Number	-	-	SMIS/beneficiaries	50

3.2.2.1 R&D partnerships between universities/research institutes, and enterprises for generating results directly applicable in the economy

The enterprises' technological development, as prime factor for increasing their competitiveness, is supported through R&D partnerships with R&D organizations that will generate results directly applicable in economy with the aim of creating new or improved products, technologies and services of high added-value.

Support for technological development through industrial research and pre-competitive development will be offered within this key area of intervention in fields with high technological-development potential.

The enhancement of the R&D cooperation between research institutes/universities, and enterprises is the basis for the future development of enterprises' international competitiveness.

Indicative operations

- **Joint R&D projects between universities/research institutes and enterprises**

This operation will fund mainly industrial research and pre-competitive development (demonstration) activities that will generate results of economic interest and will initiate the transformation of the research results into new or improved products, technologies and services with high demand on the market.

Different forms of collaboration between enterprises and R&D institutions will be encouraged with the aim of enhancing their R&D activities and fostering the technology transfer (research provider-beneficiary partnerships, networks, etc) in the five priority thematic areas indicated above.

The projects will ensure the knowledge transfer from R&D institutions to the personnel applying the research results in enterprises.

- **Complex research projects fostering the participation of high-level international experts**

This operation has the same general aim as the previous one, namely to generate results of economic interest and to initiate the transformation of the research results into new or improved products, technologies and services.

The projects will be designed together by the host institutions and the high-level international specialists. The host institution must fulfil certain selection criteria like, for example, having a high-tech field of activity and being able to ensure all the necessary conditions for performing R&D activities.

3.2.2.2. Investments in RDI infrastructure and related administrative capacity

The research infrastructure in public universities and research institutes is in general obsolete and does not cover many of the new research fields and technological areas of interest. The development of the R&D infrastructure is closely related to the development of the knowledge base provides opportunities for training of skilled people, creates important supply and demand effects, and further on stimulates the technological development of enterprises.

This area of intervention will contribute to an increased efficiency of R&D activity in universities and research institutes by supporting the procurement of new modern equipments, instruments, software, the development of the existing R&D infrastructure and the creation of new infrastructures (laboratories, research centres, etc), the development of international R&D partnerships (within GRID structures), and the valorisation of the clustering potential in fields with comparative economic advantages.

When granting public support under this key area of intervention, priority will be given to the best performing R&D bodies. Regular and impartial evaluations, with relevant evaluation criteria such as number and quality of researchers, publications, capacity to integrate national and international R&D networks, participation to the 7th FP, etc will be carried out to this end under the coordination of the NASR. For universities, priority will be given to centres of excellence. On the other hand, weaker organizations could be strengthened through administrative capacity enhancing actions.

The regular evaluations referred to above will also allow identifying weaknesses in the administrative capacity of the R&D institutions. Consequently, tailored public support will be provided to the relevant institutions in the fields identified as deserving improvement, would it be management and project management capacity, ability to build partnerships, access to databases and publications, valorisation of research results or access to financial instruments.

Indicative operations

- **Development of the existing R&D infrastructure and the creation of new infrastructures (laboratories, research centres)**

This operation will support the development of R&D infrastructure in public universities and R&D institutes by modernization of the existing laboratories, by the creation of new infrastructures (laboratories, research centres/institutes, and by supporting the construction of pan-European research infrastructures in Romania (EU priority jointly financed by FP7, ERDF-under this operation, and other funds). The operation will focus on the five thematic areas indicated previously.

Modernization is understood as upgrading of an existing research infrastructure (laboratory/ies) by means of acquisition of new instruments and equipments, and refurbishment of research premises, when needed for the functioning of the new equipments.

New infrastructures are large-scale projects that will create new research centers, institutes, and laboratories within existing public research organizations, which enlarge their areas of activity, or open new research directions.

The selection will be concentrated on a reduced number of beneficiaries that will address within each thematic priority those fields, which respect one or more of the following horizontal criteria:

- are related to industrial fields with comparative economic advantages,
- respond to regional priorities identified in the Regional Innovation Strategies, or to national strategic priorities in other socio-economic sectors,
- present clustering potential (i.e. the new infrastructure will be in the center of a pole of competitiveness/excellence), or address structural failures in the R&D system.

The development of the research infrastructure will be accompanied by institution-building actions. Support for enhancing the administrative capacity will be given on request to the beneficiaries selected for investment projects, as part of comprehensive management modernization plans. The capacity building need for public support will be evaluated by NASR in association with the other relevant line ministries, and in close coordination with the managers of the different R&D institutes and organizations.

- **Development of poles of excellence**

The operation will support investments in the development and strengthening of the relationships between universities, research institutes and high-tech SMEs in dynamic economic fields. These fields will be identified by specialized economic studies elaborated before the submission of the project applications. The operation is focused on developing research-driven poles of excellence (known in some member states as "poles of competitiveness"), grouping together enterprises, research institutions, training centres, etc, which by active partnerships will perform activities with the same market objective, guided by a common development/business strategy.

- **Development of networks of R&D centres, nationally coordinated and linked with European and international networks (GRID, GEANT)**

This operation aims to contribute to the involvement of the Romanian researchers in international research networks of major importance for the future development of science and technology, and to develop an appropriate infrastructure to support large, and complex research projects.

Support is offered for connecting the R&D centres to European and international networks supported by electronic platforms of GRID-type through procurement of hardware and specific software applications. The operation will also contribute to the increase of the capacity of the research and education network ROEDUNET close to GEANT standards.

- **Strengthening administrative capacity**

This operation will support administrative and management performances of the R&D institutions identified as needing support through the regular evaluations which will be carried out under the supervision of the NASR.

Actions will be consequently tailored to the specific need identified in this respect.

3.2.2.3. RDI support for enterprises

In order to increase the private investments in RDI activities, and to reduce the high technological and competitiveness gaps mainly expressed by the low level of innovation in enterprises, the reduced capacity of enterprises to absorb R&D results, and the slow development of R&D activities in enterprises, the following **indicative operations** will be supported:

- **Support for high-tech start-ups and spin-offs**

The operation will support the innovation activities of high-tech or high added value start-ups and spin-offs (based on R&D results obtained in universities or research institutes) in order to ensure the transfer of knowledge and technology and to assist the respective enterprises in marketing the products and services derived from research. The enterprises to be assisted will be selected based on a careful analysis of their business plans.

The operation is complementary to SOP Human Resources Development, priority axis „Increasing the adaptability of workers and enterprises", which is promoting training programmes for the development of entrepreneurial and managerial skills, as well as support services for initiating new businesses.

- **Development of R&D infrastructure in enterprises and creation of new R&D jobs**

Support is provided for the development of the research capacities in enterprises, in order to raise their level of innovation and their market competitiveness and to create new R&D jobs. The procurement of instruments, equipment, computers, software, etc necessary for R&D activity will be financed.

- **Promoting innovation in enterprises**

Innovation through R&D is supported in enterprises in order to apply in production new or improved products, technologies and services. The operation will finance the acquisition of R&D services and application rights of R&D results and will stimulate the R&D activities in enterprises and their further development into technologies, products, services.

The most promising results obtained in projects financed under the first key area of intervention could be transferred into production with support from this operation.

Innovative enterprises less than 5 years old will be treated according to the specifications of the new framework for state-aid for RDI concerning young innovative enterprises.

The indicative operations under this key area of intervention are tailored to stimulate the increase of RDI private expenditure, thus contributing to the achievement of the national R&D policy in line with the Lisbon target.

To improve the effectiveness of the priority axis, actions falling within the scope of assistance of the ESF may be financed in the limit of 10% of Community funding for this priority axis, according to the *flexibility mechanism* (art. 34 (2) of the Council Regulation (EC) No 1083/2006). Assistance will mainly concern highly-qualified training related to the needed skills and knowledge for projects financed under this priority axis.

3.2.3. Priority Axis 3: ICT for private and public sectors

Objective

- To support the economic competitiveness through increasing the interactions between the public sector and enterprises/citizens by fully exploiting the ICT potential

The main actions to be carried out in order to achieve this objective address the need to improve the ICT infrastructure in market failure areas (under served rural and small urban areas), to develop and effectively use the electronic public services and to develop a secure and dynamic e–business environment. From this perspective, it will be necessary to introduce and sustain innovative productive systems in the administrative process, in day-to-day life and to develop a competitive market for a new generation of products and services.

Rationale

In the new global economy, taking into consideration the need of reinforcing competitiveness at different levels, the Romanian companies, public administrations and other economic and social players are facing major challenges. Productivity growth may be considered a decisive factor for a successful market development and the positive impact of the ICT on this is well known.

In accordance with the specific objectives established by the Lisbon Agenda and the i2010 strategy ("i2010 – A European Information Society for growth and employment"), it is essential to underline the crucial importance of accessibility improvement and broadband infrastructure development as main priorities for developing the Information Society in Romania.

In Romania, growth in broadband connections is mainly taking place in urban areas. In scarcely populated areas or where the distance from the exchanges to the final user is too long, the operators did not find it profitable to invest and upgrade or roll-out infrastructure in these areas on the grounds that expected demand is insufficient to ensure a positive return on investment. For this reason, and according to the „Guidelines on criteria and modalities of implementation of structural funds in support of electronic communications" (European Commission, 2003), it is considered that public funding in under-served areas plays a vital role in stimulating investments in broadband infrastructure and services, boosting competitiveness and innovation (stated also in EC Communication "Bridging the broadband gap").

Taking into account that public funding can also play an important role in encouraging broadband deployment through policies that stimulate demand, support will be offered to stimulate the demand-side of ICT services, including:

- Initiatives aiming at increasing usage in the public sector and developing content such as e-government, e-health, e-learning
- Stimulating the creation of applications specifically targeted to SMEs

Romania's Broadband National Strategy, to be soon approved, envisages as strategic objectives: deployment of broadband infrastructure in under-served areas and extensive increase in availability and attractivity of e-services.

It specifies a set of strategic priority sectors, which play a determinant role in the development of broadband services market: government, education, health, economy. Therefore, the operations financed through this priority axis will support in a complementary manner the national strategies in the specific sectors mentioned above.

The main contribution of the ICT sector to economic growth is mainly sustained through the companies' uptake. The ICT usage stimulates extensive and intensive growth for goods and services production. Concerning the extensive growth, ICT provides, for the Romanian companies, the opportunity to access new regional and global markets and to promote and commercialize goods and services inland by electronic means. An intensive development is also due to the decrease of production, administration and marketing costs, deriving from ICT use, which can determine a significant increase of productivity.

The major disparities regarding broadband Internet access have been pointed out in the analysis chapter. Although the European policies are mainly directed towards free competition, a delay in ensuring the appropriate infrastructure is observed in some cases, which suggests the need for public intervention.

The new EC Communication i2010 calls for affordable and secure high bandwidth communications, rich and diverse content and digital services and for inclusion, better public services and quality of life. A key challenge is to make these services better, more accessible and more cost-effective.

Development of E-Government, E-Health and E-Learning applications should also be addressed within this framework in order to sustain the economic growth and competitiveness in Romania. E-learning applications will be supported according to thorough need evaluation carried out in close cooperation with the Ministry of Education, Research and Youth and in synergy with the related actions implemented under the SOP Human Resources Development. These applications will contribute to the creation of a positive environment for the deployment of innovative products and services, by improving and increasing the interactions between the different social and economic players.

E-economy provides benefits for a wide range of activities that are specific to the business environment. At companies' level, the ICT applications are essential for the corporation internal and external communication, as well as a more efficient management of resources and customers. Thus, the low weight of electronic commerce percentage in the total turnover (2004 – 1.3% in Romania, as compared to 2.1% in EU25) reflects the companies reduced efficiency rate. In order to reduce disparities, it is necessary to support companies' ICT uptake along with measures for increasing the electronic security.

Key Areas of Intervention

- **Supporting the ICT use**
- **Developing and increasing the efficiency of electronic public services**
- **Sustaining the E-Economy**

Indicators

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Output					
Broadband networks projects supported in market failure areas	number	-		SMIS	100
Public electronic services projects supported	number	-		SMIS/beneficiaries	100
E-economy projects supported	number	-		SMIS/beneficiaries	1,000
Result					
Companies connected to supported broadband networks in market failure areas[31]	number	-		SMIS/beneficiaries	5,000
Users of supported E- government applications (registered users)	number	-		SMIS/beneficiaries/ surveys	1,000,000
SMEs using the supported E-economy applications[32]	number	-		SMIS/beneficiaries	5,000
Increase of broadband penetration in Romania	number of broadband connections/100 inhabitants	5	2005	NIS	40

[31] 50 enterprises / broadband infrastructure project – this number is reasonable considering that the average number covered by one broadband network is estimated at 4 or 5 under-served communes or small towns.
[32] E-Commerce projects plus integrated management information systems

3.2.3.1. Supporting the ICT use

Taking into consideration that the ICT penetration in Romania is low due to the insufficient development of infrastructure, determined by low investments and low purchasing power of population, this key area of intervention will support the access to broadband connections in the market failure areas[33] (e.g. under-served rural and small urban areas) complying with "Guidelines on criteria and modalities of implementation of structural funds in support of electronic communications".

The broadband connections extension and data security increase, that are compulsory conditions for the knowledge-based economy, are also to be supported. The interventions aiming to support the broadband infrastructure development will address the competitiveness consolidation as a target for higher potential areas.

As regards the modalities to address the under-served areas, the support will be given based on the following criteria as specified in "Guidelines on criteria and modalities of implementation of Structural Funds in support of electronic communications": strategic approach (in accordance with National Broadband Strategy), focus on under-served areas, technological neutrality and open access to the infrastructure.

Implementation of the objective is supported by the indicative operations which are adressed on one hand to the local authorities or partnerships between them, and on the other hand to the SMEs for broadband network and public internet access points (PIAPs) construction in under-served areas.

The following **indicative operations** will be pursued:

- Supporting access to Internet and to connected services.
  It is envisaged to offer support to SME's and NGOs for connecting to Internet through broadband connections and purchasing related hardware and software.
- Supporting local authorities for setting up a broadband network and Public Internet Access Points (PIAPs) in the market failure areas (under-served rural and small urban areas)
- Supporting SMEs for setting up a broadband network and PIAPs in the market failure areas (under-served rural and small urban areas).
- Supporting broadband connections for schools.

The operation regarding internet broadband connection for schools is complementary to operations within the Regional Operational Programme (IT equipment for schools). Under SOP IEC, together with the broadband connection of the school, a limited number of computers will be purchased so as to ensure a minimum use of the connection, while further IT equipment acquisition for the school will be possible under ROP. The operation is also complementary to the Human Resources Development SOP (IT applications used for educational purposes).

[33] The National Broadband Strategy (that will be put under public consultation) provides a diagnosis analysis, stating the digital gap between rural and urban areas and pointing out the market failure areas. Therefore, on the ground of demand-supply analysis, it will justify the clear need for public intervention, in order to increase the broadband coverage, boosting the economic competitiveness (Annex 9 - Broadband coverage and the need for public intervention in under - served rural and small urban areas).

3.2.3.2. Developing and increasing the efficiency of public electronic services

The accelerated process of informatization and connection to broadband in the government, health and educational sectors will increase directly the demand for such services as part of aggregated public demand.

Since 2001, measures have been taken to create the legislative framework and supported development for e-**Government**. Steps have been made, for instance the National Electronic System - the one-stop shop portal for electronic access to public administration or the National e-Procurement System.

The government strategic goal is to redesign public administration by more accessible and more cost-effective public services. The structural funds will come in addition to national funds in order to achieve this objective by setting-up e-government applications and systems, increasing productivity by better organizational performance and by multiplier effects that enable companies to lower their administrative costs and raise their competitiveness.

Specific support will be dedicated to the fiscal administration, with a view to improving the performances of the tax collection administration. The related actions will be designed and implemented in close cooperation with the National Agency for Tax Collection, following a sound evaluation of the needs and targeting the under performing tax collection activities.

In close cooperation with the actions implemented under the first priority axis, the development of a common electronic portal for business operators, especially for SMEs, will also be supported under this key area of intervention. To this end, the experience and outputs gained under the current PHARE project contracted by NASMEC will be valorised and continued.

Taking into consideration that the correlation between **education** and broadband is strong, the main direction will be to stimulate demand, in the sense of supporting development of new projects which will complete the achievements of ongoing major projects like Knowledge Based Economy and Information Educational System. Therefore, the structural funds intervention will support the implementation of e-learning applications for a more efficient qualification system, generating a better-trained work force, more flexible and more adapted to the market requirements.

Currently, **health** is one of the less informatized public domains. There are 3 major directions towards which the Ministry of Public Health is taking action in view of informatizing the medical system in Romania: informatizing hospitals and creating of patients' electronic records, facilitating electronic discounts with Health Insurance Companies and informatizing family doctors and their interconnection to medical informatics' system.

Consequently, all the ICT projects of the medical system in Romania (some of them initiated, some to be started during this year) will foster the development of broadband health services, which will be also supported through structural funds. The E-Health services' implementation will bring benefits both in terms of savings in the medical system and in improving the medical services offered to citizens, and ultimately will contribute to a healthier workforce.

The operations financed through Priority Axis 3 will support in a complementary manner the national reform strategies of the specific sectors addressed (public administration, education and health) in line with the EU recommendations.

To support the development of modern public electronic services, the following **indicative operations** will be taken into consideration:

- Supporting the setting-up of e-government solutions along with the necessary broadband connectivity (if the latter is needed)
- Supporting the setting-up of ICT solutions in order to increase the information systems' interoperability
- Supporting the setting-up of E-Learning solutions
- Sustaining the setting-up of e-health solutions along with the necessary broadband connectivity (if the latter is needed)

The operation concerning the support granted to public administration for setting up e-Government applications is correlated with the supply of general training for the e-Government field in the OP "Administrative Capacity Development".

Development of e-learning solutions under the SOP IEC will complement the actions developed under the SOP Human Resources Development, Priority Axis 1 for improving the access to and the quality of education and initial VET, which support educational software (only in relation with the development of education/ training programs, eligible under cross financing).

Developing health software applications along with the necessary broadband connectivity (if the latter is needed) will complement actions under the ROP, Priority axis 2 "Improvement of regional and local social infrastructure", where health infrastructure is supported.

3.2.3.3 Sustaining the E-Economy

Under this key area of intervention, financial support is directed towards ICT applications and their interoperability, adoption of integrated solutions for companies leading to long term cost-cutting, thus facilitating the access to internal and international market and sustaining more efficient management processes, observing at the same time the increased security of the electronic networks and the adoption of anti-fraud solutions in order to develop a secure and dynamic E-Business sector.

For sustaining the e-economy development, the following **indicative operations** are foreseen:

- Support for integrated ICT business systems and other electronic business applications
- Sustaining the development of e-commerce systems, and other Internet based solutions for businesses

To improve the effectiveness of the priority axis, actions falling within the scope of assistance of the ESF may be financed in the limit of 10% of Community funding for this priority axis, according to the *flexibility mechanism* (art. 34 (2) of the Council Regulation (EC) No 1083/2006). Assistance will mainly concern highly-qualified training related to the needed skills and knowledge for projects financed under this priority axis.

3.2.4. Priority Axis 4: Increasing energy efficiency and security of supply, in the context of combating climate change

Rationale

An efficient, flexible, safe and clean energy infrastructure is a necessary precondition for economic development as it boosts productivity, and thus competitiveness. More efficient energy production, transport and distribution, and end use, entail the reduction of both primary and final energy. As a direct result, final consumers would benefit from both a better quality and security of supply, implicitly leading to increased productivity.

Within its national strategies for energy efficiency and valorisation of renewable energy, Romania's targets are to improve energy efficiency and to increase the share of electricity produced from renewable resources in the national gross electricity consumption. Promoting these targets by using less energy or using more environmental friendly energy, contributes to the reduction of pollutant emissions (especially greenhouse gas emissions) at the level of Romanian economy, in compliance with the recommendations of the Spring 2007 European Council.

The share of electricity produced from renewable energy resources in the national gross electricity consumption was about 29% in 2004, close to the target of 33%, by 2010, but almost entirely in large hydropower plants. Therefore, the gap should be bridged primarily by other renewable sources, in order to avoid a heavy reliance on hydro energy produced in large capacities.

As indicated in the economic situation analysis, energy intensity is the indicator where Romania has the biggest gap compared to EU average (the final and primary intensity were 3 times higher in 2004 compared to the EU average). Such a gap, if not properly addressed, could be an important impediment for the competitiveness of the national economy on the Single Market and on the South-East Regional Market, taking into account the gradual increase of energy prices, towards the European levels.

For the 2005-2012 period, the estimations show a reduction of energy intensity both as a result of GDP increase and as a result of energy efficiency measures and efficiency improvement by natural trend (Annex 4, Table 7).

As shown in Annex 4, Table 8, Electricity production for domestic market, at present, the internal electricity production is sufficient for meeting internal demand. It should also be able to meet forecasted demand, on condition that the existing production capacity is maintained at the forecasted levels. The forecasted increase in energy production is generated mainly by the forthcoming entry into service of the nuclear power unit no. 2 at Cernavoda, also by the valorisation of renewable energy sources and, if the case, by refurbishment/ upgrading/rehabilitation of the existing power plants or building new ones on fossil fuels (these last two ones, financed from national funds and/or loans like the programme "District Heating 2006-2009 - quality and efficiency"[34] financed from the state budget and loans, or the follow-up of the"National programme for reducing the energy costs for population, by increasing the energy efficiency and use of renewable energy in 2006").

[34] Approved by GD no. 462/2006

In this way, Romania should be able to maintain a balance between the demand for electricity and the availability of generation capacity, in compliance with the objectives set in the Directive 2005/89/EC.

Consequently, whenever technically possible and economically viable, with regard to the obsolescence of existing assets, current production groups should be maintained as far as possible.

Although the final and primary energy intensity have followed a downward trend (as a result of structural changes of the Romanian economy and of the consumers' gradual awareness of the benefits of energy efficiency) and this trend is expected to be maintained, more intensive action is needed in order to impose a more rapid pace.

Taking into account on the one hand the trend of increase of energy consumption (in average-2.5%/year) generated by the foreseen economic growth, and on the other hand the tendency of improving energy efficiency at the end-user, the following courses of action are necessary:

- maintaining the existing energy production capacities, in order to ensure on a medium and long term the security of supply and the reduction of grid losses
- continuing in parallel the improvement of energy efficiency over the whole chain in order to accelerate the pace of decreasing energy intensity, in particular to the end user
- continuing the intensive valorisation of renewable energy, together with the diversification of those sources, out of the large hydro ones.

In particular, public support will be required when maintaining some large production plants through investments deriving from Directive 2001/80/CE. Cost benefit analysis will be carried out at the project level, assessing the most suitable scenario, comparing in particular closure / reconstruction and upgrading / rehabilitation options.

In order to improve **energy efficiency**, a comprehensive and streamlined set of measures are envisaged for each part of the chain: production, transportation, distribution, final use of energy:

1) **Maintenance of the production capacity**: building new capacities for producing electricity/heat, based on renewable energy sources in order to offset the future closure of obsolete production sites, with a view to guarantee the overall current production capacity. At the same time, equipping with de-sulphurization installations of the refurbished/rehabilitated groups is also envisaged for the energy production sector. SOP IEC targets investment in de-sulphurization installations for basic power plants of National Energy System, through co-financing from Structural Funds, while SOP Environment targets investment in de-sulphurization installations on the existing groups of Large Combustion Plants at municipal level.
2) **Improving the quality parameters of transportation and distribution grids;** the purpose is to upgrade, rehabilitate and extend electricity, gas and oil transportation grids and electricity and gas distribution grids, which are currently suffering from important losses and have often exceeded their rated lifetime. Investments are thus needed for the transport and distribution grids in order to ensure the security of national power system's functioning and the required quality level of electricity transport and distribution services, by reducing the losses and avoiding the extended system breakdowns and the interruptions in energy supply. A set of actions will be implemented, based on

identification of priority grids, according to their obsolescence and their losses' rates. They will be financed from the state budget (ex: Electrification Programme 2007-2009), operators' own sources and Structural Funds.

3) **The improvement of energy efficiency at the end user** aims both at the residential and industrial users. Increasing energy efficiency for the residential users is addressed by measures of thermal rehabilitation of buildings financed within ROP (in integrated urban regeneration projects) and within programmes financed proportionally from the state budget, local budget and user's own sources (Government Emergency Ordinance no.174/2002 concerning the institution of special measures for the thermal rehabilitation of some block of flats and condominiums, the programme „District Heating 2006-2009, quality and efficiency" - the component regarding the thermal rehabilitation of the cover of the buildings roofs, facades, terraces and windows).
On the other hand, improvement of the energy efficiency at the industrial user will be achieved both by financing from the end user's own funds and by accessing the Structural Funds within SOP IEC, Priority Axis 4. For the latter, ERDF will target the sectors, detailed below, which are the most energy intensive and where, accordingly, the room for improvement is higher.

The improvement of energy efficiency is expected to lower the energy costs within the operating costs of Romanian undertakings, thus improving, *mutatis mutandis*, their productivity.

At the same time, public support devoted to sustain the production capacities will also pay attention to **capitalize renewable energy sources (RES)**, which suffers more than other production modes from market failures, as the current investment and operating costs do not offer sufficient profitability prospects for the investors. The target is to increase by about 4% RES, except for large hydropower, in order to reach the overall goal of 33% of RES production in Romania.

Romania has indeed a significant, and diversified, potential for the production and the use of RES (wind, biomass, hydro) with only a small part being economically capitalized so far. The diversification will thus be promoted, based on sound assessment of regional availability and potential. Apart from improving the security of supply and reducing pollutant emissions, such investments should also bring new opportunities for business and jobs.

On the other hand, it is also necessary to secure energy supply across Romania as the perspective of possible energy supply shortages would badly hamper the attractiveness of Romania and its regions. It is thus important to ensure the continuity of electricity supply, in order to maintain the reliability and security of supply, as required by Directive 2005/89/EC. Considering that Romania is a leader and a stability factor in the Regional South East European energy market, and Romania's intention, agreed by its neighbours, regarding the setting up of the energy stock exchange in Bucharest, it is necessary to further develop the interconnections with the European countries.

This situation could be improved, in accordance with the EC Priority Interconnection Plan (COM (2006) 846), which is part of the Strategic European Energy Review (SEER - COM (2007) 1) and taking into account the import needs of Romania, and also the neighbouring countries energy policy, in some periods of the year.

That could contribute to optimizing the functioning of National Power System from the economic point of view by improving the consumers' access to the import of electricity produced at competitive prices.

For the 2006-2015 period, the estimated increase of Romanian interconnection capacity for all UCTE borders is about 9%, out of which about 4% could be achieved through projects cofinanced from Structural Funds.

In case production gaps are identified for neighbouring countries as EU Member States, interconnection networks are also envisaged in order to contribute to the security of supply of the whole area.

Interconnecting the national gas transport network with the European ones will lead to a better management of peak consumption within improved technical parameters, thus allowing the gas supply to the critical areas, at national and regional level.

New solutions identified as a result of projects financed under Priority Axis 2 (energy being among the 5 priority sectors selected for RDI investment) can be used when investing in the fields indicated in the 3 Key Areas of Intervention under PA 4 (new and non-conventional technologies for energy generation and storage, new and non-conventional technologies for maintenance specific to energy equipments, management of the energy systems and processes).

Key Areas of Intervention

- **Efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system)**
- **Valorisation of renewable energy resources for producing green energy**
- **Diversification of interconnection networks in view of strengthening security of energy supply**

Indicators

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Output					
Projects for improving energy efficiency	number	-		SMIS	150
Projects for the valorisation of RES	number	-		SMIS	30
Projects for reducing the negative environmental impact in large combustion plants	number	-		SMIS	5
Projects for interconnection of networks	number	-		SMIS	3
Modernized/extended electricity distribution grids (km)	km	-		SMIS	100

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Modernized/extended natural gas distribution grids (km)	km	-		SMIS	150
Result					
Decrease of energy intensity in assisted beneficiaries	%	-		SMIS/beneficiaries	10
Reduction of technical losses in the distribution grid in assisted beneficiaries	%	-		SMIS/beneficiaries	2-3
Installed capacity for RES valorisation in assisted beneficiaries	MW	-		SMIS	200
Jobs created in the RES sectors through assisted projects	number	-		SMIS	200-400
Share of electricity produced from renewable energy resources in the gross national electricity consumption	%	29	2004	SMIS	33 (2010) 35 (2015)
Reduction of polluting emissions in supported LCP projects (mainly SO_2 but also indirect GHG, NO_x).	%	-		SMIS	30

3.2.4.1. Efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system)

Improving energy efficiency contributes to the three core objectives of the EU energy policy: security of supply, competitiveness and sustainable development**.** Actions on energy efficiency will reduce waste of energy resources and will strengthen the security of supply. It is also a cost-effective manner to mitigate climate change as energy efficiency improvement/energy saving ultimately leads to the reduction of fossil greenhouse gases emissions.

Improving energy efficiency at the end-users envisages specific types of investments in installations/equipments (such as compressed air, pumps, ventilation, process heating and cooling plants, boilers, burners, heat exchangers) of industrial operators in order to achieve energy savings (leading to reduction of the energy bill), based on energy balance.

Investments in installations for their energy consumption reduction at industrial users (switching, adjustment and control automatic systems, frequency converters, electrical motors with high efficiency, power factor mitigation, integrated energy consumption management systems) are also envisaged.

The main target sectors of these measures are large energy consumers, which have also good premises for development in the near future: metallurgy, construction materials, glass industry, chemical products, food industry, cellulose and paper products, etc (Annex 4, Table 3). The high share of the energy cost in total production cost justifies the intervention in the above industrial sub-sectors (i.e. about 20% in metallurgy, about 45% in lime and cement industry, about 22% in ceramics industry, 23% in glass industry). Priority will be given to projects coming from these fields.

Where there is an important demand for heat and electricity, high-efficiency co-generation can have considerable benefits for industrial users of power. Benefits include reductions in energy cost, improved security of supply and reduced environmental impact. Co-generation is a key method identified to improve energy efficiency at industrial users.

The modernization and expansion of the electricity, natural gas and oil transport grids and of electricity and natural gas distribution grids will lead to a decrease in energy losses, to an increased security of supply by avoiding crisis situations and to meeting the economic performance and quality standards required by electricity consumers. At the same time it will contribute to the development of the standard infrastructure for new economic activities leading, in the future, to increasing Romanian products and services access on the EU market and to fostering the development of cross-border energy interconnections.

Although the focus shall be on the upgrading of the distribution grids, their extension may also be envisaged in order to improve the accessibility of RES – based production capacity, and of all types of energy end-users to the grids.

Supporting investments in modernization and expansion of the electricity transmission, natural gas and oil transport and electricity/natural gas distribution grids in the areas most vulnerable to black-outs may contribute to their economic development and to ensuring security of supply. Priority will be given to projects implemented in these areas.

Due to the high contribution of the LCP's under central public authorities' coordination in the total installed capacity of National Power System, as well as to the total electricity production, closing down these power plants because of non-compliance with the environmental standards would have important negative effects: it would induce a power deficit, the energy sector would become less competitive through phasing out these economic operators**.** Most of those LCPs are either located in mono industrial areas and thus with high unemployment risks, or providing energy for a large number of population in important cities. On top of that, diminishing the production capacity would require a reshaping of transport and distribution networks thus incurring high additional costs.

In accordance with the principle of preventing or reducing pollution at source, it is necessary to introduce best available technologies for the reduction of flue gas emissions, to endow power and heating plants with flue gas desulphurization installations, to install electro filters for reducing powder emissions and to replace existing burners with new ones that will reduce the NOx emissions (NO_x being an indirect GHG). At the same time, new investments concerning environmental compliance of some existing power plants are not economically and technically justified without previous refurbishment /upgrading.

Some of the projects to be financed under this operation will be major projects and will be submitted, individually, for the Commission approval, in compliance with art. 39-40 of Council Regulation (EC) No. 1083/2006. An indicative list of major projects is presented in Annex 12.

JASPERS assistance has been sought and will contribute to the adequate preparation of a series of major projects under this priority axis, ensuring at the same time the transfer of know how and best practices to the relevant institutions.

Indicative operations

- supporting investment in installations, equipment for industrial operators, in order to improve energy efficiency leading to energy savings.
- supporting investments in expanding and upgrading electricity, natural gas and oil transportation grids and electricity and natural gas distribution grids, in order to reduce losses and secure the continuity and safety of transport and distribution services.
- Investments in flue gas de-sulphurization installations, burners with reduced NOx and filters on refurbished/upgraded groups of large combustion plants.

3.2.4.2. Valorisation of renewable energy sources (RES) for producing green energy

Romania has an important exploitable potential of RES (biomass, micro hydro, solar, wind, geothermal, bio fuels and other resources). The valorisation of RES may offer a long-term competitive advantage, while substantially contributing to sustainable development.

While the EU target for 2020 is to achieve 20% of the total Community energy consumption from RES, Romania sets out an even more ambitious goal of 33% as share of electricity produced from renewable energy resources in the national gross electricity consumption till 2010. In this view, Romania has to intensify its efforts to use renewable energy resources.

Furthermore, the valorisation of renewable energy resources is needed for introducing into the economic system some isolated areas by using the technical potential of the country and to reduce the environmental impact by producing green energy.

The renewable energy resources will be used both in the sector of electricity production and in the heating sector; in the latter both building of new power plants for high efficiency cogeneration (especially based on biomass use) and building of new power plants based on solar and geothermal energy are envisaged, thus leading to an increase of RES-based heat production.

The production of bio fuels used in electricity/heat generation will also help to comply with the environmental standards. Moreover, the various locations of renewable energy resources in Romania may lead to a diversification of the energy production capacities/sites and to increasing employment opportunities in less economically developed areas. In this context, new job opportunities can be created locally for the production, installation and maintenance of RES capacities. The valorisation of RES will also significantly contribute to the national technological progress.

Producing energy from RES can reduce the burden on existing production capacities using fossil fuels or can be more advantageous than the conventional solution in some punctual situations.

Indicative operation

- investments in upgrading and building new power and heating production capacities by valorisation of renewable energy sources: biomass, micro hydro, solar, wind, geothermal, bio fuels and other renewable resources.

3.2.4.3 Diversification of interconnection networks in view of strengthening security of energy supply

The development of the cross-border energy trade between the EU market and other markets, as well as the need to ensure the possible transit through the Romanian transmission grid towards non-EU member states, requires the development of the existing interconnection capacities for electricity and gas.

The possible future link to TEN-E network of some energy insular areas in the South-East of Europe can be achieved also by implementing the project of interconnection of the Romanian electricity transport network to the Serbian one (the investment project Sacalaz - Novi-Sad). Both Romania and Serbia are members of UCTE[35].

In order to strengthen security of supply for Romania and other Member States, it is necessary to interconnect the National Gas Transportation System to similar systems (for instance, the Hungarian one).

The integration in a future corridor of natural gas from the Caspian Sea and Central Asia areas to the countries of Central and Western Europe, as well as ensuring the conditions for the transit of natural gas among Romanian territory towards the neighbouring countries can be attained by implementing investment projects such as "The natural gas interconnection pipeline with the European system on the axis Szeged-Nadlac-Arad".

Indicative operation

- supporting investments for interconnecting the national electricity and natural gas transport networks to European networks.

[35] Union for the Co-ordination of Transmission of Electricity

3.2.5. Priority Axis 5: Technical Assistance

Objective

The objective of this priority axis is to provide support for the programme implementation process and effective use of the Community financial input and national co-financing through:

- ensuring high quality and coherence of key areas of intervention aimed at programme implementation;
- providing compatibility of the realised projects with the acquis and EU policies;
- organisation of a system of information and promotion of programme objectives and operations.

Rationale

The technical assistance under the SOP IEC is complementary to the scope of support of the Operational Programme Technical Assistance 2007-2013 and, pursuant to the Council Regulation (EC) No. 1083/2006, will be applied to strengthen the system of management, monitoring, control and evaluation of implementation of the SOP IEC, in accordance with the provision of the Commission Regulation (EC) No. 1828/2006.

The technical assistance priority axis of SOP IEC provides specific assistance for project preparation, monitoring, evaluation and control as well as communication activities, only with regard to the specificity of SOP IEC. The technical assistance of SOP IEC is complemented with the horizontal support of the OP TA, which provides assistance for the common needs of all the structures and actors involved in the management and implementation of the structural funds and ensures the general public awareness on the role of the Community support.

Considering the fact that this is the first programming period and that the structures involved in the management of the SOP IEC have uneven experience with regard to the management of EU funded programmes, the analysis of the main administrative weaknesses, targeting to the identification of training requirements and specific expertise needed for a sound, efficient and effective management and implementation of structural funds will be undertaken and further addressed in the operations funded under this priority axis.

The expected result is the establishment of an efficient system of implementation, conducing to the fulfilment of SOP IEC objectives.

Key Areas of Intervention

- Support to SOP IEC management, implementation, monitoring and control
- Support for communication, evaluation and IT/other equipment acquisition

Indicators

Indicator	Unit	Baseline	Baseline Year	Source	Target (2015)
Output					
Number of SOP monitoring committee meetings	number	-		SMIS	14
Number of staff participating to training actions	number	-		MA records	500
Number of communication campaigns (TV, radio, press etc.)	number	-		SMIS	20
Number of OP web site visits	number	-		MEF server	200 000
Number of assistance actions towards beneficiaries	number	-		SMIS	70
Result					
Number of participants to information events	number	-		MA records	4000
Number of studies, surveys, polls, financed	number	-		SMIS	20
Number of beneficiaries trained	number	-		SMIS	2000

The institution responsible for implementing this priority axis will be the Ministry of Economy and Finance as the Managing Authority of the SOP IEC. Beneficiaries are the Ministry of Economy and Finance as the Managing Authority of the SOP IEC, Intermediate Bodies of the SOP IEC, Monitoring Committee, working groups and selection committees.

3.2.6.1. Support to the SOP IEC management, implementation, monitoring and control

The objective of this key area of intervention is to provide technical and financial assistance for the processes of designing, monitoring, evaluation and control, aimed at reaching an effective implementation of the SOP IEC and the efficient use of the ERDF and national resources.

The support is mainly designed to address the following processes:

Management and implementation

- research, studies, surveys, polls to support the higher quality and more effective implementation of the SOP IEC (improving the integration of the sectoral policies with the SOP IEC);
- using external experts (long or short term consultations) on professional, operational, methodological, organisational/institutional issues at every management level; using external and specialised experts (long or short term consultations) for supporting selection process;

- using contractual staff, employed by the Managing Authority and Intermediate Bodies in order to support their functioning in connection to structural funds management and control;
- elaboration of training mechanisms and methods for performing training needs assessment, developing training plans;
- providing specific training for the employees of the organisations participating in the planning, management and implementation of the SOP IEC, both for the Managing Authority and Intermediate bodies staff; training in order to support the project selection and verification, both for the Managing Authority and Intermediate bodies staff;
- improving administrative capacity of MA and IBs staff in selected fields of global interest such as environment, climate change,etc.
- improving the IT skills of the staff of the Managing Authority and Intermediate Bodies for the successful implementation of the SOP IEC;
- supporting skills development and professional exchange of information (e.g. study tours, internships, specialised courses etc.), national and abroad, in relation to planning, management, implementation, monitoring issues and to the evaluation of the Operational Programme, both for the Managing Authority and Intermediate bodies staff;
- providing information and assistance to potential beneficiaries on the application process (preparation, requirements, feedback) – courses, workshops etc. in order to support project generation;
- organisation of seminars, trainings, workshops for discussions and debates with the representatives of economic and social partners in order to increase the effectiveness of the OP;
- providing assistance in SOP implementation, while eventually establishing a form of partnership responsible for implementation on regional and local levels;
- providing adequate logistic support (i.e. office space, vehicle etc.) for the functioning of the entities involved in SOP IEC management and implementation.

Complementary to the horizontal trainings, addressing basic common needs across the structures involved in the management of structural instruments, covered by the OP TA, the SOP IEC will finance and implement through the TA axis specialised training programmes tailored according to the specificity of SOP IEC (training regarding the internal procedures, training in OP management, project appraisal selection and contracting, considering the SOP IEC areas of interventions). The decision on financing a training project under this key area of intervention will be taken considering the annual training action plan, elaborated based on the training need analysis (both for MA and IBs staff) performed annually and agreed by all actors.

Monitoring

- technical service and secretariat support for the Monitoring Committee and its sub-committees/working groups (preparation/duplication, translation of documents, organising meetings, preparing minutes, interpretation, maintaining contacts etc.);
- training of members of the Monitoring Committee;
- collecting data from sources other than national statistics (expertise on the methodology of effective and efficient monitoring of elements of the SOP IEC).

Control process

- system control and risk management of the intermediate bodies;
- carrying out an external audit (organisational and financial) by independent auditors as commissioned by the financial control unit of the OP Managing Authority;
- carrying out on-the-spot checks.

3.2.6.2. Support for communication, evaluation and IT/other equipment acquisition

The objective of this key area of intervention is the implementation by the SOP IEC Managing Authority of obligations arising from Article 46 of Council Regulation 1083/2006 concerning the promotion of the programme and its operations and informing entities interested in receiving support from the Funds, as well as the general public, about the opportunities afforded by the assistance and its outcomes.

This key area of intervention also aims to support the evaluation of the SOP IEC, as well as setting up operational standards for each type of evaluation. Financial sources will be provided for external evaluators to elaborate reports, analyses, studies and outlines etc., in order to support the Evaluation unit to fulfil its task.

Another objective is to ensure adequate administrative capacity for the management of the SOP IEC through the provision of a sufficient amount of computer and office equipment, including software, for the purpose of management, monitoring, control and evaluation, complementary to the SMIS system.

Indicative operations

The communication activities financed under this key area of intervention will ensure the appropriate publicity with regard to the specificity of SOP IEC, bearing in mind that general public awareness on the role of the Community support and the overview on the intervention of structural and cohesion funds are covered by OP TA.

Communication

- issuing and distributing information, promotional and educational awareness raising material (publication and distribution of the official texts of the SOP IEC with a manual containing guidelines for the use of the OP assistance package, as well as information on the scope of intervention and the effects of aid);
- organising conferences, seminars, trainings and workshops (trainings and workshops for Intermediate Bodies of the SOP IEC, trainings and workshops for the recipients of the assistance, press conferences, regional conferences and information meetings for the representatives of business associations, groups and organisations, media etc.);
- workshops/seminars for the staff of the SOP IEC Managing Authority, who will carry out promotion and external communication tasks;
- setting up an information exchange system (through the media, brochures, folders, CDs / DVDs, development of a dedicated web site, etc.) for potential beneficiaries, economic, commercial, professional and other institutions on the content of the assistance package and accessibility of the structural funds for implementation of specific projects, on OP implementation, the changes made.

Evaluation

- covering eligible administrative costs for the operations of the Evaluation Unit (excluding salary costs);
- supporting costs of evaluations carried out by external evaluators;
- covering translation costs for the purpose of SOP IEC evaluation process;
- bearing costs of expert assistance, including experts' fees, drawing up of expertise, analyses, studies and ideas to develop and improve methods and standards.

IT / other equipments

- purchase of computers, other than for SMIS;
- purchase of the necessary office equipment, such as copiers, faxes, audiovisual conference equipment (including overhead projectors, equipment for presentations etc.);
- maintenance/upgrading of the monitoring tools;
- purchase of software for management, monitoring, controlling and evaluation purposes.

3.3. Coherence and compliance with Community and national policies

3.3.1. Coherence with Community Strategic Guidelines and National Strategic Reference Framework

Community Strategic Guidelines - Cohesion Policy in Support of Growth of Jobs 2007-2013	NSRF		Policy Reflection in SOP IEC
	NSRF Priority	NSRF Section	
	Thematic priorities		
Guideline 1.1.2 *"Strengthen the synergies between environmental protection and growth"*	**Develop Basic Infrastructure to European Standards**	Strengthen synergies between environmental protection and growth	**Priority Axis 4:** Increasing energy efficiency and security of supply, in the context of combating climate change Key Area 2 - Valorisation of renewable energy resources for producing green energy • Key Area 1 - Efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system) • Key Area 2 - Valorisation of renewable energy resources for producing green energy
Guideline 1.1.3 *"Address Europe's intensive use of traditional energy sources"* Guideline 1.1.2 *"Strengthen the synergies between environmental protection and growth"*		The efficient use of energy	**Priority Axis 4:** Increasing energy efficiency and security of supply, in the context of combating climate change Key Area 2 - Valorisation of renewable energy resources for producing green energy • Key Area 1 - Efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system)
Guideline 1.2.2 *"Facilitate innovation and promote entrepreneurship"*	**Increase the Long-Term Competitiveness of the Romanian Economy**	Productivity growth and creation of a dynamic base	**Priority Axis 1:** An innovative and eco-efficient productive system • Key Area 1 – Productive and environment friendly investments and preparation for market competition, especially of SMEs **Priority Axis 3:** ICT for private and public sectors • Key Area 1 - Supporting the ICT use

Community Strategic Guidelines - Cohesion Policy in Support of Growth of Jobs 2007-2013	NSRF		Policy Reflection in SOP IEC
	NSRF Priority	NSRF Section	
		Business support services and infrastructure	**Priority Axis 1:** An innovative and eco-efficient productive system • Key Area 3 - Sustainable entrepreneurship development **Priority Axis 2:** Research, Technological Development and Innovation for Competitiveness • Key Area 2 - Investments in RDI infrastructure • Key Area 3 - RDI support for enterprises
		Certification and eco-innovation	**Priority Axis 1:** An innovative and eco-efficient productive system • Key Area 1 - Productive and environment friendly investments and preparation for market competition, especially of SMEs **Priority Axis 2:** Research, Technological Development and Innovation for Competitiveness • Key Area 2 - Investments in RDI infrastructure
Guideline 1.2.2 "*Facilitate innovation and promote entrepreneurship*" Guideline 1.3.3 *"Increase investment in human capital through better education and skills"*		Entrepreneurial development	**Priority Axis 1:** An innovative and eco-efficient productive system • Key Area 3 - Sustainable entrepreneurship development **Priority Axis 2:** Research, Technological Development and Innovation for Competitiveness • Key Area 3 - RDI support for enterprises
Guideline 1.2.4 *"Improve access to finance"*		Access to finance	**Priority Axis 1:** An innovative and eco-efficient productive system • Key Area 2 - Access to finance for SMEs
Guideline 1.2.1 *"Increase and better target investment in RTD"*		Research, technological development and innovation	**Priority Axis 2:** Research, Technological Development and Innovation for Competitiveness • Key Area 1 - R&D partnerships between universities/research institutes, and enterprises for generating results directly applicable in economy • Key Area 2 - Investments in RDI infrastructure • Key Area 3 - RDI support for enterprises

Community Strategic Guidelines - Cohesion Policy in Support of Growth of Jobs 2007-2013	NSRF		Policy Reflection in SOP IEC
	NSRF Priority	NSRF Section	
Guideline 1.2.3 *"Promote the information society for all"*		Information and Communication Technology	**Priority Axis 3:** ICT for private and public sectors • Key Area 1- Supporting the ICT use • Key Area 2 - Developing and increasing the efficiency of electronic public services • Key Area 3 - Sustaining the E-Economy
Guideline 1.3.3 *"Increase investment in human capital through better education and skills"* Guideline 1.3.1 *"Attract and retain more people in employment and modernize social protection systems"*	**Development and More Efficient Use of Romania's Human Capital**	Education and training	**Priority Axis 1:** An innovative and eco-efficient productive system • Key Area 1 – Productive and environment friendly investments and preparation for market competition, especially of SMEs (*through use of cross financing*) • Key Area 3 - Sustainable entrepreneurship development **Priority Axis 3:** ICT for private and public sectors • Key Area 2 - Developing and increasing the efficiency of modern electronic public services **Priority Axis 5**: Technical Assistance • Key Area 1 – Support to the SOP management, implementation, monitoring and control.
Guideline 1.3.5 *"Help maintain a healthy labor force"*		Health and welfare	**Priority Axis 3:** ICT for private and public sectors • Key Area 2 - Developing and increasing the efficiency of electronic public services (E-Health operation)
Guideline 1.3.4 *"Administrative capacity"*	**Building Effective Administrative Capacity**		**Priority Axis 3:** ICT for private and public sectors • Key Area 2 - Developing and increasing the efficiency of electronic public services (E-Government operation) **Priority Axis 5**: Technical Assistance • Key Area 1 – Support to the SOP management, implementation, monitoring and control. • Key area 2 – Support for communication, evaluation and IT/other equipment acquisition

Community Strategic Guidelines - Cohesion Policy in Support of Growth of Jobs 2007-2013	NSRF		Policy Reflection in SOP IEC
	NSRF Priority	NSRF Section	
	Territorial priority		
Guideline 2.1 *"The contribution of cities to growth and jobs"* Guideline 2.2 *"Support the economic diversification of rural areas, fisheries areas and areas with natural handicaps*	**Promoting Balanced Territorial Development**	Regional cohesion	**Priority Axis 1 :** An innovative and eco-efficient productive system • Key Area 1- Productive and environment friendly investments and preparation for market competition, especially of SMEs • Key area 2 : Access to finance for SMEs • Key Area 3 - Sustainable entrepreneurship development **Priority Axis 2:** Research, Technological Development and Innovation for Competitiveness • Key Area 1 – R&D partnerships between universities/research institutes, and enterprises for generating results directly applicable in the economy • Key Area 2 – Investments in RDI infrastructure • Key Area 3 – RDI support for enterprises **Priority Axis 3:** ICT for private and public sectors • Key Area 1 - Supporting the ICT use **Priority Axis 4:** Increasing energy efficiency and security of supply, in the context of combating climate change • Key Area 2 - Valorisation of renewable energy resources for producing green energy
Guideline 2.1 *"The contribution of cities to growth and jobs"*		Sustainable urban development	**Priority Axis 2:** Research, Technological Development, and Innovation for Competitiveness • Key Area 1 – R&D partnerships between universities/research institutes, and enterprises for generating results directly applicable in the economy • Key Area 2 – Investments in RDI infrastructure • Key Area 3 – RDI support for enterprises

Community Strategic Guidelines - Cohesion Policy in Support of Growth of Jobs 2007-2013	NSRF		Policy Reflection in SOP IEC
	NSRF Priority	NSRF Section	
Guideline 2.2 *"Support the economic diversification of rural areas, fisheries areas and areas with natural handicaps"*		Sustainable rural development	**Priority Axis 1:** An innovative and eco-efficient productive system • Key Area 1- Productive and environment friendly investments and preparation for market competition, especially of SMEs • Key Area 3 – Sustainable entrepreneurship development **Priority Axis 4:** Increasing energy efficiency and security of supply, in the context of combating climate change • Key Area 2 - Valorisation of renewable energy resources for producing green energy
Guideline 2.3 *"Cooperation"* Guideline 2.4 *"Cross-border cooperation"*		Promote European Territorial Cooperation	**Priority Axis 4:** Increasing energy efficiency and security of supply, in the context of combating climate change • Key Area 3 - Diversification of interconnection networks in view of strengthening security of energy supply

3.3.2. Coherence with other European and national development policies

Provisions related to SMEs		
• 2000/819/CE Decision concerning „Multiannual programme for enterprise and entrepreneurship", and in particular for small and medium-sized enterprises (2001-2005) - main actions: – Enhancing the growth and competitiveness of business in a knowledge-based internationalized economy; – Promoting entrepreneurship; – Simplifying and improving the administrative and regulatory framework for business so that research, innovation and business creation in particular can flourish; – Improving the financial environment for business, especially SMEs; – Giving business easier access to Community support services, programmes and networks and improving the coordination of these facilities;	• Government Strategy for period 2004-2008 for supporting small and medium-sized enterprises (GD no.1280/2004) structured on 5 strategic priorities: – Creating business environment for encouraging SME's set up and the development – Enhancing SME's competitiveness – Improving SME's access to finance – Improving SME's access on external market – Promoting entrepreneurial culture and managerial performances strengthening • Yearly budgetary allocation for the Euro Info Centres - The allocation of 0.2% of GDP for programmes supporting the Strategy for SME's set up and development (Law nr. 346/2004, on encouraging the set-up and development of SME's, art.26)	**Priority Axis 1:** **An innovative and eco-efficient productive system** *Key Areas:* - Productive and environment friendly investments and preparation for market competition, especially of SMEs - Access to finance for SMEs - Sustainable entrepreneurship development

• The implementation of European Charter for small enterprises	• GD 656/2002 for approving European Charter for small enterprises. Annual implementation of the Action Plan for Charter has as main results: - one-stop-shops set up and organization at the Trade Register Offices; - the national multi annual NASMEC programmes for training and consultancy in export promotion; Start programme; investment programme; development of business incubators; - the school of arts and crafts, the ECONET network; - GEO 75/2004 on reducing the registration time for enterprises; - the new Fiscal code; Bankruptcy law, the taxation of micro-enterprises; e-taxes programme, launched by MCTI; - Sunshine law nr. 52/2003 - Campaign on the impact of EU joining; - Consultative Committee on Development of SME's set up and organization.	
• 2003/361/CE Decision on the Definition of SME's	• GEO 27/2006 concerning the amending and completion of the Law no. 346/2004 on Encouraging SME's set up and development	
Provisions related to Industrial Policy		
• Council Decision 96/413/EEC on implementation of a Community action programme to strengthen the competitiveness of European industry. • Commission Communication COM(2002) 714 "Industrial policy in an Enlarged Europe" • Commission Communication COM(2003) 704 "Some Key Issues in Europe's Competitiveness - Towards an Integrated Approach" • Commission Communication COM(2004) 274 "Fostering structural change: an industrial policy for an enlarged Europe"	• GD 1172/2005 approving the Industrial Policy of Romania and the Implementation Action Plan	**Priority Axis 1:** **An innovative and eco-efficient productive system** *Key Areas:* - Productive and environment friendly investments and preparation for market competition, especially of SMEs - Sustainable entrepreneurship development

Provisions related to research-development-innovation (RDI)		
• Commission Communication COM (2002) 499 „More Research for Europe - Objective 3% of GDP" • Commission Communication COM (2005)141 „Integrated Guidelines for Growth and Jobs 2005-2008" • Proposal for a „Decision of the European Parliament and of the Council establishing a Competitiveness and Innovation Framework Programme (2007-2013)" {SEC(2005) 433} • Proposal for „Competitiveness and innovation framework programme (2007-2013)" with specific: „The Entrepreneurship and Innovation Programme"	• Draft of National RDI Strategy • National Plan for RDI • INFRATECH programme	**Priority Axis 2:** **Research, Technological Development and Innovation for Competitiveness** ***Key Areas:*** - R&D partnerships between universities/ research institutes, and enterprises for generating results directly applicable in the economy - Investments in RDI infrastructure - RDI support for enterprises
Provisions related to information technology and communication (ICT)		
• Commission Communication COM(2002) 263 „eEurope 2005: An information society for all" • Council Resolution 5197/2003 on the implementation of the eEurope 2005 Action Plan which has as main targets: - modern online public services o e-government o e-learning services o e-health services - a dynamic e-business environment and, as an enabler for these - widespread availability of broadband access at competitive prices - a secure information infrastructure • Commission Communication COM(2005) 229 „i-2010 A European Information Society for growth and employment" • Proposal for „Competitiveness and innovation framework programme (2007-2013)" with specific: „ICT Policy Support Programme"		**Priority Axis 3:** **ICT for private and public sectors** ***Key Areas:*** - Supporting the ICT use - Developing and increasing the efficiency of electronic public services - Sustaining the E-Economy

Provisions related to the energy sector		
• EU Treaty – Art. 174, underlines that one of the objectives of community policy is to ensure the prudent and rational use of resources • Commission Communication COM (2006): „Action Plan for Energy Efficiency - Realising the Potential" • Commission Communication COM(1998) 246 „Energy Efficiency in the European Community - Towards a Strategy for the rational use of energy" • Commission Communication COM (2005)265 „Green Paper on Energy Efficiency or Doing More with Less" • Directive 2006/32/EC on "Energy end-use efficiency and energy services" • Decision no. 1230/2003/EC Multiannual programme for action in the field of energy: "Intelligent Energy - Europe" (2003 – 2006); • The Treaty of Amsterdam (1995) concerning the community initiative in the energy field, the „Trans-European Energy Networks (TENs)"; • Council Decision 96/391/EC concerning a series of measures aimed at creating a more favourable context for the development of trans-European networks in the energy sector. • Decision No 1229/2003/EC concerning a series of guidelines for trans-European energy networks which repealing Decision No 1254/96/EC • Commission Communication COM (1997)599 „Energy for the future: renewable energy sources" - White Paper for a Community Strategy and Action Plan. • Commission Green Paper "A European Strategy for Sustainable, Competitive and Secure Energy" – COM (2006) 105 • Directive no. 2001/77/EC on the promotion of electricity produced from renewable energy sources in the internal electricity market • Directive no. 2001/80/EC on the limitation of emissions of certain pollutants into the air from large combustion plants	• Roadmap for the energy sector in Romania, approved by Government Decision no. 890/2003; • GD 163/2004 on the approval of National Strategy for energy efficiency; • Law 199/2000 regarding the efficient use of energy; • Law 56/2005 amending the Law 199/2000 regarding the efficient use of energy; • GD 393/2002 on the approval of Methodological Norms for enforcing the application of Law no. 199/2000 concerning the efficient use of energy • GD 1535/2003 on the approval of Strategy for the utilization of renewable energy resources; • GD 443/2003 regarding the promotion of energy production from renewable energy resources. • GD 958/2005 amending GD 443/2003 on the promotion of electricity produced from renewable energy sources and amending and completing GD 1892/2004 establishing the promotion system for electricity produced from renewable energy sources • Gas Law no. 351/2004 amended by Government Ordinance no. 116/2005 • GD no. 1844/2005 on promoting the utilization of bio-fuels and other renewable fuels for transport • Oil Law no. 238/2004 • GD 541/2003 on the limitation of emissions of certain pollutants into the air from large combustion plants • Law 13/2007 on electric power • Draft GD for approving the Romanian Energy Policy 2006-2009	**Priority Axis 4:** Increasing energy efficiency and security of supply, in the context of combating climate change ***Key Areas:*** - Efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system) - Valorisation of renewable energy resources for producing green energy - Diversification of interconnection networks in view of strengthening security of energy supply

• Directive no. 96/61/ EC concerning integrated pollution prevention and control • Directive 2003/30/EC of the European Parliament and of the Council of 8 May 2003 on the promotion of the use of biofuels or other renewable fuels for transport • Communication from the Commission to the European Council and the European Parliament "An energy policy for Europe" 2007		

3.3.3. Horizontal policies

All efforts have been made to ensure that interventions under SOP IEC comply with European horizontal principles: sustainable development and equal opportunities. Similarly, the co-financed operations will be implemented in strict compliance with public procurement and state aid regulations.

Sustainable development

Sustainable development assumes satisfying the needs of the present without jeopardizing the capacity of the future generations of satisfying their own development needs.
The European sixth environment action programme identifies four priorities:

- climate change
- nature and biodiversity
- environment and health, and quality of life
- natural resources and waste.

Several actions will be taken to reduce the negative environment effects of the operations supported under the SOP IEC, in accordance with the recommendations from the Strategic Environment Assessment, comprised in the ex ante evaluation of the programme.

- *Priority Axis 1* aims to promote high value added innovative activities using advanced technologies and equipment. These innovative technologies introduced in the Romanian economic sector will have either a positive or at least neutral impact on the climate change. Sustainable economic growth will moreover ensure a higher quality of life with an improved environment and better public health. Direct support will be granted to those activities and projects that promote the upgrading of existing technologies in order to mitigate their environmental impact and the introduction of environment-friendly technologies.
  The foreseen operations support not only the acquisition of new equipments and technologies that are requested to be in compliance with environment regulations but also activities of implementation of European environment standards and of environment management systems by enterprises.

- *Priority Axis 2*, by stimulating the transfer of modern technologies, adapted to the European environment standards, will lead not only to an improvement in the competitiveness of Romanian enterprises but also to a reduction of the environment negative impact. Additionally, environment and energy are among the five selected priority areas for R&D support.

- *Priority Axis 3*, ICT for public and private sectors is part of sustainable development, through the promotion of clean technologies and reduction of resources consumption.

- *Priority Axis 4*, through all its key areas of intervention will have an important positive impact on the environment both in terms of natural resources use and the more efficient and sustainable use of energy, by supporting the use of renewable energy sources. One of the operations addresses directly and specifically environment-related issues in the energy sector.

- *Implementation* - In order to become eligible for co-financing, the projects should be environment friendly, a minimal requirement being the compliance with the environment regulations, among which the ones related to the Environmental Impact Assessment, the Strategic Environmental Assessment, the Natura 2000 sites, etc. Additionally, environmental criteria will be taken into account whenever the environmental externalities are expected to differ substantially between project applications and thus need to be quantified in order to contribute to the ranking of projects. Protecting the environment can thus be a positive spur to economic and social progress. It is a 'win-win' strategy (according to "A Quality Environment: How the EU is contributing", Brussels, 2005).

Equal opportunities

Romanian legislation, in line with the European acquis, guarantees equal rights for citizens, in order to participate to the economic and social life, without any discrimination.

According to the article no. 16 of the Council Regulation No. 1083/2006, the principle of equal opportunities shall be applied during all stages of implementation of the structural and cohesion funds, in the programming phase as well as in the implementing phase of the Operational Programme.

SOP IEC, through all the priority axes, respects the principle of gender equality and non-discrimination. Therefore, the Managing Authority for SOP IEC, through setting up the Implementation System takes the appropriate measures in order to ensure the accessibility for the beneficiaries, without any discrimination based on sex, racial or ethnic origin, religion, age, disabilities and sexual orientation.

The overarching European objectives for social protection and social inclusion are to:

- promote social cohesion and equal opportunities for all through adequate, accessible, financially sustainable, adaptable and efficient social protection systems and social inclusion policies;
- interact closely with the Lisbon objectives on achieving greater economic growth and more and better jobs and with the EU's Sustainable Development Strategy; and
- strengthen governance, transparency and the involvement of stakeholders in the design, implementation and monitoring of policy.

The relationship of the SOP IEC with the objectives of social protection and social inclusion is more indirect in terms of social protection systems and government transparency as it is predominantly a programme for enhancing economic growth. Nevertheless, inclusion of all social groups implies an increase and stabilisation of the participation rate on the labour market leading to more sustainable growth, which is again needed for integration into the EU economy. In the SOP IEC disadvantaged groups are particularly addressed by Priority axis 3 (e.g. part-time work, tele-work, access to small and isolated communities through broadband infrastructure). Therefore, there is an important relationship with the second above mentioned objective in terms of interaction with the Lisbon goals. Economic growth will then lead – in a transparent governmental system – to an improvement of the social protection opportunities and systems.

Equal opportunities principle is addressed by all priorities (either directly or indirectly), mainly through preference points in the projects assessment process and the potential beneficiaries requesting financial assistance through SOP IEC shall demonstrate that the projects do not infringe this principle.

- *Priority Axis 1* will promote equality of chances by encouraging the inclusion of this principle, where possible, as a selection criteria. For example, the selection will encourage projects that promote the employment of disadvantaged categories (e.g. by allowing part-time and flexible work schedules, working from home etc).

- *Priority Axis 2,* within all operations aiming at increase of R&D capacity, stimulation of cooperation between RDI institutions and enterprises, addresses the equal opportunities principle by improvement in the work conditions and indirectly by creating new social and economic activities and by the above mentioned projects' assessment mechanism.

- *Priority Axis 3* by promoting the information society will support equality of chances through the inclusion of specific selection criteria. Additionally, the development of information society, particularly of broadband infrastructure, will support the equality of chances by facilitating the access of small and/or isolated communities and of disadvantaged social groups to information, labour market, education, professional qualification, managerial consultancy. For example, the development of the information society and of the ICT sector can offer women or disabled persons new opportunities for working at home, in a flexible regime or to continue their education and professional qualification during the periods of absence from the labour market.

- *Priority Axis 4* addresses mainly indirectly, as mentioned above, the equal opportunities principles through selection criteria for projects and potential beneficiaries.

The Managing Authority for SOP IEC shall consider a gender balanced participation in the composition of the Monitoring Committee.

Competition Policy and State Aid

This Operational Programme has been developed having regard to the Community rules on State aid. The provisions of Articles 87 and 88 of the Treaty in relation to state aid rules will be fully respected. Any public support under this programme must comply with the procedural and material State aid rules applicable at the point in time when the public support is granted.

Acting according to its competence set out in the national legislation, as the national State aid authority[36], the Competition Council has provided support to the OP Managing Authority and its Intermediate Bodies in respect of State aid applicable rules and it is providing on-going operational advice and guidance, including the process of drafting normative or administrative acts by which state aid measures are instituted.

[36] Competition Law no. 21/1996, republished and the Government Emergency Ordinance no. 117/2006 on the national procedures in the field of State aid.

The Competition Council, acting as the Contact Point as regards State aid, between the European Commission on one side and Romanian authorities, State aid's grantors and beneficiaries on the other side, shall ensure the strict observance of the notification requirements. With regard to the block exemption regulations all information required by the relevant regulations will be provided.

Notifications of state aid measures, respectively information on state aid measures subject to block exemptions, are submitted for consultative opinion to the Competition Council. Subsequently, the Competition Council will submit these notifications/information to the European Commission, through Romania's Permanent Representation to the European Union. Authorities, grantors and state aid beneficiaries are obliged to provide to the Competition Council all the required information, in order to be sent to the European Commission. For those operations where the public financing constitutes aid but does not fall under the above mentioned categories (e.g. "de minimis aid"), the relevant authorities will ensure compliance with the state aid regulations and procedures.

Within the programming period, the schemes designed by the granting authorities and / or ad hoc aid will be submitted to the Commission, whenever the EC rules request an *ex-ante* approval from the Commission. Specific obligations with regard to individual notification of aid granted under aid schemes will be respected. The Competition Council cooperates with the authorities, other state aid grantors and beneficiaries and supports them towards an adequate implementation of the acquis communautaire.

The MA will have the full responsibility to ensure compliance with State Aid rules in the context of Structural and Cohesion Funds. The actual implementation will be the responsibility of the Managing Authority. Questions demanded of applicants, the guidance given, as well as the provisions of the financing agreement will ensure that the applicants understand the limitations on assistance given and provide sufficient information to highlight any potential problems and corresponding obligations. Procedures will ensure that compliance is checked during claim checks and on the spot checks during verification and certification.

The OP Annual Implementation Reports will detail the measures undertaken in order to ensure the compliance of all operations with State Aid rules with respect to the provisions of block exemptions (referring to: small and medium-sized enterprises, employment, training, SGEI and transparent regional investment state aid), "de minimis aid" and other types of state aid under notification obligation (such as: research, development and innovation state aid, regional state aid, risk capital, environmental state aid etc.) In addition, any information required by the Commission and by the World Trade Organization regarding state aid schemes, individual state aids or "de minimis aid" shall be provided according to the applicable rules.

Public Procurement

The procurement of all contracts financed through the Structural and Cohesion Funds and corresponding national co-financing shall be done in compliance with EU legislation and primary and secondary national legislation implementing the EU provisions on public procurement.

In order to ensure coherence with EU procurement polices, the Romanian authorities transposed the Directives No 17/2004/EC and No 18/2004/EC, by adopting the Law No 337/2006 for approving the Emergency Government Ordinance No 34/2006 on awarding of the public

procurement contracts, public works concession contracts and services concession contracts. The secondary legislation was also adopted. This legislation takes also into account the provisions of the Commission interpretative Communication on concessions under Community law of 29 April 2000 and the Commission interpretative Communication on the Community law applicable to contracts awards fully or not fully subject to the provisions of the public procurement directives of 1 August 2006.

To enforce the legal provisions, the National Authority for Regulating and Monitoring Public Procurement (NARMPP) was set up. This body has the role to develop public procurement strategies, ensure coherence with Community acquis, ensure conformity in the application of legislation, fulfil EU Directive obligations, monitor, analyse and evaluate the methods used for awarding public contracts, as well as advice and train personnel involved in procurement activities. The NARMPP has set up the framework for Romanian national procurement methodologies and is providing advice and support.

All public procurement contracts will be awarded in compliance with the new harmonised national legislation. The principles applied in contracting are: non-discrimination, equal treatment, mutual recognition, transparency, proportionality, efficiency of used funds and accountability.

The general procedures for concluding public procurement contracts are the open and the restricted tender. Only as exceptions, the competitive dialogue, the direct negotiation or offer request, the framework agreement, the electronic auction and the dynamic purchasing system are foreseen by the law. The General Inspectorate for Communication and Information Technology is the operator of the electronic system for public procurement (ESPP).

The contracts are published in the ESPP, in the National media and, where the relevant thresholds under Community Directives are applicable, in the Official Journal of the European Communities.

The eligibility and selection criteria make reference to the personal situation, the ability to exercise the professional activity, the economic and financial situation, the technical and/or professional capacity, quality assurance and environmental standards. The awarding criteria are the most economically profitable offer or, exclusively, the lowest price.

The NARMPP provides training, courses and seminars for the main purchasers from central and local level, including institutions involved in the management of the SCF and potential beneficiaries.

The ex-ante control system in the public procurement field has become functional through the Emergency Government Ordinance no 30/2006 and the Government Decision no 942/2006 for approving the methodological norms for EGO no 30/2006. In this respect, the Unit for Coordination and Verification of Public Procurement (UCVPP) within the Ministry of Economy and Finance has been appointed as the body responsible for ensuring ex-ante verification of public procurement procedures, including those carried out under the Structural and Cohesion Funds programmes.

UCVPP works together with the NARMPP, the Managing Authorities and with any other public institution in the field of public procurement.

In order to improve the quality of the public procurement system and to ensure the compliance with the national legislation in the field, the Ministry of Economy and Finance, through its specialized structures at central and territorial level, verifies the process of contract awarding based on risk analysis and on a selective basis. For performing the task of verification, UCVPP shall appoint observers during all stages of the public procurement procedure. The observers will issue activity reports and if they detect inconsistencies during the procedure they will give a consultative opinion. The opinion will be sent to the NARMPP as well as to the authority hierarchically higher to the contracting authority. In case of projects financed through Structural and Cohesion Funds, the opinion and the activity reports are sent also to the competent Managing Authority.

The contracting authority has the responsibility for the decisions made during the process of awarding public procurement contracts. The decisions made by the contracting authority are sent to the NARMPP and UCVPP.

This established system on the ex-ante verification procedure, as part of the entire management system of the SCF, is ensuring the efficiency and effectiveness of the use of the Funds by guaranteeing the compliance of the public procurement procedure with the national legislation and with the EU directives.

3.4. Complementarities with other Operational Programmes and operations financed by EAFRD and EFF

SOP IEC is one of the instruments identified at national policy level in order to implement the NSRF 2007-2013 priorities. The long-term objectives of SOP IEC are strongly related to other SOPs 'objectives and may be fulfilled only in a well-tuned cooperation.

Given that the NSRF objectives are interrelated and reinforce each other, SOP IEC's strategy aims to provide an efficient intervention with national level impact and to ensure the complementarities with other ERDF funded operations, with other Structural Instruments (ESF, CF) and with EAFRD, under the National Rural Development Programme.

Priority axes of SOP IEC are complementary to other key interventions included in SOP Human Resources Development, Regional OP, OP Administrative Capacity Development, SOP Environment, OP Technical Assistance and NRDP, as detailed below:

Complementarities with SOP Human Resources Development

The global objective of SOP IEC must be considered in correlation with human capital development that offers a long term and sustainable value to operations to be co financed. The staff ability to adapt to the changing economic environment is becoming a crucial factor for economic strength. To improve enterprises' competitiveness, it is necessary to ensure highly qualified staff, including management staff, professions and occupations appropriate to the economic sectors needs.

SOP HRD comprises key areas of intervention oriented towards employers, employees and their associations that complement SOP IEC operations as follows:

- *Priority Axis 1: An innovative and eco-efficient productive system*
  Key area of intervention 3" Sustainable entrepreneurship development" – is complementary to SOP HRD
  - Priority Axis 1 "Education and training in support for growth and development of knowledge based society", Key Area of Intervention 1 "Access to quality education and initial VET" and Key Area of Intervention "Quality in Higher Education", that shall promote educational offers in schools as well as university programmes on entrepreneurship, with a view to instil in students the entrepreneurial spirit, skills and abilities.
  - Priority Axis 2 "Linking life long learning and labour market", Key Area of Intervention 3 "Access and participation in CVT"- employees shall benefit from general training having as a result their increased competences, productivity and performance in the SMEs and on the labour market.
  - Priority Axis 3 "Promoting adaptability and flexibility of workers and enterprises, Key Area of Intervention 1 "Promoting entrepreneurial culture" that shall support the individuals by ensuring the necessary training in the field of entrepreneurship for the people willing to start a business. Moreover, within this Key Area of Intervention, SOP HRD shall also ensure the training of management levels and executive staff with a view to improve companies' management and their efficient action on the market.
  All of these actions will complement the operations proposed under SOP IEC, which shall support the development of business infrastructures of national and international importance, shall provide consultancy support to SMEs, as well as support for enterprises integration in supplier chains and clusters.

- *Priority Axis 2: Research, Technological Development and Innovation for Competitiveness*
  Key Area of Intervention 1 "R&D partnerships between universities/research institutes and enterprises for generating results directly applicable in economy" is complemented by SOP HRD Priority Axis 1 "Education and training in support for growth and development of knowledge based society", Key Area of Intervention 2 "Quality in higher education" that will support networking of universities, research institutes and enterprises for developing university education, and ensuring training of researchers. Key area of intervention 3 **"**RDI support for enterprises (with special focus on SMEs)" is complementary to the ESF activities promoted under SOP HRD PA 1, KAI 5 "Doctoral and post-doctoral programmes in support of research", Also, the research conducted during the doctoral and post-doctoral programmes shall stimulate technology transfer as well as the creation and reinforcement of high-tech firms and the development of poles of excellence supported under SOP IEC.

- *Priority Axis 3: ICT for private and public sectors*
  Key Area of Intervention 1"Supporting the ICT use": investments for internet connection of schools will be financed under this Key Area of Intervention, thus creating pre-requisites for increasing the use of ICT in education and initial training. These operations shall complement the actions undertaken in this respect under the PA 1 of SOP HRD, Key Area of Intervention 1 "Access to quality education and initial VET", where there will be provided support for the development and diversification of education and initial VET offer, including e.g. extending ICT network in schools.

Key area of intervention 2 "Developing and increasing the efficiency of electronic public services"; actions undertaken will support the implementing of e-learning programs, consisting in development of educational portals to be used in teaching or training activities and also for the development of the educational offers envisaged under the SOP HRD, PA 1. The development of e-learning applications under the SOP IEC will complement the educational software developed under the SOP HRD, Priority Axis 1.

Schools whose ICT network will be developed as a result of SOP IEC (and ROP) will be able to implement the ICT curricula developed under SOP HRD, by the Ministry of Education, Research and Youth.

The training programs of teachers and trainers, co-financed under SOP HRD, will include a compulsory ICT module aiming at developing their digital competencies and ability to use ICT in their current teaching activities in support for developing information society in Romania. These approaches of the SOP HRD will provide grounds for complementing actions undertaken under the Key Area of Intervention "Supporting the ICT use" and „Development and increased efficiency of modern electronic public services" of the SOP IEC. Schools benefiting from ICT network developed under SOP IEC shall be supported through SOP HRD in having available human resources trained in ICT.

Complementarities with the Regional Operational Programme

Aiming to reduce socio-economic development disparities between regions in Romania, operations within SOP IEC complement ROP co-financed interventions as follows:

- *Priority Axis 1: An innovative and eco-efficient productive system*
  Key area of intervention 1 "Productive and environment friendly investments and preparation for market competition, especially of SMEs".
  The demarcation and the complementarity between ROP (Priority axis 4 - Strengthening the regional and local business environment) and SOP IEC, for the productive investment operations envisaged in both OPs, is by enterprise's size, i.e. small, medium and large enterprises will be financed under SOP IEC and micro enterprises are considered under ROP (irrespective of age). For other operations in SOP IEC (which have no counterpart in ROP), all sizes of SMEs will be eligible under SOP.

  Key area of intervention 3 "Sustainable entrepreneurship development"
  Under the Priority axis 4, ROP will finance business support infrastructures with local and regional impact, while SOP IEC will support the national/international importance ones.

- *Priority Axis 3 : ICT for private and public sectors*
  Key area of intervention 2 "Developing and increasing the efficiency of electronic public services"
  Under Priority axis 3 "Improvement of social infrastructure", ROP supports health, education, social services infrastructure, emergency situation infrastructure and complements the SOP IEC operations in:

- the e-health sector, which introduces performing information and communication systems in the health field;
- e-education sector that envisages the increasing performances of the education sector by introducing information and communication systems. Under SOP IEC, together with the broadband connection of the school, a limited number of computers will be purchased so as to ensure a minimum use of the connection, while further IT equipment acquisition for the school will be possible under ROP Priority axis 3.

- *Priority Axis 4: Increasing energy efficiency and security of supply, in the context of combating climate change*
  Key Area of Intervention 1 "*Efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system)"* - The actions regarding energy efficiency at the end-user are to be supported under SOP IEC, except thermal rehabilitation of buildings, which is to be supported under integrated urban development projects in the ROP.

Complementarities with OP Administrative Capacity Development

In the context of supporting operations towards strengthening the institutional management capacity of the central and local administration, OP ACD complements:

- *Priority Axis 3: ICT for private and public sectors, Key area of intervention 3.2. "Developing and increasing the efficiency of electronic public services"*
  The operation concerning the support granted to local administration for building up integrated Information Systems is correlated with the supply of general training for the E-Government field in the OP "Administrative Capacity Development".

Complementarities with SOP Environment

- *Priority Axis 4: Increasing energy efficiency and security of supply, in the context of combating climate change, Key area of intervention 1* "*Efficient and sustainable energy (improving energy efficiency and environmental sustainability of the energy system)"* the operation addressed to LCPs is complementary with Priority Axis 3 of SOP ENV "Reduction of pollution and mitigation of climate change by restructuring and renovating urban heating systems towards energy efficiency targets in the identified local environmental hotspots". While SOP IEC provides for investments in LCPs of significant importance to the National Power System with a view to safeguarding security of supply, the SOP ENV is focussed on investments on rehabilitation of LCPs at municipal level, with the view to reducing their negative environmental impact in the most polluted localities.

Complementarities with OP Technical Assistance

Priority Axis 5 Technical assistance provides specific assistance for project preparation, monitoring, evaluation and control, as well as communication activities, only with regard to the specificity of SOP IEC. OP TA ensures the horizontal training on Structural and Cohesion Funds implementation for the personnel involved in the management and implementation of such funds, as well as for the potential beneficiaries for SCF with a view to the common needs and aspects across the structures, SMIS maintenance and development, as well as the general measures on information and publicity of overall SCF assistance; the other OPs finance specialized training programmes in the field of SCF tailored to the specific needs and actions of each OP. Overlap is avoided not only by beneficiaries but by the focus of training.

National Rural Development Programme (NRDP)

- *Priority Axis 1 An innovative and eco-efficient productive system*
  Key area of intervention 1"Productive and environment friendly investments and preparation for market competition, especially of SMEs".
  The productive investment operations under SOP IEC exclude the processing of agricultural and forestry products listed in Annex 1 to the Treaty, which are to be financed under NRDP.

- *Priority Axis 1 An innovative and eco-efficient productive system*
  Key area of intervention 2 "Access to finance for SMEs"; Under SOP IEC, the operations under this KAI shall support financial engineering instruments dedicated to SMEs operating outside the agriculture sector. The support to guarantee funds which provide guarantees for farmers, related agricultural and forestry activities and small rural businesses will be given under the NRDP.

- *Priority Axis 4 Increasing energy efficiency and security of supply, in the context of combating climate change, Key area of intervention 2 "Valorisation of renewable energy sources (RES) for producing green energy"*
  The valorisation of RES under SOP IEC complements the actions under the National Rural Development Programme, which will support RES projects (e.g. bio mass) for SMEs involved in agriculture and forestry and processing Annex 1 products. Such beneficiaries will be exempted from support under SOP IEC.

4. FINANCIAL PLAN

The financial plan of SOP IEC has been elaborated in correlation with the financial plan of the Romanian National Strategic Reference Framework 2007-2013. The ERDF contribution to the SOP IEC is 2,554 MEuro, representing about 65.19% of the total budget.

Financing Plan of the SOP IEC giving the annual commitment of Each Fund in the Operational Programme

Operational programme reference (CCI number): 2007RO161PO002

Year by source for the programme, in EUR:

	Structural Funding (ERDF) (1)	**Cohesion Fund (2)**	**Total (3) = (1)+(2)**
2007	170,464,211	0	170,464,211
2008	194,837,789	0	194,837,789
2009	364,964,902	0	364,964,902
2010	485,640,935	0	485,640,935
2011	507,263,253	0	507,263,253
2012	435,815,005	0	435,815,005
2013	395,236,014	0	395,236,014
Grand Total 2007-2013	2,554,222,109	0	2,554,222,109

Note: All fundings are for regions without transitional support

Financial plan of the SOP IEC giving, for the whole programming period, the amount of the total financial allocation of each fund in the operational programme, the national counterpart and the rate of reimbursement by priority axis

Operational programme reference (CCI number): 2007RO161PO002

Priority axes by source of funding (in EUR)

	Community Funding (a)	National counterpart (b) (= (c) + (d))	Indicative breakdown of the national counterpart		Total funding (e) = (a)+(b)	Co-financing rate* (f) = (a) / (e)	For information	
			National Public funding (c)	National private funding (d)			EIB contributions	Other funding
Priority Axis 1 ERDF	928,651,290	151,175,785	151,175,785	-	1,079,827,075	86.00%	-	477,118,545
Priority Axis 2 ERDF	536,395,116	109,864,060	109,864,060	-	646,259,176	83.00%	-	179,512,852
Priority Axis 3 ERDF	383,170,104	86,265,570	86,265,570	-	469,435,674	81.62%	-	89,909,113
Priority Axis 4 ERDF	638,475,370	87,064,824	87,064,824	-	725,540,194	88.00%	-	502,530,688
Priority Axis 5 ERDF	67,530,229	22,510,078	22,510,078	-	90,040,307	75.00%	-	-
Total	2,554,222,109	456,880,317	456,880,317	-	3,011,102,426	84.83%	-	1,249,071,198

** The co-financing rate for all Priority Axes are calculated on a public cost basis.*

The distribution of funds by the SOP IEC priority axes resulted from SOP strategy and identified priority axes based on the methodological approach laid out in Annexes 6-9 in order to weight the relative importance attributed to each priority. Moreover, the complementarity between various programmes has been taken into consideration. Consequently, the following ERDF allocation was proposed:

- Priority Axis 1: 36.36%
- Priority Axis 2: 21%
- Priority Axis 3: 15%
- Priority Axis 4: 25%
- Priority Axis 5: 2.64%

The allocation maintains the same relative allocations among the first four Priority Axes, as resulted from the analysis; funds to be allocated to Priority Axis 5 (technical assistance) were set at 2.64%, by reallocation from the other priority axes, proportionally.

Priority Axis 1 benefits from the most substantial financial allocation, counting for 36.36% of total ERDF funds allocated for SOP IEC. Such share is justified by two main arguments:

- The envisaged key areas of intervention (and, inherently, the indicators selected for initial lagging behind calculation) are among the actions targeting factors (financing, human resources) and investment conditions (technological improvement, certifications). Therefore, they are the best match with Romania's competitive development stage and should be considered priorities in improving competitiveness.
- Concomitantly, key areas of intervention under Priority Axis 1 are converging with existing EU policies. Thus, the Union's preoccupation with a unitary action framework and a common vision is captured in the corresponding weighting of the priority axis. Main fields of intervention such as supporting the development of SMEs, better access to finance, or encouraging business support services and infrastructures are priorities set by the present agenda of the EU.

It is the worth mentioning that during the SOP IEC drawing up, this Priority Axis has received the highest level of interest from the stakeholders and potential beneficiaries.

Priority Axis 2, with a 21% allocation, targets:

- Setting the basis for a qualitative leap forward as regards the competitive development stage for Romania, towards an innovation-based competitiveness (research and development, patenting).
- Linking the Romanian competitiveness agenda to that of the Union (Lisbon Strategy), with a high degree of compatibility and convergence (public spending on R&D, involving enterprises in cooperation for innovation).

Priority Axis 3, the allocation of 15% of ERDF funds is justified by the fact that the global objective, i.e. productivity growth - a decisive factor for a successful market development may be empowered by:

- The positive impact of ICT on competitiveness.
- In accordance with the specific objectives established by the Lisbon Agenda and the i2010 Strategy, it is essential to underline the crucial importance of the accessibility and broadband infrastructure development as a main priority for developing the Information Society in Romania.

Priority Axis 4 Initial lags between Romania and EU countries were adjusted according to specificities of the field:

- In principle, energy sector interventions are susceptible of changing the competitive environment for the worst; however, private and public capital should be allowed to correct market failures, within an established regulatory framework.
- Interventions in this sector are notoriously costly and exceed the financial capacity of Romanian operators.
- Proposed key areas of intervention are implemented in parallel with the Romanian energy sector liberalisation, as a direct consequence of the European integration process. Operations covered by Priority Axis 1 will have a positive impact on this priority axis as well, in terms of increased energy efficiency induced by the acquisition of modern production equipment and technologies.

- Most importantly, compliance with environmental EU directives implies significant efforts for Romania to undertake environmental related investments for emissions' reduction in large combustion plants.

The total funding of SOP IEC was calculated according to a thorough analysis of the types of potential beneficiaries under each priority axis and applicable ceilings of support mainly based on state aid regulations.

The indicative allocations will be regularly reviewed by the SOP IEC Monitoring Committee and revisions will be proposed where justified, taking into account any possible change in the economic context and the capacity to effectively absorb the funds.

In addition, the annual breakdown has taken into account the experience gained in project management within pre-accession instruments. Thus, a cautious approach of the funds distribution has been considered for the first years after accession with an increasing trend reaching a maximum peak in 2011.

Categorisation

SOP IEC contains the indicative breakdown of funds allocation by categories (Annex 13) in line with the provisions of Articles 37, par.1 (d) of the Council regulation No. 1083/2006 and according to the Commission Regulation No. 1828/2006. The categorization represents the ex-ante estimation on the use of the funds under SOP IEC; the categories considered are the codes by dimension (Priority Theme, Form of finance and Territory type), as they are listed in Annex II of the Commission Regulation No. 1828/2006. This information will help the Managing Authority to monitor the SOP implementation by investment categories and to provide to the Commission uniform information on the programmed use of the Funds in the annual and final implementation report (ex-post information), according to Art. 67, Council Regulation No.1083/2006.

According to NSRF, Romania is committed to contribute to achieving Lisbon objectives and considers the principle of Lisbon earmarking as an important tool for monitoring at national and Community level the performance in gearing Structural and Cohesion Funds towards Lisbon-related areas of intervention.

The indicative level of Lisbon expenditure under SOP IEC is estimated at about 92.6% of the total allocation of EU funds, according to the categories listed in Annex IV of the Council Regulation No. 1083/2006. This reflects the high contribution of SOP IEC actions to the Lisbon goals.

5. IMPLEMENTATION

This Chapter contains arrangements with respect to the system of implementation of the SOP IEC pursuant to requirements defined in Council Regulation (EC) No.1083/2006 laying down general provisions on Structural Funds.

5.1. Management

Overall responsibility

The Romanian Government, represented by the Ministry of Economy and Finance and the Managing Authorities, has overall responsibility for the commitments embodied in the documents concerning Structural Funds and their correct and efficient implementation. In particular, it will ensure the availability and system of access to the financial and other resources necessary to target the priorities described in the SOP IEC.

Managing Authority for the SOP IEC

Management and implementation of SOP IEC is subject to Council Regulation (EC) No. 1083/2006 and Commission Regulation (EC) No. 1828/2006.

The function of Managing Authority for SOP IEC was initially performed by the Ministry of Economy and Trade – General Directorate Managing Authority for SOP IEC, based on Government Decision No.1511/2006 amending Government Decision 738/2004 and 497/2004 amended by 1179/2004 and 128/2006. Following the merger of the Ministry of Public Finance and the Ministry of Economy and Trade (GEO no. 24/April 2007), the Managing Authority is presently hosted by the resulting institution, Ministry of Economy and Finance.

According to the requirements of Article 60 of Council Regulation (EC) No. 1083/2006, the SOP IEC Managing Authority is responsible for managing and implementing the operational programme in accordance with the principle of sound financial management and in particular for:

a) ensuring that operations are selected for funding in accordance with the criteria applicable to the operational programme and that they comply with applicable Community and national rules for the whole of their implementation period;
b) verifying that the co-financed products and services are delivered and that the expenditure declared by the beneficiaries for operations has actually been incurred and complies with Community and national rules; verifications on-the-spot of individual operations may be carried out on a sample basis in accordance with the detailed rules of the Commission in accordance with the procedure referred to in Article 103(3);
c) ensuring that there is a system for recording and storing in computerised form accounting records for each operation under the operational programme and that the data on implementation necessary for financial management, monitoring, verifications, audits and evaluation are collected;
d) ensuring that beneficiaries and other bodies involved in the implementation of operations maintain either a separate accounting system or an adequate accounting code for all transactions relating to the operation without prejudice to national accounting rules;

e) ensuring that the evaluations of operational programmes referred to in Article 48(3) are carried out in accordance with Article 47;
f) setting up procedures to ensure that all documents regarding expenditure and audits required to ensure an adequate audit trail are held in accordance with the requirements of Article 90;
g) ensuring that the certifying authority receives all necessary information on the procedures and verifications carried out in relation to expenditure for the purpose of certification;
h) guiding the work of the monitoring committee and providing it with the documents required to permit the quality of the implementation of the operational programme to be monitored in the light of its specific goals;
i) drawing up and, after approval by the monitoring committee, submitting to the Commission the annual and final reports on implementation;
j) ensuring compliance with the information and publicity requirements laid down in Article 69;
k) providing the Commission with information to allow it to appraise major projects.

Other responsibilities of the MA will be:
- to ensure that the elaboration of SOP IEC is made in partnership with all stakeholders, in compliance with European and national policies and complementary to other OPs;
- to set up an adequate management and control system at the level of SOP IEC;
- to ensure that the tasks delegated to IBs are properly carried out;
- to ensure the secretariat of the Monitoring Committee;
- to report to the Monitoring Committee;
- to collect progress reports from IBs.

The internal structure of the MA reflects the principle of separation of functions.

Intermediate Bodies

In line with articles 37.1.g.i. and 59.2 of Council Regulation (EC) No. 1083/2006, the SOP IEC Managing Authority delegates the implementation of designated SOP priority axes/key areas of intervention to Intermediate Bodies (as construed by Article 2.6 of Council Regulation (EC) No. 1083/2006).

IBs are to undertake, on a Delegation agreement basis, according to their expertise and specificity of the priority axis, responsibilities delegated from the Managing Authority for SOP IEC, such as:
a) Provide guidance to beneficiaries on SOP IEC procedures related to programming and implementation of measures;
b) Carry out project receivability check;
c) Project appraisal and selection, contract preparation and signing;
d) Gather data necessary for monitoring and evaluation of programme implementation;
e) Prepare supporting documents for the annual and final reports of the SOP;
f) Monitor the projects under SOP IEC implementation;
g) Based on applications for reimbursement from the beneficiaries, carry out controls as delegated by the MA to confirm the correctness of claims in terms of eligibility, reality and legality of the expenditures;

h) Detect the potential irregularities and report them to the MA;
i) Ensure the awareness and publicity actions, for the relevant priority axis/key area of intervention; ensure dissemination of information on SOP financing opportunities;
j) Ensure input of data into SMIS system.

Two of the IBs (dealing with SMEs and RDI) have established regional offices (8 for each IB) which may be entrusted with some of the above-mentioned delegated tasks (mainly collection of applications, formal receivability check, information and communication tasks). Subject to adequate staffing and expertise level, the territorial offices will be entrusted other tasks like project eligibility or on the spot verification.

An agreement is established between the Managing Authority and the Intermediate Bodies to define and detail the responsibilities of the Intermediate Body resulting from the delegation of tasks.

Where tasks are delegated to Intermediate Bodies, the Managing Authority retains overall responsibility and is fully responsible for the efficiency and accuracy of management and implementation of the Programme.

Based on Government Decision No.497/2004 establishing the institutional framework for co-ordination, implementation and administration of Structural Funds, amended by Government Decisions 1179/2004, 128/2006, and GEO no. 24/April 2007, the intermediate bodies designated for SOP IEC are:

Intermediate Body	**Priority Axis**
Ministry for SMEs, Trade, Tourism and Liberal Professions	Priority Axis 1: An innovative and eco-efficient productive system (except for the operation for large enterprises under "Productive investments" key area of intervention)
Ministry of Education, Research and Youth (National Authority for Scientific Research)	Priority Axis 2: Research, Technological Development and Innovation for competitiveness
Ministry of Communications and IT	Priority Axis 3: ICT for private and public sectors
Ministry of Economy and Finance – General Directorate for Energy Policy	Priority Axis 4: Increasing energy efficiency and security of supply, in the context of combating climate change

Should implementation reasons require further adjustments of the above-described system, any modification will be formalised prior to the compliance assessment under art. 71 of the Council Regulation (EC) No. 1083/2006.

Beneficiaries

The beneficiaries under the SOP IEC are the entities applying for support to implement projects (enterprises, public authorities, NGOs).

The beneficiary will be responsible mainly for:

a) elaboration of the application for the provision of assistance (as potential beneficiary);
b) proper implementation of the project according to the contract;
c) operating of a separate project accounting system or of an adequate accounting code for all transactions;
d) carry out verifications of invoices from contractors and fill the application for reimbursement;
e) reporting to the Intermediate Body on the progress in the project;
f) elaboration and submission of data to the Intermediate Body for monitoring;
g) compliance with publicity and information requirements in accordance with appropriate EU rules and with the Communication Plan.

The beneficiaries will be responsible for ensuring the internal control necessary for meeting eligibility of proposed and claimed project expenditures and, during the implementation of the projects, for complying with the contract terms.

In submitting the applications for reimbursement, the Beneficiaries will substantiate the incurred expenditures and their compliance with the project requirements contained in the financing decision on the funds to be allocated within the assistance. All applications for reimbursement must be supported by confirmed invoices and other documents of equal probative value.

The beneficiaries must keep project dossiers providing adequate audit trail. Guidelines for beneficiaries will include detailed provisions for audit trail.

The beneficiaries must make the documents on projects available at any time for inspections carried out by authorized persons or entities. The documents will be archived in compliance with applicable regulations.

Project assessment and principles of assistance

In the overall process of implementation of the programme, the Managing Authority ensures the compliance of the operations with European and national rules (art. 60(a) of the general regulation).

The Managing Authority will verify that selection procedures are transparent, objective and efficient in order to guarantee the viability and quality of financed projects.

The projects' selection procedure is organised around the following phases: eligibility and formal check, appraisal based on selection criteria, selection of projects and contracting.

Selection committees (SC) for projects' assessment are established by the IB (or by the MA when the priority axis/key area of intervention/operation is managed by the latter) in agreement with SOP IEC Managing Authority.

Other members of the SC are internal and/or external experts. The composition of the groups is decided according to the dimension, number and complexity of projects and the specific skills required for their assessment. In some cases the project-scoring phase of the assessment process will be entrusted to panels of independent evaluators, selected from expert data-bases according to the relevance of their expertise.

After the eligibility and formal check of projects, carried out by the IB/MA, the SC carries out detailed assessment of projects based on the selection criteria as approved by the SOP IEC Monitoring Committee. Selection criteria shall be clear and objective, to facilitate the selection process. Selection criteria will be designed so as to ensure the financial, economic and technical viability of projects.

The assessment methods and procedures will be suited to the contents and dimension of projects. To ensure objectivity of project assessment, members of the SC and experts who are in any way connected with the assessed application, do not participate in the appraisal process. SF rules and state aid rules referring to sectors, projects and expenditure eligibility will be followed.

The received applications following the call for proposals shall be checked first from administrative and eligibility point of view. If successful, they would be subject to further assessment against pre-defined criteria.

Before appraisal in line with pre-defined criteria, all projects must be checked for criteria like:

- project occurs within the eligible SOP area;
- project takes place within the permitted time-scale;
- project is submitted by an eligible applicant as defined in the call for proposal;
- applicant has necessary co-financing resources in place;
- the applicant does not benefit of another EU financing for the project etc.
- the applicant does not have outstanding liabilities as defined by national rules.

Besides the specific project selection criteria for the concerned operation, core criteria should be assessed for all projects, among which:

- relevant contribution to one or more of the objectives of the SOP;
- measurable outputs and detail clear, attainable and verifiable targets;
- economic viability;
- integration of aspects of environmental protection and equal opportunities;
- compliance with EU rules particularly on state aid and public procurement;

The effectiveness of the selection procedure will be monitored during the programme period and might be adapted, if needed, based on gained experience.

The project promoters/beneficiaries will be informed about the final selection of projects (including reasons of rejection for the non-successful ones and information about the next selection sessions).

5.2. Monitoring and Evaluation

Monitoring

Monitoring of SOP IEC is the responsibility of the SOP Managing Authority under the control of the SOP IEC Monitoring Committee.

Monitoring and control units are set up within the Managing Authority and Intermediate Bodies.

Units involved in the process of the funds flows at all levels of management shall apply uniform monitoring principles, both in physical and financial monitoring, limited to certain indicators, and shall present information and reports in agreed format.

Monitoring is carried out under the partnership principle. The Monitoring Committee shall be set up by the Member State, in agreement with the Managing Authority after consultation with the partners and in accordance with its own institutional arrangements and practice.

Membership and role of the SOP IEC Monitoring Committee

The Monitoring Committee shall be set up within three months after the decision approving the operational programme, as per Art. 63 of Council Regulation No. 1083/2006. The main responsibility of the Monitoring Committee is to ensure the effectiveness and quality of the implementation of the SOP IEC.

Membership of the SOP IEC Monitoring Committee will comprise representatives of SOP IEC Managing Authority, representatives of the ACIS, of Certifying and Paying Authority, Audit Authority, all Intermediate Bodies, Managing Authorities of other OPs, the National Equal Opportunities Agency, Competition Council, National Agency for Environment Protection, social partners (employers associations, trade unions confederations), relevant NGOs, among which representatives of national and regional organizations interested in active participation in SOP's implementation (such as Chambers of Commerce, Banking associations, NGOs active in the economic and environment protection fields).

Representatives of the European Commission participate in an advisory capacity in the committee; when appropriate, delegates of the European Investment Bank and European Investment Fund are also invited.

Each institution must nominate one full member for the MC and one substitute member, at high decision level. The composition of the SOP Monitoring Committee will consider the requirements of gender balance.

Subsequent changes in the membership or composition of the Committee may be agreed by the Committee, subject to national legislation, without any requirement to amend the SOP.

Under Article 65 of the Council Regulation 1083/2006, the SOP IEC Monitoring Committee shall satisfy itself as to the effectiveness and quality of the implementation of the Structural Funds. This will include, as appropriate:

a) it shall consider and approve the criteria for selecting the operations financed through SOP IEC; the selection criteria shall be revised in accordance with programming needs;
b) it shall periodically review progress made towards achieving the specific targets of the operational programme on the basis of documents submitted by the Managing Authority;
c) it shall examine the results of implementation, particularly achievement of the targets set for each priority axis and the evaluations referred to in the Art. 48 (3) of the Council Regulation No. 1083/2006;
d) it shall consider and approve the annual and final reports before they are sent to the Commission;
e) it shall be informed of the annual control report and of any comments the Commission may make after examining that report;
f) it may propose to the Managing Authority any adjustment or review of the operational programme likely to make possible the attainment of the Funds' objectives or to improve its management, including its financial management.
g) it shall consider and approve any proposal to amend the content of the Commission decision on the contribution from the Funds.

The SOP IEC Monitoring Committee may decide the reallocation of co-funded expenditure between key areas/operations within the same priority axis. Any amendment to the contribution of the ERDF and transfers among priority axes within SOP is decided by the European Commission, in agreement with the Member State.

The MC shall draw up and adopt its own rules of procedure within the national institutional, legal and financial framework, as well as the decision-making procedure. The MA SOP IEC ensures the Secretariat of the Monitoring Committee.

For adequate evaluation, the SOP IEC Monitoring Committee may appoint permanent working groups, particularly for monitoring activities of horizontal nature and seek opinions of independent experts.

The coordination activity of the Monitoring Committee will also benefit of support from the Regional Coordination Committees established in the 8 Development Regions, in order to assist in the correlation of interventions amongst the Operational Programmes. Additionally, the SMIS system will allow the continuous monitoring of progress as regards the regional absorption of funds and their impact on regional disparities, thus enabling the adoption of corrective measures, when and where needed.

The SOP IEC will support, where possible, the European Commission plans to boost innovation by bringing European regions together into strong partnerships and to help them take advantage of experience and best practice.

In the framework of "Regions for Economic Change" initiative, the Managing Authority commits itself to:

a) Make the necessary arrangements to welcome into the mainstream programming process innovative operations related to the results of the networks in which the regions are involved;

b) Encourage the Monitoring Committee to receive regular updates from the network(s) where the regions are involved;
c) Foresee a point in the agenda of the Monitoring Committee at least once a year to take note of the network's activities and to discuss relevant suggestions for the mainstream programme concerned.
d) Inform in the Annual Report on the implementation of the regional actions included in the Regions for Economic Change initiative.

Monitoring and reporting system

Monitoring is an on-going process and has an important role to play in the management of the operational programme, in confirming that it is making good progress, determining whether or not the programme continues to pursue the original targets and in identifying potential problems so that corrective action can be taken.

The OP monitoring system takes into account the needs of different user groups and different levels of the management structures. The potential users of information are the stakeholders who have their own areas of responsibilities and, therefore, their distinctive information needs, as follows:
– Beneficiaries,
– Intermediate bodies,
– Managing authorities,
– Monitoring committees,
– Government of Romania,
– European Commission,
– External evaluators,
– Wider public and NGOs.

The monitoring system is based on a regular examination of the context, resources (inputs), outputs and results of the programme and its interventions. It is composed of a mechanism of coherent information including progress review meetings and progress reports providing periodic summaries which incorporate key information from the physical and financial indicators.

The purpose of the reports is to provide updates on achievements against indicators and milestones and they will be written in a standard format allowing for comparison between reports over time.

The core piece of information to be provided in the reports is related to indicators capturing the progress of the interventions towards the goals set in the programming phase. In this respect, a system of indicators for each OP has been developed under the coordination of ACIS. Although adapted to the specific feature of SOP IEC, the indicator system pursues the uniformity of the core data allowing information to be bottom-up aggregated at different levels of interventions (projects, key area of interventions, priority axes, OP, NSRF), themes, sectors etc. The system will be detailed with guiding elements providing a common understanding throughout the stakeholders, such as comprehensive lists of monitoring and evaluation indicators, definition of each indicator, responsibilities, periodicity and ways of data collection and processing, as well as

indicators tables to be generated by SMIS[37] providing a clear picture of the interventions' context and progress. Whenever appropriate, the indicators will be broken down by different criteria (territorial, gender, target groups, size of the recipient etc.).

The use and improvement of the set of indicators as part of the monitoring system is a continuous task during the programming period. ACIS and the Managing Authority will check periodically the reliability of the information collected and will coordinate an on-going process of improving the functioning of the monitoring system. Evaluations and quality check of the monitoring system concerning its coverage, balance, and manageability will be carried out. The individual indicators will be assessed in terms of their relevance, sensitivity, availability and costs.

The Monitoring Committee will be consulted on the indicators system at an early stage of programme implementation as well as during the entire programming period in order to verify that:

- the indicator system as a whole has been set up properly, and
- the information is sufficient for its own work.

Although the monitoring system will be largely responsible for generating output data, some output, and most result data may require additional efforts (e.g. surveys, field work, collecting information from other organisations). On the other hand, official statistics generating context indicators will need to be supplemented with surveys, studies or other techniques of data collection and interpretation. The specific needs for complementary information and related planned activities will be included in the OP and NSRF Evaluation Plans that are described in Evaluation section of this document.

Evaluation

Regulatory framework

Evaluation of Operational Programmes is an activity inseparable from the overall OP management and implementation arrangements, as a tool for assessing the relevance, efficiency, effectiveness of the financial assistance deployed, as well as the impact and sustainability of the results achieved.

The requirement to conduct systematic evaluation activities of the Operational Programmes and the general rules for those activities are provided for in the Council Regulation (EC) No 1083/2006 (Articles 37, 47 – 49).

In accordance with Articles 47-49 of the Council Regulation no 1083/2006, three main types of evaluations will be carried out for SOP IEC:

- *Ex-ante evaluation*
- *Ongoing evaluations* (during the period of implementation of the OP)
- *Ex-post evaluation.*

[37]SMIS: The Single Management Information System is a nation-wide web-based information system, supporting all organisations implementing the Operational Programme. The system is addressing the needs of all management levels and through all the stages of the programme cycle (further details under subchapter 5.5.).

Ex-ante evaluation. For the programming period 2007-2013, the ex-ante evaluation was carried out for all OPs by an external evaluator (a single contractor). The ex-ante evaluation has also included the Strategic Environmental Assessment, done in compliance with the requirements of the Directive 2001/42 on the assessment of the effects of certain plans and programmes on the environment. The management of the ex-ante evaluation contract was ensured by the ACIS through the Evaluation Central Unit in close cooperation with the Managing Authorities and other main stakeholders.

Ongoing evaluations to be carried out during the period of implementation of the SOP IEC will be of three types – *a) interim, b) ad hoc* and *c) with a cross-cutting theme*, as follows:

The Interim Evaluation will aim at improving the quality, effectiveness and consistency of the assistance and the strategy and implementation of operational programmes. The interim evaluations will support the SOP IEC management process by analysing problems that occur during the implementation and proposing specific solutions to improve the operation of the system.

There will be 2 interim evaluations of the SOP IEC: one evaluation to be carried out at the end of 2009 and one in 2012. The first interim evaluation will examine progress to date in implementing the SOP, looking particularly at issues such as management of the SOP IEC, whereas the second interim evaluation will focus more on priorities, looking towards the next programming period.

Ad-hoc evaluations will be carried out when programme monitoring reveals a significant departure (around 30%) from the goals initially set or when there are proposals for the revision of operational programme. Ad-hoc evaluations can also address either implementation or management issues of an individual Priority Axis or Key Area of Intervention, or can be "thematic", addressing issues like (in case such issues are not covered by cross cutting evaluations managed by ACIS): the extent to which the OP facilitates innovation and promotes entrepreneurship within the assisted companies, the extent to which the OP facilitates job creation in assisted companies (especially the investment operations), or the extent to which the OP takes account of sustainable development and EU legislation concerning environmental policies.

At the proposal of the Managing Authority, the Monitoring Committee will decide on the subjects and timing of the ad-hoc evaluations, based on the examination of the financial and physical data provided by the monitoring system.

Interim and ad hoc evaluations will be managed by the evaluation function of the Managing Authority and will be conducted externally, by independent evaluators.

Evaluations with a cross-cutting theme will be carried out when the evaluation is of a horizontal nature and completion of the evaluation demands involvement from more than one OP. These evaluations may examine the evolution of all or a group of OPs in relation to Community and national priorities. They may also examine particular management issues across all OPs. Evaluation with cross-cutting themes will be managed by Evaluation Central Unit of the ACIS and will be commissioned to external consultants.

Specific objectives, evaluation questions, tasks and expected results of interim, ad-hoc and cross-cutting evaluations will be defined separately for each evaluation to be conducted.

The ex-post evaluation shall be carried out by the Commission, in close cooperation with the Member State and the Managing Authorities, according to Art. 49 par. 3 of the Council Regulation no 1083/2006.

The Commission may also carry out **strategic evaluations**, as well as evaluations linked to SOP IEC monitoring, in accordance with Art. 49 par. 2 of the Council Regulation no 1083/2006.

Institutional framework for evaluation

The national institutional framework for evaluation comprises 2 levels:

- an overall coordination level, ensured by the Evaluation Central Unit established within the ACIS structure, Ministry of Economy and Finance
- a functional level, composed of the evaluation unit established within each MA**.**

The coordination role of the Evaluation Central Unit can be summarized as follows:

(i) Carrying out cross-cutting evaluations;
(ii) Providing capacity building activities to support and develop the operational capacity of the evaluation units established in the OP Managing Authorities.
(iii) Providing overall quality assurance activities to ensure the quality of all evaluations.

The evaluation unit established within the SOP IEC Managing Authority will be responsible for interim evaluations and ad hoc evaluations.

The evaluation unit will act in co-operation with the Monitoring Committee and will interact on a constant basis with the Evaluation Central Unit.

Evaluation Plan

The MA evaluation unit will draft an OP Evaluation Plan, which will comprise the indicative evaluation activities it intends to carry out in the different phases of the programme implementation, collection of complementary data that is not delivered by the monitoring system, the indicative human and financial resources allocated for each evaluation activity, the actions aimed at capacity building, as well as the incumbent responsibilities. This planning shall be done in accordance with the Community Regulations on Structural Instruments; the methodological working papers on evaluation issued by the European Commission; the methodological working papers on evaluation issued by ACIS - Evaluation Central Unit. The OP Evaluation Plan shall be subject of the Monitoring Committee approval.

In addition, an Evaluation Plan at NSRF level will be drafted by the Evaluation Central Unit of ACIS. The NSRF Evaluation Plan will aim at providing information for the strategic decision making process and will plan evaluation activities at macro socio-economic level. Possible evaluation themes to be included in the NSRF Evaluation Plan may be linked to the NSRF priorities (infrastructure, economic competitiveness, human resources development, administrative capacity and territorial dimension) or may concern the delivery system such as the

horizontal ad-hoc external evaluation with a special focus on the implementation and process issues across the OPs as well as on the external coherence of the programmes with national policies that will be commissioned by the ACIS in 2008.

Operating arrangements

The OP will have an Evaluation Steering Committee, which should convene for each evaluation exercise. A Strategic Evaluation Steering Committee will be established also at the level of NSRF for evaluations with cross-cutting themes. The steering committee will fulfil, as a minimum, the following tasks: set the terms of reference for individual evaluations, facilitate the evaluator's access to the information needed to perform his/her work; support the evaluation work, particularly from the methodological standpoint; ensure that the terms of reference are observed; exercise quality control in relation to the evaluation performed.

Under the coordination of the Evaluation Central Unit, a follow-up mechanism of the evaluation recommendations will be set-up in the Evaluation Procedures Manual to be applied by the SOP IEC Managing Authority.

As concerns the availability for the public of the evaluation results, at least the executive summary of the evaluation reports will be made publicly available. The means of communication will be readily identifiable and accessible.

5.3. Financial management and control

The Ministry of Economy and Finance is designated to fulfill the role of **Certifying Authority** for all OPs, responsible for drawing up and submitting to the Commission certified statements of expenditure and applications for payment before they are sent to the Commission in line with the provisions of Article 61 of the Council Regulation No. 1083/2006.

The responsible directorate within the MEF is the "Certifying and Paying Authority" (CPA) built up on the National Fund office, making use of the pre-accession experience. The above-mentioned responsibilities will be performed by the "Certification Unit" within the CPA.

Within the CPA, there are two separate units, "Certification Unit" and "Payment Unit", each of them being under the coordination of a Deputy General Director.

The competent body for receiving the ERDF, ESF and Cohesion Fund payments from the European Commission in respect of all OPs is the Certifying and Paying Authority within the Ministry of Economy and Finance.

For SOP IEC, the **body responsible for making the payments** to the Beneficiaries is the paying unit within the Ministry of Economy and Finance.

An associate body of the Romanian Court of Accounts has been designated as **Audit Authority** for all OPs, in line with the requirements of Article 59 of the Council Regulation 1083/2006. The Audit Authority is operationally independent of the Managing Authorities, Certifying and Paying Authority.

Certifying and Paying Authority – shall be responsible in particular for:

1) *Certification of expenditure*, which means drawing up and submitting to the Commission certified statements of expenditure and payment applications in computerized form. Those functions are performed by the "Certification Unit"

It is certifying that:

- the statement of expenditure is accurate, results from reliable accounting systems and is based on verifiable supporting documents;
- the stated expenditure complies with applicable Community and national rules and was incurred in respect of operations selected for funding in accordance with the criteria applicable to the programme.

Within this purpose, the task of the Certifying Authority is to ensure that the received information on the procedures and verifications carried out in relation to expenditure and included in expenditure statements provides an adequate basis for certification, which entails:

- to verify the compliance of the claimed amounts with the database;
- to verify the correct calculation of the total amount of eligible expenditures;
- to take account of the results of all audits carried out by or under the responsibility of the Audit Authority/internal audit body or European Commission;
- to maintain accounting records in computerized form of expenditure declared to the Commission;
- to keep a debtor ledger.

2) Receiving payments from the Commission (responsibility of the "Payment Unit")

- to receive from the European Commission the amounts from ERDF, ESF and CF, as pre-financing, intermediate and final payment;
- to draw up and submit annually to the EC the provisional forecast of likely applications for payments for the current financial year and for the subsequent one;
- to return to the EC non-eligible expenditures, recoveries as a result of an irregularity or the funds that were not used, including interest of late payment.

3) Making payments to the beneficiaries for SOP Environment and SOP Transport and transferring the EU Funds to the paying units within the ministries that are Managing Authorities for the other OPs (*responsibility of the "Payment Unit*")

- to make payments to beneficiaries from the ERDF and CF and the co-financing amounts, for SOP Environment and SOP Transport;
- to transfer the funds from the ERDF and ESF to the paying units, for the other OPs.

The paying unit for SOP IEC within the Ministry of Economy and Finance has the following main responsibilities:

- to receive transfers of the Community contribution to the OP from the Certifying and Paying Authority;
- to make payments to the beneficiaries from the ERDF and the co-financing amounts.

The Managing Authority of SOP IEC is responsible for managing and implementing its Programme efficiently, effectively and correctly in line with the provisions of Article 60 of the Council Regulation No. 1083/2006.

The Managing Authority will work closely with the designated Certifying and Paying Authority in fulfilling the responsibilities of financial management and control to ensure that:

- Money is used most effectively to achieve the objectives of each OP;
- Use of resources is publicly accountable to the EU and the Member State;
- Budgetary control is effective so that commitment is sustainable within each OP and financial planning profiles are adhered to;
- Contracting is within budget;
- Procurement of goods and services under projects financed:
    - takes place,
    - conforms to EU and Member State rules,
    - represents value for money;
- Financial statements sent to the European Commission and other bodies are correct, accurate and complete:
    - correct - funds are applied correctly,
    - accurately – free from errors,
    - complete – all relevant items have been included;
- Payments to Beneficiaries are made regularly and without undue delay or deductions;
- Co-financing resources are provided as planned;
- Payments are properly accounted for;
- Irregularities are notified in line with EU regulations;
- Any sums wrongly paid out are recovered swiftly and in full;
- Unused or recovered resources are re-committed within the respective OP;
- De-commitment is avoided – particularly in relation to the n+3/n+2 rule;
- Closure of each OP takes place smoothly and on time.

Before submitting the application for reimbursement, the Beneficiary verifies the accuracy, actuality and eligibility of expenditure according to the national legislation on internal control.

Within the purpose of expenditure certification to the European Commission, checks for SOP IEC are carried out on three levels:

1) verification of expenditures at IB level;
2) verification of expenditures at MA level;
3) certification of expenditure at Certifying Authority level.

Verifications carried out at the IB level are delegated tasks from MA, based on its assessment regarding administrative capacity. The MA will remain responsible for the tasks delegated to the IB. The tasks performed in that sense will not duplicate checks carried out at IB level.

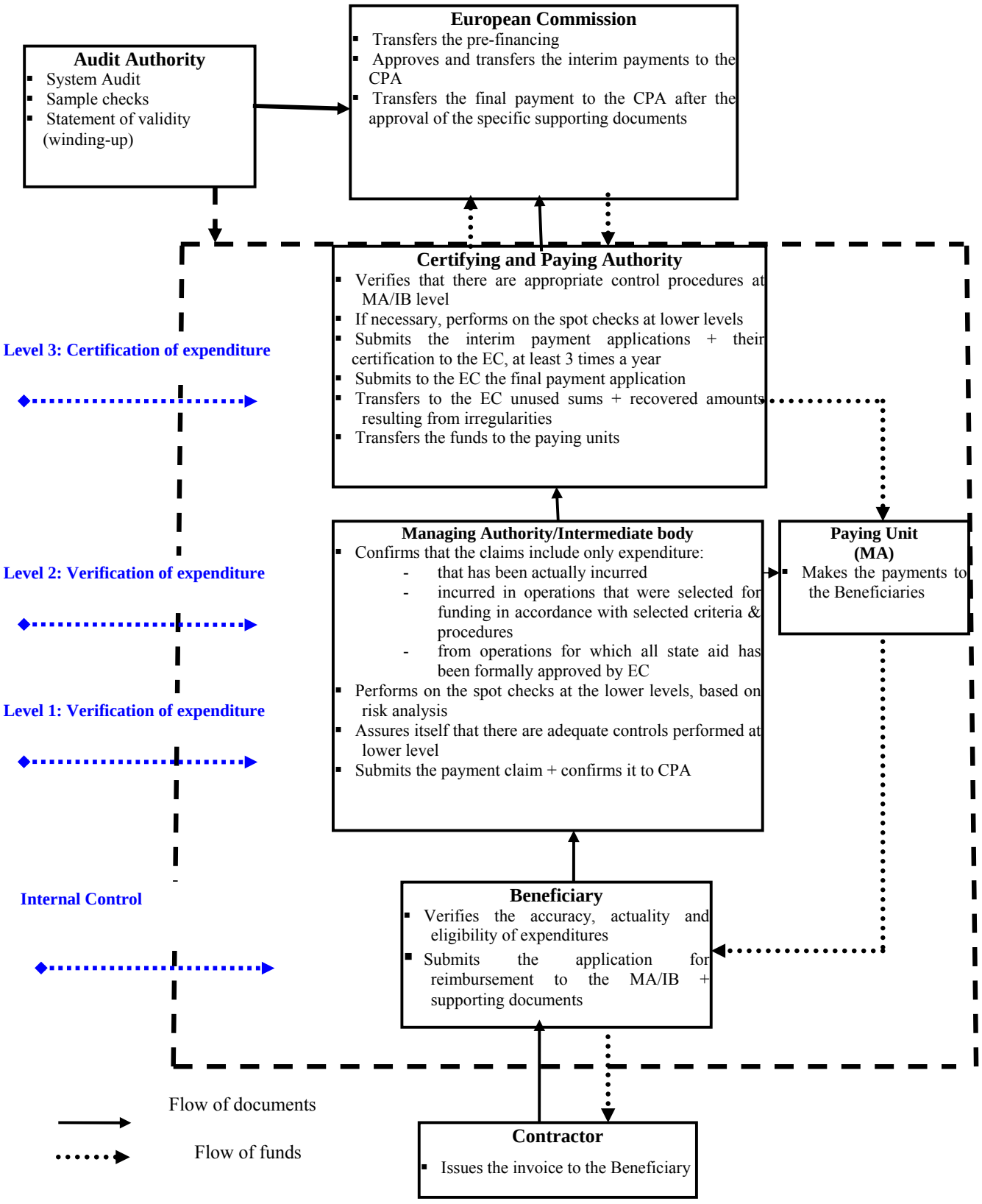
Regarding the payment process at the Ministry of Economy and Finance level, the decision was taken to have two payment flows:

a) direct payment for European Union financial contribution and co-financing amounts (where applicable) from the Certifying and Paying Authority to the beneficiaries, in the case of SOP Transport and SOP Environment,
b) indirect payment, through the paying units that are established near the Managing Authorities, for the other Operational Programmes.

Description of the financial flows for SOP IEC

1 – The Managing Authority notifies the Certifying and Paying Authority regarding the prefinancing award
2 – The Certifying and Paying Authority transfers the pre-financing funds to the Paying unit
3 – Paying unit transfers pre-financing to eligible beneficiaries
4 – The Beneficiaries make the payments to the Contractors
5 – The Beneficiaries submit the application for reimbursement together with supporting documents to the IB for financial and technical verification and the IB submits it further to the MA for payment authorization.
6 – The MA forwards the payment application to the Certifying and Paying Authority after payment authorization
7 – The Certifying and Paying Authority reimburses the eligible expenditure to the Paying unit after payment certification
8 - The Paying unit reimburses the eligible expenditures to the Beneficiaries
9 – The Certifying and Paying Authority forwards the Interim Payment to the European Commission
10 – The European Commission reimburses incurred expenditure - interim and final payments - to the Certifying and Paying Authority.

Financial flow of the SOP IEC



Irregularities

The legal basis is represented by Commission Regulation No. 1828/2006 setting out rules for the implementation of Council Regulation No. 1083/2006 and of Regulation No. 1080/2006, the Council Regulation No. 2988/95 on the protection of the European Communities' financial interests and the Romanian Government Ordinance No. 79/2003 with subsequent modifications and completions which settles the ways of control and recovery of sums from non-reimbursable EU financial assistance.

The objective of this section is to describe the identification and reporting of any suspected fraud or other irregularity. This section will also deal with the importance of the immediate implementation of corrective action (including sanctions and launching of civil or criminal proceedings) deemed necessary as a consequence of the investigation of an irregularity.

Irregularities involving loss of EU funds of less than 10,000 Euro are not required to be reported to the Commission under Commission Regulation (EC) No. 1828/2006 unless the Commission requests it.

Therefore, irregularities of over 10,000 Euro and all irregularities committed intentionally must be reported to the European Commission. These reports are aggregated and checked by the Certifying and Paying Authority and then are forwarded to the Fight Against Fraud Department (DLAF) for transmission to OLAF on a quarterly basis. The Certifying and Paying Authority receives the reports from the MAs and it must include any reports on irregularities within the Certifying and Paying Authority itself.

In order to allow a proper process of prevention, detection and reporting of irregularities, at MA and IB level, an irregularities officer is appointed. The irregularities officers appointed at IBs prepare quarterly and ad-hoc reports and submits them to the MA. The irregularities officer appointed at the level of the MA prepares quarterly and ad-hoc reports and submits them to the Certifying and Paying Authority.

Any person involved in the implementation of SOP IEC can report the suspected case of fraud/irregularity to the irregularities officers of the Certifying and Paying Authority, MA, IB or to the Internal Audit Units of the Certifying and Paying Authority, MA or IB either formally or anonymously. The person reporting the suspected case will have no further involvement in the irregularity process for personal security reasons.

Suspected irregularities will be analysed and investigated by the competent services and the response will be sent according to the internal procedures of the competent authority and to the Romanian legal framework in force.

The irregularities officer takes action both on own initiative and on the complaints received. The irregularities officer carries out its activity based on the Irregularities Manual that will be prepared by each structure involved (MA and IB).

Internal audit

Within all ministries involved in the implementation of the Operational Programmes have been established Internal Audit Units that are independent from the structures performing the tasks of Managing Authorities (or Intermediate Bodies) and are directly subordinated to the heads of the institutions concerned.

The methodological coordination of these Units is ensured by a special unit within the Ministry of Economy and Finance, namely the Central Harmonizing Unit for Public Internal Audit.

The attributions of central harmonizing unit for public internal audit:

- Developing and implementing uniform procedures and methodologies based on international standards agreed by the European Union, including internal audit manuals and audit trails;
- Developing risk management methodologies;
- Developing the Ethical Code of the internal auditor;
- Endorsing the methodological norms on PIA, specific to the different domains of activity in the field of public internal audit;
- Developing a reporting system for the results of all public internal audit activities and elaborating an annual report;
- Verifying whether norms, instructions, as well as the Ethical Code are respected by internal audit services in public entities; it may initiate the necessary corrective measures in co-operation with the Head of the respective public entity;
- Co-ordinating the system of recruiting and training in the field of public internal audit.

The tasks of the Public Internal Audit Unit

Public Internal Audit Units within the institutions that implement Structural and Cohesion Funds have specific audit manuals for the European Funds.

According to the law, the tasks of the Internal Audit Unit are the following:

- Performing internal audits activities in order to assess whether the financial management and control systems of the public entity are transparent and comply with the norms of lawfulness, regularity, cost-effectiveness, effectiveness and efficiency;
- Informing CHUPIA on the recommendations not followed by the head of the audited public entity and of their consequences;
- Reporting periodically on the findings, conclusions and recommendations resulted from its audit activities;
- Preparing an annual overview of its activities in the annual report;
- Reporting immediately to the Head of the public entity and to the inspection unit in case of detecting any serious irregularities or fraud cases.

Audit Authority

Romania has established an Audit Authority for all Operational Programmes through Law No. 200/2005, which will perform the functions established in the Article 62 of the Council Regulation No. 1083/2006.

The Audit Authority is an associated body to the Court of Accounts, without legal capacity, operationally independent from the Court of Accounts and at the same time independent from all the Managing Authorities and Certifying Authority.

In accordance with to the provisions of the Law No. 200/2005, Article 14^2, the Audit Authority has the following responsibilities:

- system audit, sample checks and final audit;
- checks and external audit for the structural and cohesion funds;
- annual checks of the management and control systems;
- checks of the statements of expenditure, on the basis of an appropriate sample;
- carries out appropriate checks in order to issue winding-up declarations at the closure of the programmes;
- checks the existence and correct use of the national co-financing.

Assessment of the compliance of the management and control systems

As required by Article 71 of the Council Regulation No. 1083/2006, an assessment of the compliance of the management and control systems for SOP IEC will be submitted to the Commission before the submission of the first interim application for payment or at the latest within twelve months from OP's approval.

5.4. Information and publicity

The access to the information referring to the interventions of the Funds is essential for the effectiveness of the co-financed operations. In accordance with art.69 of the Council Regulation (EC) No. 1083/2006 and Chapter II – *Information and publicity* (Section 1) of Commission Regulation (EC) No. 1828/2006, the MA of SOP IEC will ensure that appropriate action will be undertaken *to highlight the role of the Community and to ensure that the assistance from the Funds is transparent.*

In compliance with Art. 4 of the Commission Regulation (EC) No. 1828/2006, the Managing Authority shall:

- inform the Monitoring Committee of SOP IEC on the Communication Plan and its implementation progress, on the information and publicity measures carried out (providing examples of such measures) and on the means of communication used;
- include in the Annual Reports and in the Final Report to be submitted to the Commission examples of information and publicity measures carried out during the implementation of the *Communication Plan*, the arrangements for the publication of the list of beneficiaries, the names of the operations and the amount of public funding allocated to the operations, including, where applicable, the electronic address at which such data may be found (referred to in Art. 7 (2) (d) of the Commission Regulation (EC) No. 1828/2006) and the content of any major amendments to the Communication Plan;
- include in the Annual Implementation Report for the year 2010 and in the Final Implementation Report a chapter assessing the results of the information and publicity measures in terms of visibility and awareness of SOP IEC and of the role played by the Community.

For the implementation of the information and publicity measures of SOP IEC, the MA has established an Information and Publicity Unit, carrying the following responsibilities:

- preparing the Communication Plan and submitting it to the Commission within four months of the date of SOP IEC adoption;
- implementing the information and publicity measures foreseen in the Communication Plan with due consideration for the actions referred to in art.7 of Commission Regulation (EC) No. 1828/2006 and managing the related budget;
- monitoring the progress and the impact of the information and publicity measures;
- monitoring the actions of Intermediate Bodies, and beneficiaries relating to information and publicity measures particularly with regards to Articles 8 and 9 of the Commission Regulation (EC) No. 1828/2006;
- organise the evaluation of information/publicity measures, according to the Communication Plan;
- drafting the surveys and reports referred to in Article 4 of the Commission Regulation (EC) No. 1828/2006 to be presented by the Managing Authority to the Monitoring Committee and to the European Commission;
- participating to the Communication Working Group established at central level by ACIS;
- involving bodies that can widely disseminate information particularly with regard to Article 5 (3) of the Commission Regulation (EC) No 1828/2006 in order to further disseminate relevant information about SOP IEC to potential beneficiaries and other interested bodies;
- participating to the *Information Officers Community Network (INFORM)* established by the Information and Communication Unit of DG Regional Policy.

The Intermediate Bodies and the Managing Authority support each other in:

- Informing (potential) beneficiaries about eligibility criteria, selection procedures, evaluation criteria, operations selected for financing, and budget;
- Informing the general public about the projects implemented;
- Offering all useful information for drafting the surveys and reports referred to in Article 4 of the Commission Regulation (EC) No. 1828/2006 to be presented by the Managing Authority to the Monitoring Committee and to the European Commission.

The promotion of activities is supported by using and developing information tools adapted to specific target groups as they are defined in the Communication Plan. Operations envisaged are specified under the Technical Assistance priority axis of the programme.

Information and publicity actions of the SOP IEC included in the Communication Plan aim to:

- raise public awareness on EU Cohesion Policy and on the opportunities offered by Structural Funds in Romania;
- highlight the role played by the European Union in co-financing SOP IEC's activities, in supporting Romania's economic competitiveness, in fostering economic development and reducing regional disparities;
- raise public awareness on SOP IEC and its objectives, priority axes, mechanisms;

- inform (potential) beneficiaries on: conditions of eligibility for financing under SOP IEC, procedures for examining applications for funding and of the timeframe foreseen, criteria for selecting the operations to be financed, contacts at national, regional or local level providing information on SOP IEC;
- disseminate information on approved and financed projects as well as on results achieved and best practices;
- ensure access to information to all target groups;
- ensure maximum comprehensibility of the information provided to the public on Funds' allocation and management.

The following target groups have been identified for the information and communication actions of SOP IEC:

a) *the general public*

b) *the (potential) beneficiaries,* such as SMEs and associations of SMEs; organisations representing business and trade, non-governmental organisations; universities, educational institutions, research centres; local and central authorities

c) *the opinion leaders* and the *media system*, with particular reference to: leading economic and financial newspapers, leading TV and radio stations; key local media

d) *the "partners for communication*", i.e. all those bodies that can help the Managing Authority to widely disseminate information, such as: Intermediate Bodies, chambers of commerce, Employers unions, Trade unions, other professional associations; Information centres on Europe and Commission representation in Romania

Beneficiaries will be informed about their responsibilities, such as: informing the public about the assistance obtained from Structural Funds, displaying billboards, permanent explanatory plaques and the emblem of the European Union referred to in Art. 8 of the Commission Regulation (EC) No. 1828/2006, complying with the technical characteristics of information and publicity measures referred to in Art. 9 of the Commission Regulation (EC) No. 1828/2006.

The beneficiaries must be also informed that their projects are part of a priority axis in an operational programme co-financed by the ERDF and that their names, the name of the operations and the amount of public funding that is allocated to the operations will be published.

The tasks of SOP IEC Monitoring Committee, with relation to information and publicity issues, include adopting the Communication Plan and monitoring the way it is implemented.

The working group organised by the ACIS will ensure coordination of communication activities among institutions engaged in OPs information and publicity activities.

Communication and publicity measures will be subject to evaluations made by the MA SOP-IEC and by the SOP IEC Monitoring Committee.

The annual reports and the final report on implementation of SOP IEC will include examples of information and publicity measures for the operational programme adopted in order to ensure the effective implementation of the communication plan and the assessment of the implemented operations.

5.5. Single Management Information System

Concept of the Single Management Information System

The Single Management Information System is a nation-wide web-based information system, supporting all Romanian organisations implementing the National Strategic Reference Framework and Operational Programmes. The system is addressing the needs of all management levels (Managing Authorities, Intermediate Bodies, Certifying and Paying Authority etc.) and through all the stages of the programme cycle (programming, tendering, contracting, monitoring, evaluation, payments, audit and control). SMIS main characteristic is that it provides its users with a single mechanism for assisting them in accomplishing their tasks.

As a monitoring tool, SMIS is the main provider of information on progress regarding the implementation, at both project and programme level, allowing monitoring reports to be automatically generated.

The SMIS has been developed under the coordination of ACIS and in close cooperation with the representatives of all structures involved in the management of Structural Instruments. During the implementation period, the SMIS will be managed and further developed by ACIS.

SMIS design and functionalities

The SMIS design follows three main principles: data ***availability*** (data are directly available following the request of an authorized user); data ***confidentiality*** (data are provided only to those users authorized for accessing that specific piece of information); data ***integrity*** (data processing should occur only by authorized users under authorized means). As means for implementing the three aforementioned principles the system supports multiple users categorized into a number of user groups/roles. In that way user permissions are easily organized and managed and the access to information can be thoroughly audited and logged in a flexible way.

In order to provide an effective management tool, the functional model of the SMIS is based on a set of subsystems, which together reflect the broad range of functionalities the System is designed to perform, as follows:

- *Programming, w*hich allows the registration and the modification of the main information on the NSRF broken down at lower levels by OP, priority axis, key area of intervention and operation;
- *Project management* (registration and the modification of the main information on projects, including the contracts[38]);
- *Monitoring,* which allows observing the progress in structural and cohesion funds implementation at all levels, where appropriate against targets previously set. It also allows automatically bottom-up aggregation of the *actual value* of the core data which are registered at lower levels of the System;
- *Audit and control,* which registers the control and audit findings;
- *Funds flow management,* which deals with payment request forecasts, inflows, project revenues, suspensions and recoveries of funds.

[38] A contract is a legal commitment concluded between the Beneficiary and the Grantee or Provider of the services, works or supplies necessary to implement a part of the project or the entire project.

Data will be introduced in SMIS at the appropriate level, based on clearly defined user rights profiles. The access to the system will be granted based on username/password, obtained from ACIS following a specific procedure that involves the heads of the institutions managing the Structural Instruments.

SMIS Coordinators' network

At the level of the Managing Authorities, Certifying and Paying Authority and Audit Authority, SMIS Coordinators have been designated, responsible for collecting and pipelining the needs of their institutions, concerning the improvement of the system and for up keeping the integrity and uniformity of the procedures followed in the implementation of Structural Instruments.

Among the SMIS Coordinators' tasks and responsibilities, the following can be mentioned:

- To act as an interface between SOP IEC MA and ACIS on the one hand and SOP IEC MA and IBs on the other hand, concerning SMIS issues;
- To collect and disseminate information from and within the institution they represent;
- To be the first line of help desk function;
- To be in-house trainers for users, including the new employees.

Electronic data exchange with the European Commission, according to Art. 40-42 of the Commission Regulation no.1828/2006, will be done through an interface between SMIS and the System for Fund management in the European Community 2007-2013 (SFC2007).

6. PARTNERSHIP

The partnership principle is at the heart of the design and use of structural funds. It implies close cooperation between the European Commission, central and local governments, NGOs and the private sector, in order to achieve common development objectives. Partnerships can build social capital and attract the co-financing needed to utilize the structural funds. Competent partners mean better policies, quality planning and programming, better projects, and ultimately better absorption.

As stated in Article 11 of the Council Regulation (EC) No. 1083/2006, each Member State shall organise, where appropriate and in accordance with current national rules and practices, a partnership with different actors.

The Partnership process covers the entire programme cycle from the programming phase to the implementation, monitoring and evaluation, ensuring a high level of implication and appropriate input of various partners.

Partnership for SOP IEC was organised around three lines: the institutional partnership**,** made up of public, national, regional administrations involved in the SOP elaboration, including bodies dealing with horizontal priorities; the socio-economic partnership, comprising organizations of enterprises and employees representatives; the „third sector" partnership, consisting of NGOs, non-profit organizations, organisations promoting equal opportunities and environmental sustainability and any other representative bodies of civil society.

The MA identified the most representative partners in accordance with national rules and practices. In particular, socio-economic partners were identified according to the following principles: representativeness of partners; equality and balance in the representation of different socio-economic interests; expertise in the fields of SOP IEC interventions. Socio-economic partners are involved such as the above principles can be ensured.

In line with these provisions, the formal institutional partnership process was launched in March 2005 by setting up the SOP IEC working group, under the coordination of the Managing Authority for SOP IEC. The permanent working group includes representatives of all intermediate bodies and other involved institutions, whose main responsibility was to produce the draft versions of SOP IEC's chapters, such as: socio-economic analysis, SWOT analysis, strategy, implementation, financial allocation, etc. The general coordination targeting consistency with NSRF and complementarity with other funds was ensured by the ACIS.

Starting with the beginning of the programming activities, the SOP-IEC Managing Authority had frequent consultations with other OPs Managing Authorities: Ministry of Development, Public Works and Housing (Regional Operational Programme – SMEs, R&D), Ministry of Environment and Sustainable Development (SOP Environment – energy), Ministry of Interior and Administrative Reform, Ministry of Labour, Family and Equal Opportunities and Ministry of Agriculture and Rural Development. The objectives were both to identify the appropriate operations and intervention fields and to find complementarities and avoid overlapping between operations in different programmes.

With reference to the socio-economic partnership, in accordance with the regulation in force (Government Ordinance 314/2001 modified by the Government Ordinance 569/2002), the Social Dialogue Commissions, composed by representatives of the employers' associations and of the trade unions (Law 109/1997), have been involved in the programming process and expressed their opinion on SOP IEC contents.

Consultations on SOP IEC were carried out in parallel to publicity actions in the effort to offer the information to the broadest public, in order to ensure a large social support for SOP IEC. More specifically, the consultations along with information activities ensured: the transparency of the programming/implementing process, the feedback necessary to justify the orientation of structural funds towards specific economic needs and the timely preparation of the project pipeline to allow the impact and absorption of funds.

Consequently, the programming documents were made accessible to gather comments and suggestions and, if relevant, to integrate them in the text. The intermediate outputs, i.e. the consultative documents, have been published on the web page of the Ministry of Economy and Finance and of the IBs for comments, observation and socio-economic consultation. The Managing Authority for SOP IEC created a link on the MEF homepage including: SOP IEC full text, strategy summary, suggestions from partners to a dedicated e-mail address, questionnaires to check the knowledge and information level of potential beneficiaries and the degree of interest in structural funds-related issues, and proposed SOP IEC Strategy. The majority of received answers did not significantly contribute to the strategic choices of the programme, but mainly requested for further clarifications on very particular issues (e.g. eligibility, grant size, timing of operations, etc).

Based on the above-mentioned questionnaires posted between November 2005 and August 2006, MA SOP IEC made an analysis aiming to target the potential beneficiaries of SOP IEC and to draft the pipeline of projects. A database was set up and the data interpretation showed the following: the total number of respondents was 320 (SMEs, NGO's, universities, professional associations). The quantitative and qualitative data analysis revealed among others, an awareness about structural funds of about 50%, a 100% interest in the issue, and a marked preference (60%) for Priority Axis 1.

The SOP IEC draft was also the subject of presentations/consultations during several targeted events. In July – December 2005 and in the second half of 2006, the Managing Authority for SOP IEC participated in the communication/consultation campaigns organized by the Ministry of Economy and Finance (ACIS) in the 8 Development Regions and presented in detail the priority axes, key areas of intervention and indicative operations to be financed under SOP IEC.

Next, within the territorial information and consultation activities, in November 2005, the MA for SOP IEC started its own campaign and presented the programme in the development regions. The dissemination of information regarding structural funds and projects to be co financed was developed in partnership with RDAs, local authorities, banks, other institutions and organizations with territorial representation such as Chambers of Commerce, and were addressed to economic and social partners, civil society organizations and general public.

At the same time, the MA either organized or participated in various meetings, seminars and other events in order to present and submit to consultations the SOP-IEC between April 2006-March 2007 (around 50 presentations made in this period). All observations and comments received have been carefully analyzed by both MA and IBs and, where the case, led to documents improvement.

During October - December 2006, the MA organized two meetings with stakeholders of the SOP IEC, from banking and socio-economic fields. A large number of senior officials from banks, trade unions and employers' unions attended the debates. Following this consulting process, the MA received a positive feed-back in terms of programme structure rather than suggestions for changing it.

As a general remark, the widespread opinion resulting from the overall consultation process was that a more significant financial allocation should be devoted to the productive investment operation under PA 1, including large enterprises; for reasons related to a balanced strategic approach, the suggestion was not retained by the MA.

A large consultation process with relevant partners was held also by IBs with regard to their role and responsibility under SOP IEC and the opportunities offered by the priority axes they are in charge of.

Each Intermediate Body, in its specific area of expertise and activity, set up active consultation programmes and working groups, at national level, including a large socio-economic partnership basis: professional associations, employers' and trade unions' organizations, Regional Development Agencies, territorial Chambers of Commerce, NGOs, enterprises, as well as partners and organizations from the scientific and academic environment with relevant profile within the coordinated field. Consultations were organised between March 2005 and October 2006.

The partnership principle shall be developed in the setting up and functioning of the Monitoring Committee that will enable the participation of institutional and socio-economic partners in all the activities related to SOP IEC implementation and monitoring. The tasks of the MC are stated by the general regulation on SF and are specified in the SOP IEC.

Additional opportunities for partnership are represented by thematic working groups that analyse specific aspects of the implementation identified on the basis of emerging needs, even temporary ones. Considering the diversity of operations financed under SOP IEC, the particular expertise of each partner will be considered when setting up these groups.

When required by specific needs, other methods or instruments could be considered for the consultation of socio-economic partners such as: focus groups, surveys, interviews with relevant actors, where, again, relevant partners' involvement will be sought.

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A. ANNEXES RELATED TO THE ECONOMIC BASELINE ANALYSIS

1. Manufacturing industry

Annex 1

Table 1
Evolution of Industrial production indices

(% change compared to previous year)

	2001	2002	2003	2004
TOTAL INDUSTRY	**108.4**	**106.0**	**103.2**	**105.3**
Mining and quarrying	**105.0**	**96.1**	**98.6**	**102.4**
MANUFACTURING	**109.9**	**107.9**	**103.9**	**106.3**
Food industry	114.6	112.9	113.6	95.4
Textile industry	103.2	101.5	93.0	103.5
Clothing articles	115.1	110.0	100.3	95.8
Leather goods and footwear	104.1	103.3	101.0	97.8
Wood and wooden products manufacturing	108.1	104.2	114.6	142.0
Pulp, paper and paper products	111.3	110.5	102.3	97.1
Crude oil processing	110.5	112.7	92.5	106.2
Chemical substances and products	102.7	105.0	102.8	134.4
Rubber and plastic products	126.3	103.0	140.8	109.9
Manufacturing of construction materials and other products of non-metallic minerals	100.3	94.4	95.3	116.8
Metallurgy	116.2	129.7	78.8	113.5
Metallic constructions and metal products	99.5	100.6	97.6	99.6
Machinery and equipment	115.1	100.5	95.9	107.1
Electrical machinery and appliances	110.7	107.4	106.0	115.8
Radio, TV and communication equipment and apparatus	92.6	83.3	160.8	113.6
Medical, precision, optical instruments and apparatus	108.7	88.5	90.0	90.1
Means of road transport	98.8	109.1	112.7	124.3
Means of transport not included in road transport	104.5	101.7	112.6	93.9
Furniture and other	1021	110.7	103.4	89.7
Electric and thermal energy	**98.7**	**98.3**	**101.1**	**96.8**

Annex 1

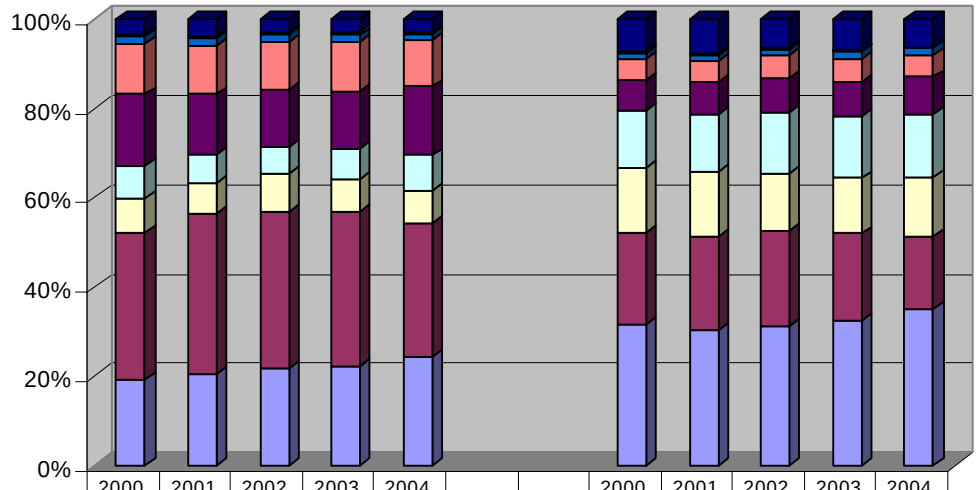
Table 2
Export Evolution by activities

(MEuro)

Activity	2000	2001	2002	2003	2004
Total EXPORT	**11,273**	**12,722**	**14,675**	**15,613.7**	**18,935**
AGRICULTURE, HUNTING, SYLVICULTURE AND FISHERY	**289**	**324**	**311**	**334.1**	**361.5**
TOTAL INDUSTRY	**10,978**	**12,391**	**14,355**	**15,250**	**18,560**
Mining and quarrying	**37**	**42**	**44**	**45.5**	**49.3**
MANUFACTURING	**10,890**	**12,280**	**14,205**	**15,135**	**18,432**
Clothing articles	2,258	2,787	3,079	3,224.9	4,254.2
Leather goods and footwear	908	1,176	1,343	1,391.8	1,368.5
Crude oil processing	758	724	1050	947.9	1196
Chemical substances and products	687	982	697	744.9	1,030.8
Rubber and plastic products	98	126	218	340.9	434.6
Metallurgy	1,725	1,565	1,679	1,818	2,647
Manufacturing of construction materials and other products of non-metallic minerals	178	208	244	266.6	355.5
Machinery and equipment	562	750	858	939.7	1,354.8
Electrical machinery and appliances	403	575	825	1,029.4	1,366.2
Furniture and other activities not elsewhere classified	560	668	767	841.7	1,005.1
Electric and thermal energy	**51**	**69**	**106**	**69.7**	**78.4**
Other activities (Informatics, services for enterprises, entertainment, sportive and cultural activities)	**6**	**7**	**9**	**28.9**	**13.7**

Table 3
Structure of export and import

(%)



	2000	2001	2002	2003	2004			2000	2001	2002	2003	2004
Agrofood products	3.3	3.9	3.2	3.2	3.1			7.2	7.8	6.6	7.1	6.4
Other products	0.6	0.5	0.4	0.5	0.4			0.4	0.2	0.1	0.2	0.2
products of non-metallic minerals	1.6	1.5	1.4	1.4	1.1			1.4	1.5	1.6	1.7	1.7
Wood and wooden products,paper and furniture	11.4	11.0	10.8	11.0	10.6			4.7	4.7	5.1	5.1	4.8
Metals and articoles thereof	16.0	13.3	12.8	12.9	15.4			6.8	7.3	7.4	7.7	8.4
Chemical substances and plastic products	7.2	6.4	6.1	7.0	7.8			12.7	12.7	13.9	13.9	13.8
Mineral products	7.9	6.9	8.5	7.0	7.2			14.5	14.4	12.7	12.4	13.5
Clothing artcles ,Leather goods and footwear	32.7	36.0	35.0	34.7	30.0			20.8	21.0	21.5	19.5	16.3
Machinery and equipment	19.3	20.5	21.8	22.3	24.4			31.5	30.4	31.1	32.4	34.9

Annex 1

Table 4

Labour productivity index in industry per employee, by sector (%)

2000=100

	2001	2002	2003	2004
TOTAL INDUSTRY	**106.7**	**112.0**	**118.0**	**132.0**
Mining and quarrying	**105.1**	**102.9**	**109.1**	**117.1**
MANUFACTURING	**107.8**	**114.4**	**119,4**	**135.3**
Food industry	126.6	139.4	148.3	140.6
Textile industry	97.2	107.8	163.7	186.5
Clothing articles	105.6	105.6	106.7	107.9
Leather goods and footwear	91.3	92.1	94.3	101.6
Wood and wooden products manufacturing	86.1	72.7	76.5	106.9
Pulp, paper and paper products	114.9	123.2	127.9	132.0
Crud oil processing	110.0	155.8	162.4	178.8
Chemical substances and products	96.6	107.1	123.9	188.3
Rubber and plastic products	1.9	119.8	145.6	162.3
Manufacturing of construction materials and other products of non-metallic minerals	103.1	116.5	123.4	162.6
Metallurgy	113.6	153.9	139.8	187.3
Metallic constructions and metal products	92.4	86.8	76.9	81.7
Machinery and equipment	121.2	125.2	116.1	138.3
Electrical machinery and appliances	107.0	107.6	112.8	118.0
Radio, TV and communication equipment and apparatus	111.6	112.3	128.9	183.3
Medical, precision, optical instruments and apparatus	135.3	120.1	140.1	136.3
Means of road transport	97.5	112.0	149.6	209.4
Means of transport not included in road transport	101.4	91.6	108.4	105.9
Furniture and other	106.1	121.4	118.2	109.5
Electric and thermal energy	**98.8**	**100.6**	**118.7**	**119.3**

2. Small and medium enterprises' sector

Annex 2

Table 1
Number of active SMEs by size

Size	1999	2000	2001	2002	2003	2004
Micro	294,597(90.2%)	279,893(88.5%)	280,448(87.9%)	285,207(87.7%)	313,485(87.9%)	358,242(89%)
Small	25,987(8.0%)	29,417(9.3%)	31,249(9.8%)	32,010(9.84%)	34,883(9.8%)	36,080(8%)
Medium	6,102(1.8%)	6,864(2.17%)	7,455(2.3%)	7,989(2.45%)	8,342(2.3%)	8,674(2%)
Total	326,686(100%)	316,174(100%)	319,152(100%)	325,206(100%)	356,710(100%)	402,996(100%)

Source: Ministry of Economy and Finance and NIS

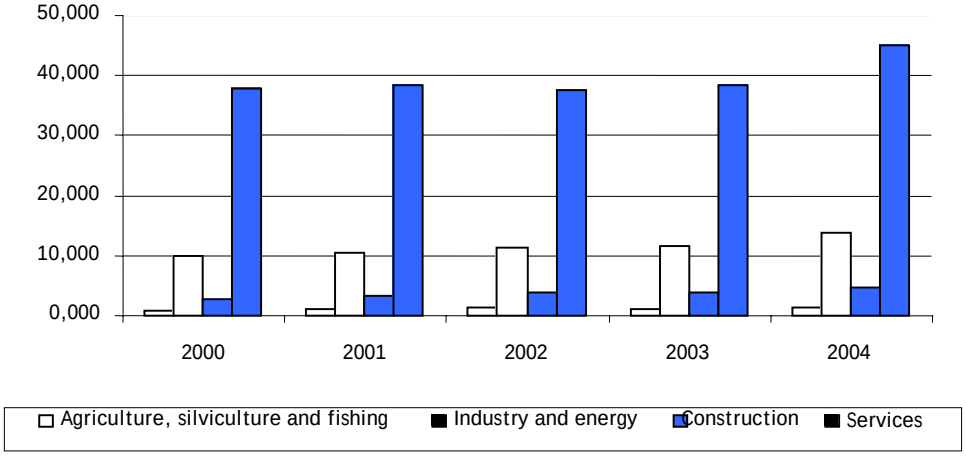
Table 2
Number of private active SMEs by sector

Activity	1999	2000	2001	2002	2003	2004
Agriculture	10,055	9,494	8,929	10,011	10.,430	11,390
Industry	39,457	40,252	41,609	45,586	50,117	54,657
Construction	10,956	11,705	13,990	16,312	20,378	25,115
Services	266,218	254,723	254,625	253,297	275,785	311,834
Total	326,686	316,174	319,152	325,206	356,710	402,996

Source: Ministry of Economy and Finance and NIS

Graph 1

SMEs turnover per economic sectors, million Euro, 2000-2004



Source: Ministry of Economy and Finance, NIS and NASMEC

3. Research, Development and Innovation sector

Annex 3 - Table 1

European Innovation Scoreboard 2005

	ROMANIA					(2003)	(2004)	2005		Relative to EU	Trend	Trend EU
	SII	–	–	–	--	0.16	0.16	0.16			-0.2	0.0
	relative to EU	–	–	–	–	38	38	38				
	rank	–	–	–	–	32	32	32				
		1998	1999	2000	2001	2002	2003	2004				
	INPUT - Innovation drivers											
1.1	S&E graduates	4.2	4.1	4.5	4.9	5.8	9.4	–		77	17	9
	relative to EU	–	*44*	*44*	*45*	*51*	*77*	–				
1.2	Population with tertiary education	8.7	8.7	9.3	9.6	9.8	9.6	10.8		46	*5*	4
	relative to EU	–	–	*43*	*45*	*45*	*45*	*45*				
1.3	Broadband penetration rate	–	–	–	--	–	--	–		--	–	50
	relative to EU	–	–	–	–	–	–	–				
1.4	Participation in life-long learning	1.0	0.8	0.9	1.1	1.1	1.3	1.8		16	–	–
	relative to EU	–	–	*11*	*14*	*14*	*14*	*16*				
1.5	Youth education attainment level	81.0	77.8	75.8	77.3	75.3	73.6	74.8		98	-1	0
	relative to EU	–	*104*	*99*	*101*	*96*	*96*	*96*				
	INPUT - Knowledge creation											
2.1	Public R&D expenditures	0.11	0.10	0.11	0.15	0.15	0.17	–		25	19	2
	relative to EU	*17*	*15*	*17*	*22*	*22*	*25*	–				
2.2	Business R&D expenditures	0.38	0.30	0.26	0.24	0.23	0.23	–		18	-7	1
	relative to EU	*33*	*25*	*21*	*19*	*18*	*18*	–				
2.3	Share of med-high/high-tech R&D	–	–	*66.7*	*52.2*	*50.3*	--	--		56	–	--
	relative to EU	–	–	*77*	*56*	*56*	–	–				
2.4	Enterprises receiving public funding			1.7						21	–	–
2.5	Business financed university R&D	12.2	16.7	6.5	6.0	5.6	8.5	–		85	-7	1
	relative to EU	*192*	*255*	*99*	*89*	*85*	–	–				
	INPUT - Innovation & entrepreneurship											
3.1	SMEs innovating in-house			13.9		12.5				49	–	--
3.2	Innovative SMEs co-operating with others			2.9		3.4				29	–	–
3.3	Innovation expenditures			1.32		1.00				67	–	–
3.4	Early-stage venture capital	–	–	–	0.004	0.005	0.003	–		10	–	-28
	relative to EU	–	–	–	*6*	*12*	*10*	–				
3.5	ICT expenditures	–	–	3.8	4.9	–	--	1.5		24	-53	7
	relative to EU	–	–	*132*	*78*	–	–	*24*				
3.6	SMEs using non-technological change			*77.3*						182	–	–
	OUTPUT - Application											
4.1	Employment in high-tech services	1.67	1.41	1.35	1.43	1.57	1.45	–		45	2	0
	relative to EU	–	–	*44*	*43*	*48*	*45*	–				
4.2	Exports of high technology products	–	2.8	4.8	4.9	3.1	3.3	–		19	-10	-6
	relative to EU	–	*14*	*22*	*24*	*17*	*19*	–				
4.3	Sales new-to-market products			7.8		7.6				166	–	–
4.4	Sales new-to-firm not new-to-market products			1.6		1.3				19	–	–
4.5	Med-high/high-tech manufacturing employment	6.21	5.83	4.99	4.91	5.90	5.32	–		81	1	-3
	relative to EU	–	–	*71*	*70*	*89*	*81*	–				
	OUTPUT - Intellectual property											
5.1	New EPO patents	1.3	1.0	1.1	1.2	0.9	--	--		1	-14	5
	relative to EU	*1*	*1*	*1*	*1*	*1*	–	–				
5.2	New USPTO patents	0.2	0.2	0.2	0.4	0.2	--	–		0	-4	6
	relative to EU	*0*	*0*	*0*	*1*	*0*	–	–				
5.3	New Triad patents	0.1	0.1	0.0	--	–	--	–		0	-30	1
	relative to EU	*0*	*0*	*0*	–	–	–	–				
5.4	New community trademarks	–	–	–	--	0.3	0.1	1.1		1	91	16
	relative to EU	–	–	–	–	*0*	*0*	*1*				
5.5	New community designs	–	–	–	--	–	--	0.0		0	–	–
	relative to EU	–	–	–	–	–	–	*0*				

Bold: break in series / 2000 data for CIS indicators refers to CIS 3 survey / 2002 data refer to estimates based on CIS Light data

Annex 3

Table 2
The weight of sales of new or improved products (%)

Country	**The weight of sales of new or improved products, new for enterprises**							
	but not new for market, as % from total turnover				and new for market, as % from total turnover			
	Manufacturing	Services	High technology	High Technology services	Manufacturing	Services	High technology	High Technology services
Denmark*	26.0	25.4	14.0	13.8	11.0	3.6	21.1	12.7
Finland*	27.0	5.0	78.0	13.0	7.0	3.0	11.0	8.0
Poland	17.4	1.7	33.3	1.0	3.9	2.9	10.5	26.2
Holland*	4.5	1.6	20.5	13.5	9.3	1.2	17.2	6,.7
Italy*	7.6	4.0	13.4	4.2	9.8	6.5	17.4	13.3
Czech Republic	5.0	6.6	6.4	12.1	1.4	1.3	2.8	6.4
Estonia*	10.6	3.2	11.5	10.0	4.7	1.2	10.0	2.5
Slovenia*	5.5	1.3	7.8	2.9	4.2	2.6	9.6	8.0
Slovakia	4.4	1.8	4.1	2.7	18.7	4.7	8.0	13.1
Romania*	2.0	1.0	4.0	4.0	11.0	5.0	10.0	12.0

Source: Eurostat, Statistics in Focus, Science and Technology , 8/2005, *August GÖTZFRIED*
Note: refference year is 2003; for countries with * reference year is 2002
Sectors of activity :
Manufacturing: NACE code d; High Tech Industries: NACE codes 24.4, 30, 32, 33, 35.3
Services: NACE codes g-k; High Tech Services: NACE codes 64, 72, 73

Annex 3

Table 3
Innovative activities in 2002

- Euro -

	No of enterprises with innovation activities	Innovation expenditure	of which:				
			Expenditure for internal R&D	Expenditure for external R&D	Equipment	Licenses, patents	Other expenditures*
ROMANIA	3,983	782,736,679	173,490,829	19,348,195	418,332,059	51,282,360	120,280,879
North-East Region	607	61,481,178	12,072,198	728,917	39,527,978	2,685,283	6,466,803
South-East Region	395	69,451,450	15,792,189	385,197	48,011,589	1,131,511	4,130,964
South Region	391	88,310,505	24,110,561	3,561,595	47,726,042	1,389,396	11,522,912
South -West Region	247	56,999,971	12,557,108	1,436,726	36,171,693	2,987,908	3,846,535
West Region	291	35,911,409	8,008,935	431,312	16,131,079	691,180	10,648,903
North-West Region	440	73,379,246	11,232,247	864,447	40,194,821	1,769,828	19,317,902
Centre Region	764	70,824,248	15,150,449	496,359	37,930,457	3,413,144	13,833,839
Bucharest Ilfov Region	848	326,378,667	74,569,120	11,444,018	152,638,401	37,214,108	50,513,021

Source: The National Institute of Statistics, the Innovation investigation 2003

Notes: - the statistic data per development region are related to the legal entities registered according to the central unit.

- the number of enterprises with innovation activity corresponds to the period 2000-2002, for which the investigation took place according to CIS III (EU) rules. 9,500 units were investigated out of a total of 23,404 units;

*) - other expenditure includes: personnel development, product design and development, marketing of new products resulting from R&D activities.

.

Annex 3

Table 4
Structure of innovative enterprises

Activities according to NACE	**Enterprise size (no of employees)**	**Number of enterprises**	**Innovative enterprises**		**Enterprises with innovation activity (products and processes)**	
			No	% of **total**	**No**	% of **total**
Total	Total	23,404	3,983	17%	2,968	13%
	10-49	16,235	2,137	13%	1,580	10%
	50 - 249	5,547	1,183	21%	868	16%
	>250	1,622	663	41%	520	32%
Total industry (excluding constructions) of which:	Total	15,122	2,907	19%	2,229	15%
	10-49	9,556	1,411	15%	1,067	11%
	50 - 249	4,171	911	22%	694	17%
	>250	1,395	585	42%	469	34%
-quarrying industry	Total	174	23	13%	21	12%
-manufacturing industry	Total	14,629	2,832	19%	2,174	15%
	10-49	9,381	1,406	15%	1,061	11%
	50-249	4,000	882	22%	669	17%
	>250	1,248	545	44%	443	35%
-thermo and electric energy, gas, water	Total	319	52	16%	34	11%

Activities according to NACE	Enterprise size (no of employees)	Number of enterprises	Innovative enterprises		Enterprises with innovation activity (products and processes)	
			No	% of **total**	**No**	% of **total**
Services (excluding public administration) of which:	Total	8,282	1,076	13%	739	9%
	10-49	6,679	726	11%	513	8%
	50 - 249	1,376	272	20%	174	13%
	>250	227	78	34%	51	22%
- trade	Total	4,853	485	10%	334	7%
- transport, storing, and communications	Total	2,061	187	9%	135	7%
- financial intermediaries	Total	319	23	7%	13	4%
- real-estate transactions, and other services	Total	1,049	382	36%	257	24%

Source: The National Institute of Statistics, the innovation investigation 2003

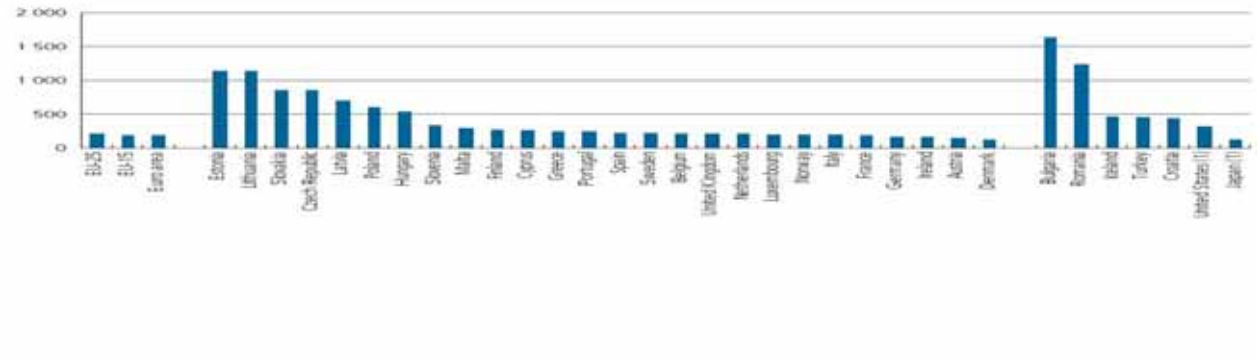
4. Energy sector

Table 1: Internal technological consumption (ITC), for 2006, in networks and transformation stations

BRANCHES OF THE ELECTRICA (STATE OWNED ONES)	ITC *(GWh)*	ITC *(% from transited energy)*
SC FDFEE Muntenia Nord SA	770.793	9.91
SC FDFEE Transilvania Nord SA	623.692	12.85
SC FDFEE Transilvania Sud SA	704.804	13.38
SC FDFEE Muntenia Sud SA	1,062.537	16.71

Source: S.C. Electrica S.A.

Graph 1: Energy intensity of the economy, 2004
(kgoe per 10 ^{3} EUR 1995)



Source: Eurostat

Table 2: Primary and final energy intensity in Romania and other EU Member States in 2005

Member State	Primary energy intensity (toe/1000Euro2005)	Final energy intensity (toe/1000Euro2005)
UE25	**0.166**	**0.109**
UE15	0.153	0.101
NM10	0.419	0.256
Germany	0.156	0.103
Greece	0.189	0.124
Portugal	0.178	0.126
Hungary	0.314	0.212
Czech Republic	0.458	0.264
Poland	0.434	0.266
Romania	**0.48**	**0.32**

*Source: National Energy Data Services

Table 3: Final energy consumption in industry

	Toe (Tones of oil equivalent)	**Percentage**
Final energy consumption in industry	**10,505,231**	100%
Metaliferous ores quarrying and preparation	42,870	0.4%
Other extractive activities	31,256	0.29%
Food, beverages, tobacco	986,750	9.39%
Textile products	114,401	1.08%
Clothing articles	67,849	0.64%
Leather goods and footwear	27,670	0.26%
Wood manufacturing	203,226	1.93%
Pulp, paper and paper products	226,450	2.15%
Publishing houses, poligraphy and recording reproductible registrations	40,381	0.38%
Chemical substances and products	2,514,282	23.93%
Rubber and plastic products	158,920	1.5%
Construction materials and other products of non metallic minerals	1,336,568	12%
Metallurgy	3,472,825	33.05%
Metallic constructions and metal products	605,931	5.76%
Furniture and other activities not elsewhere classified	108,963	1.03%
Recovering of waste and recycled materials	4,554	0.043%
Water catchment, treatment and distribution	149,785	1.42%
Construction	412,550	3.9%

Source: National Institute of Statistics 2005

Table 4: Evolution of final demand of energy in the main consumption sectors in 2005-2020 period

[%]

	2005	**2010**	**2015**	**2020**
Industry	41.41	41.76	40.00	37.86
* Basic materials	31.01	29.31	26.87	24.60
*Machine construction	5.43	6.94	7.68	7.97
*FMCG (fast moving consumer goods)	3.80	4.29	4.29	4.16
*Other sectors of industry	1.18	1.22	1.16	1.12
Agriculture	0.86	0.86	0.84	0.81
Construction	2.11	2.24	2.93	3.35
Transport	20.77	22.08	23.19	23.79
Population	27.55	25.92	25.51	25.88
Services	7.29	7.14	7.54	8.31
Total – Final demand [%]	100.00	100.00	100.00	100.00
Total – Final demand[mil. toe]	28.93	31.25	34.50	38.25

Source: ICEMENERG

Table 5:
Estimations for 2006-2016 period of time for losses in transport electricity grids, the electricity transported in RET*, net peak – power and the operation time of the maximum power

	2006	**2010**	**2016**
Losses in transport electricity grids (TWh)	6.07	6.84	7.42
Electricity transported in RET* (TWh)	37.500	39.119	41.526
Net peak-power – domestic consumption (MW)	8,415	9,678	12,158
Operation time (hours/year)	6,280	6,150	6,000

*National Electricity Transport Grid
Source: S.C. Transelectrica S.A.

Table 6: **EMISSION TARGETS FOR SULPHUR DIOXIDE (SO_2), NITROGEN OXIDES (NO_x) AND DUST**

EMISSION TARGETS FOR SULPHUR DIOXIDE (SO_2), NITROGEN OXIDES (NO_x) AND DUST

National Coordinator or Owner	EMISSION TARGETS tones																			
	2007			2008			2010			2013			2015			2016			2017		
	SO_2	NO_x	Dust	SO_2	NO_x	Dust	SO_2	NO_x	Dust	SO_2	NO_x	Dust	SO_2	NO_x	Dust	SO_2	NO_x	Dust	SO_2	NO_x	Dust
Central public authorities	387,969	90,137	21,915	367,303	84,422	17,845	183,945	82,179	11,442	61,360	81,855	10,926	62,317	69,412	11,014	69,597	58,396	10,864	62,317	52,260	10,864
Local public authorities	138,673	22,159	11,517	136,684	21,471	10,649	136,593	17,310	9,720	75,051	15,966	2,621	25,375	14,685	2,621	25,374	14,326	2,621	25,374	14,264	2,621
others agents	8,056	4,868	1,367	8,056	4,615	1,367	7,514	4,244	1,286	7,589	3,393	1,114	7,589	3,393	1,114	7,589	3,393	1,114	7,589	3,393	1,114
EMISSIONS TARGETS Sulphur Dioxide (SO_2). Nitrogen Oxides (NO_x) and Dust	**534,698**	**117,164**	**34,799**	**512,043**	**110,508**	**29,861**	**328,052**	**103,733**	**22,448**	**144,000**	**101,214**	**14,661**	**95,281**	**87,490**	**14,749**	**10,2560**	**76,115**	**14,599**	**95,280**	**69,917**	**14,599**

Source: National Programme for the Reduction of Emissions of sulphur dioxide (SO_2), nitrogen oxides (NO_x) and dust from Installations of flue gas desulphurization approved by Order of the minister of MEF no. 545/2005 (the same Order was approved by MEWM – no.833/2005 and MAI – no.859/2005)

Table 7: Macroeconomic and energy indicators for 2003-2012 periods

	M.U.	Achievement				Forecast					
		2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Population	10^6 inhabitant	21.73	21.67	21.62	21.55	21.47	21.38	21.32	21.26	21.20	21.14
GDP	10^9 Euro2005	70.38	76.37	79.50	85.62	91.10	96.84	102.55	108.30	114.36	120.65
GDP/inhabitant	10^3 Euro2005/inhabitant	3.24	3.52	3.68	3.97	4.24	4.53	4.81	5.09	5.39	5.71
GDP growth rate	%	5.2	8.5	4.1	7.7	6.4	6.3	5.9	5.6	5.6	5.5
Primary energy intensity	tep/10^3 Euro 2005	0.55	0.51	0.48	0.47	0.44	0.42	0.39	0.37	0.35	0.33
Final energy intensity	tep/10^3 Euro 2005	0.36	0.36	0.32	0.31	0.29	0.28	0.26	0.25	0.23	0.22

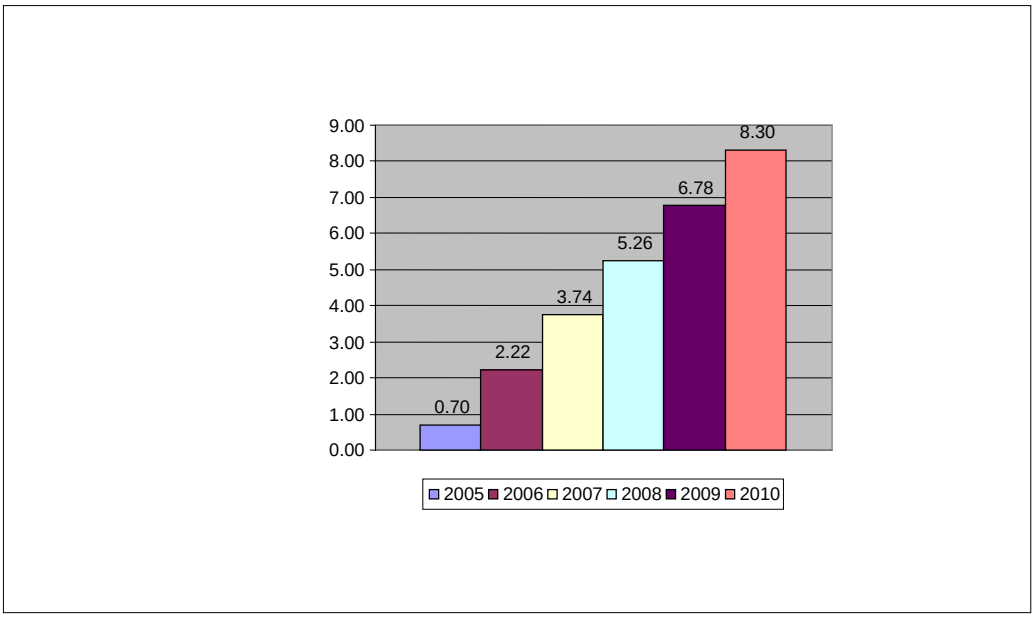
Source: National Energy Data Center

Table 8: The evolution of electricity production [TWh/year]

	Achievements			Forecast						
	2003	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**
Electricity production for domestic market	54.56	55.30	56.48	58.99	60.70	62.50	64.20	66.10	67.70	69.50
Electricity exports	2.08	1.18	2.93	3.41	2.00	3.00	3.50	4.50	4.50	5.00
Total electricity production	56.64	56.48	59.41	62.40	62.70	65.50	67.70	70.60	72.20	74.50
Production of hydropower plants and renewable energy	13.26	16.51	20.21	17.75	16.00	18.00	19.50	21.70	22.30	23.00
Production of nuclear power plant	4.91	5.55	5.54	5.55	7.0	10.80	10.80	10.80	10.80	10.80
Production of thermal power plants of which:	38.47	34.42	33.66	39.10	39.70	36.70	37.40	38.10	39.10	40.70
On Coal	23.64	21.79	21.26	27.10	28.70	25.70	26.40	27.10	28.10	29.70
On Natural gas	11.19	10.46	10.0	10.00	9.5	9.50	9.50	9.50	9.50	9.50
On Fuel oil	3.64	2.17	2.0	2.0	1.5	1.50	1.50	1.50	1.50	1.50

Source: Ministry of Economy and Finance (March 2007)

Graph 2: Annual Quota for Green Electricity Certificate System



Source: OPCOM

B. METHODOLOGIES USED WITHIN SOP COMPETITIVENESS

ANNEX 5: Methodology for setting the general objective of the Competitiveness SOP

"*The general objective of POS is to increase Romanian labour productivity in order to reduce the productivity gap with respect to EU. The measures included in this OP will generate a 5.5% average annual increase in GDP per population employed and, by 2013, will allow Romania to reach a GDP per employee level of about 55% of the EU average*."

The impact of competitiveness OP can be assessed as the increase in labour productivity, calculated as changes in GDP per population employed. The increase in labour productivity per person employed can be expressed as:

$$\%\Delta \text{ labor productivity} = \%\Delta \text{ real GDP} - \%\Delta \text{ employed population}$$

The increase in labour productivity per employee can also be theoretically decomposed in the variation of two factors: the change in capital per employee and the change in the Solow residual, also known as total factor productivity.[39] The later reflects the effect of other factors than capital and labour on the growth of GDP per employee. As a result, this indicator shows the changes in the efficiency with which the factors are employed in the economy.

The increase in GDP per employee is an indicator often employed in the international practice. The National Commission for Forecast (CNP) calculates this indicator as the *increase in GDP per employee in comparable prices*.

Eurostat calculates for UE-25 an indicator called "GDP in PPS per person employed (EU25 = 100)" that is the fraction of countries' GDP per employee, in equivalent purchasing power parity, in the EU-25 average. This indicator is also calculated and forecasted for Romania. However, the forecast is calculated only up to 2006 and its based on 2003 or earlier data.

CNP has forecasted that Romanian GDP per employee will increase at a rate of 5.6 per year during 2007-2013[40]. This forecast does not take into account the impact of structural funds on the Romanian labour productivity. The assessment of this impact is a difficult task that will not be undertaken here. However, a recent analysis from World Bank[41] estimates the growth potential of Romanian GDP for the next few years around 4.5 percent per year, without further improvement in total factor productivity, and around 5.5 percent per year, with improvements in total factor productivity.

Assuming a change in the employed population in Romania between +/- 0.5 percent per year; an increase in total factor productivity due to the impact of structural funds and extrapolating a 5.5 percent annual increase in GDP to the next 10 years we can expect Romanian GDP per employee to increase between 2007-2013 at a pace of 5-6 percent per year.

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[39] The decomposition is too technical to be provided here;
[40] The forecast can be found in the current situation analysis;
[41] Romania, restructuring for EU integration, Country Economic Memorandum, World Bank Report No. 29123- RO, June 2004, p. 18;

If the labour productivity in European Union will increase until 2013 at pace of about 1 percent per year, the *relative* increase in Romanian GDP per employee would be between 4 to 5 percent per year. This rate would allow Romania to reach about 55 percent of the average GDP per employee in the European Union by 2013. [42]

	2004	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Total active population	+0.5	+0.1	-0.2	-0.2	-0.2	-0.2	-0,2	-0,2
Total employment	+0.6	+0.3	-0.1	-0.1	-0.1	-0.1	-0,1	-0,1
Employees	+1.0	+0.6	+0.5	+0.7	+0.8	+0.8	+0.9	+1.0
- %								
Rate of activity	46.0	46.8	46.9	47.1	47.3	47.5	47.60	47.8
Rate of employment	42.9	43.9	44.1	44.3	44.5	44.9	44.8	45.0
Labour productivity	6.9	5.0	5.7	5.4	5.6	5.7	5.9	5.7
Unemployment rate ILO	6.8	6.1	6.0	6.0	5.9	5.9	5.80	5.8

Source: NIS

[42] An accurate forecast of the increase in the labour productivity in the European Union over the next 8 years is a difficult task. The level of 55 percent in 2013 assumes a relative increase of 4.5 percent per year in the GDP per employee in Romania and a relative level of Romanian GDP per employee in 2006 of 38.8, as forecasted by EUROSTAT.

ANNEX 6: Methodology for the programming exercise within the SOP Competitiveness

Methodological premises

It is impossible to formulate a national competitiveness strategy while lacking clearly defined and applied methodological criteria. Such a methodology must be economically justified, fitting at the same time the theoretical framework described in the analysis part.

The chosen methodology sought to provide an objective criterion for the prioritization of competitiveness enhancing measures, by calculating the gaps between Romania and the EU average at the level of indicators and sub-indicators. This was the main methodological premise.

The second methodological premise consisted of the fact that a greater gap points at a greater necessity for intervention and financing. Of course, there are some limitations to this premise. For example, a smaller gap may not indicate a Romanian performance, but an EU underperformance. Still, the initial assumption was that all indicators are equal and they all have the same level of *ab initio* importance.

The third methodological premise was the connection between hard indicators (statistical data) and soft indicators (survey answers). In this way, statistical data – which may sometimes be two or three years old, is combined with the way reality is perceived by those directly interested in enhancing competitiveness: the managers.

The fourth and last premise is that one cannot skip the stages of the competitiveness growth process, for all sectors. Considering that the methodological approach (see below) was horizontal (not sector-oriented), the weight characteristic to Romania's current development stage (according to the Porter model) was used in the calculations. Given to the fact that Romania's economy is largely based on factors and to a certain extent on investment, while innovation has only a scarce presence, the weight chosen for the indicators in use will take into account the existent situation by observing the transition from factors to investment rather than the idealist shift from investment to innovation.

Methodological approach

In the priorities setting process, similar competitiveness strategies from most of the EU countries have been reviewed, leading to the conclusion that there is no single unitary methodological approach. Under these circumstances, The European Commission Proposal regarding "The establishment of a Framework Programme for Competitiveness and Innovation 2007 – 2013" dating from 6th of April 2005 was used as main document. It was a natural choice: if EU is to assign funds depending on this framework programme, Romania must have comparable and compatible priorities in order to be able to access European funds. According to the above-mentioned document, four crucial domains have been identified: enterprise competitiveness, especially SMEs; innovation; information society; energetic efficiency. In order to simplify, the four priorities have been reduced to three, by merging innovation and information society into a single one.

The same above-mentioned document of the European Commission named the statistical indicators specific to each priority. The favourite information source were Eurostat (Eurobarometer, European Innovation Scoreboard, Structural Indicators, etc), OECD and various national data bases. The analysis included those statistical indicators whose values could be compared at the EU and Romania level, not older than 2002. Then the soft indicators, based on surveys, were introduced. Their purpose was not only to replace the statistical indicators for which no data was available, but also to supplement the necessary information for each crucial domain. These soft indicators were selected and took from the Global Competitiveness Report 2004-2005, done by the International Economic Forum, one of the most frequently cited sources at a worldwide scale and one of the most reliable as well. This soft indicators source was also a natural choice, as the Global Competitiveness Report has the same theoretical framework as the one used in this strategy, namely Porter's work. All indicators have been selected so that they would be financed through structural funds.

After obtaining the data for each indicator, both at Romania and EU level, the EU-25 average was calculated. Then, the same scale used for the soft indicators was applied to the hard indicators in order to compare them. The following formula was used for scaling:

Scaled indicator = 6(original value – minimum)/(maximum – minimum) + 1*

The minimum and maximum values included the data on Romania. The next step consisted of calculating the gap between the values characteristic to Romania and the EU-25 average. Finally, the indicators were arranged in accordance to the determined gaps.

In accordance with the methodological premises, all indicators have been equally weighted within each of the priorities. Regardless their hard or soft nature, all indicators were weighted with 1/n, where n is the total number of indicators. This method is the most statistically-neutral, in the absence of conclusive econometric tests (allowing the calculation of regression coefficients).

The prioritisation is then resulting from the calculation of indicator-based gaps. As all indicators are financeable, the starting premise will be that the largest amount of funds will be allocated to measures covered by indicators with largest gaps. Moreover, as all indicators are equally weighted within each priority, a top of priorities may be established according to the weight of the aggregated priority gap in the total SOP gap.

In conjunction with the determining the relative lag on the basis of indicators, a more sophisticated, double weighting system was used:

- weighting according to the competitive development phase
- weighting according to the economic development priorities set by EU for itself (program convergence weighting)

The first weighting procedure takes into account the development stage of the Romanian economy. Each measure of the SOP is related to a certain factor endowment, which in turn corresponds to a specific development stage (according to the theoretic framework, based on

Porter's competitive diamond, there are three stages: factor-based economy, investment-based economy and innovation-based economy).

These development stages have a specific weight (set as part of the model used by Porter in the Global Competitiveness Report), in function of the current level of the analysed economy (the Romanian economy is currently in transition from a factor-based stage to an investment-based one. The weights vary between 50% for the investment related indicators and only 10% for innovation related indicators. The rationale is given by the difficulty of Romania to focus on innovation directly, without proper investments and a sound economic base. Burning stages is possible, but in terms of absorbing structural funds, it is by far more likely to absorb funds with investment-type measures, rather than with innovation-type measures.

The second weighting procedure provides the following procedure:

- more than par weight of 115% (coefficient of 1.15) for measures that coincide with current EU priorities (coordination of competitiveness policy, research and development, SMEs, information society)
- par weight of 100% (coefficient of 1) for measures that lead to convergence with existent EU policies (quality certification etc.)
- below par weighting of 85% (coefficient of 0.85) for measures which do not constitute EU priorities (e.g. energy – horizontal sectors where interventions are susceptible of damaging the competitive environment; private capital plays the main part here)

Initially, the existing lags are captured by way of indicators. Subsequently, the double weighting system reconciles Romania's standpoint, as a candidate state in a different competitive phase than the Union, with that of the EU, which has in place a series of priorities set within the existing policies or the approved agenda, as part of the Revised Lisbon Strategy.

ANNEX 7: Gap indicators used in the programming exercise

Priority Axis 1: An innovative productive system

Nr.	Indicator	Romania	EU 25	Gap compared to EU 25
I1	ISO 9001(2003) certification [quality standards] / 1000 inhabitants	0.077	0.840	-2.5
I2	Number of ISO 14001(2003) certifications [environment standards] / 1000 enterprises	0.0002	1.8	-2.3
I3	Weight of risk capital for *start-up*-s in GDP[43]	0.003	0.025	-1.7
I4	Financial market development degree (sophistication)	3.4	4.9	-1.5
I5	Clusters' development stage	2.7	3.7	-1.0
I6	Access to credits/loans	3.2	4.1	-0.9
I7	Local existence of research services and specific training	3.9	4.8	-0.9
I8	Access to financing on capital market	4.6	5.2	-0.6
I9	Efforts' coordination for increased competitiveness	3.9	4.0	-0.1
I10	Rate of new companies' registration	12.58	10.1	0.9

Priority Axis 2: Research and Development for competitiveness

No.	Indicator	Romania	EU 25	Gap compared to EU 25
IIA1	Sales of new-to-firm, but not new-to-market products (% of turnover)	1.61	16.80	-4.2
IIA2	Employment in high-tech services (% of total workforce)	1.45	3.19	-3.2
IIA3	Business R&D expenditures (% of GDP)	0.23	1.27	-2.6
IIA4	EPO patent applications (per million population)	0.85	133.59	-2.6

[43] This is an EUROSTAT statistics indicator (hard) that is also confirmed, as priority, by a pool indicator (soft) [*2.06 Venture capital availability* – gap -1.3] from Global Competitiveness Report (GCR 2004) drawn up based on Porter methodology;

No.	Indicator	Romania	EU 25	Gap compared to EU 25
IIA5	Sales of new-to-market products (% of turnover)	0	0.03	-2.1
IIA6	USPTO patent applications (per million population)	0.17	59.92	-1.9
IIA7	Level of usage of own trade marks	3.1	4.7	-1.6
IIA8	SMEs involved in innovation co-operation (% of all SMEs)	2.92	7. 08	-1.5
IIA9	Protection of intellectual property	3.3	4.8	-1.5
IIA10	Level of usage of marketing techniques	3.9	5.1	-1.2
IIA11	Research co-operation between universities and industry	2.7	3.8	-1.1
IIA12	Innovation capacity	3.4	4.4	-1
IIA13	Employment in medium-high, and high-tech manufacturing (% of total workforce)	5.32	6.60	-0.8
IIA14	Co-operation level between clusters	3.5	4.3	-0.8

Priority Axis 3: IT&C for private and public sectors

Nr.	Composite Indicator[44]	Gap compared to UE 25
IIB1	ITC usage in the private sector	-3.1
IIB2	Citizens' access and Internet use	-1.9
IIB3	e-Government	-2.5
IIB4	e-Education	-1.0
IIB5	e-Health	-0.3
IIB6	Electronic commerce	-0.7
IIB7	Informatics security	-0.5

[44] These composite indicators have been calculated by aggregating a number of 29 sub-indicators taken up from EU statistics (Eurostat). Dates for Romania and for EU 25 cannot be presented in the table because of the composite character of indicators;

Priority Axis 4: Increased energy efficiency and sustainable development of the energy system

Nr.	Indicator	Romania	EU 25	Gap compared to EU 25
III1	Economy's energy intensity[45]	1,266.5	209.9	-5.5
III2	Eco-efficiency development in energy consumption field (million EUR/ktoe), 1990-2002	0.9	4.2	-1.4
III3	Energy efficiency's prioritization at society level	3.4	4.5	-1.1
III4	Renewable energy weight – Contribution of electricity from renewable sources in total energy consumption (%)	24.3	12.8	1.2

Priority Axis	Indicators	Gap (not weighted)	Weighting				Gap (weighted)	Financial allocation (%)
			Weighting competitive phase		Weighting agenda convergence			
			Competitive phase	Phase weighting	Convergence degree	Coefficient		
P.A. 1	**Indicators - enterprises**						**-0.54**	**41.1%**
Interv. Field 1	Organized efforts for increasing competitiveness	-0.1	Composite	45%	High	1.15	-0.1	
Interv. Field 1	Number of ISO 14001(2003) certifications at 1000 enterprises	-2.3	Investments	50%	Par	1.00	-1.1	
Interv. Field 1	Number of ISO 9000(2003) certifications at 1000 inhabitants	-2.5	Investments	50%	Par	1.00	-1.2	
Interv. Field 1	Final energy intensity	-2.8	Composite	30%	Low	0.85	-0.7	
Interv. Field 2	Development degree (sophistication) of financial market	-1.5	Factors	40%	Par	1.00	-0.6	
Interv. Field 2	Access to financing on the capital market	-0.6	Factors	40%	High	1.15	-0.3	
Interv. Field 2	Access to credits/loans	-0.9	Factors	40%	Par	1.00	-0.4	
Interv.	Venture capital invested in start-ups (% in	-1.7	Investments	50%	High	1.15	-1.0	

[45] Energy gross domestic consumption reported to GDP (constant prices, 1995=100) – kg oil equivalent to 1000 euros

Priority Axis	Indicators	Gap (not weighted)	Weighting				Gap (weighted)	Financial allocation (%)
			Weighting competitive phase		Weighting agenda convergence			
			Competitive phase	Phase weighting	Convergence degree	Coefficient		
Field 2	GDP)							
Interv. Field 3	Stage of clusters development	-1.0	Composite	45%	High	1.15	-0.5	
Interv. Field 3	Ratio of new enterprises registration	0.9	Composite	45%	High	1.15	0.5	
P.A. 2	**Indicators - R,D&I**						**-0.51**	**39.1%**
	R,D&I						**-0.6**	**53.7%**
Interv. Field 1	Sales of new-to-firm, but not new-to-market products	-4.2	Investments	50%	Low	0.85	-1.8	
Interv. Field 1	Local availability of research and specific professional training services	-0.9	Factors	40%	Par	1.00	-0.4	
Interv. Field 1	Capacity for innovation spreading, and exploitation	-1.8	Composite	25%	Par	1.00	-0.5	
Interv. Field 1	Innovation capacity	-1.0	Innovation	10%	High	1.15	-0.1	
Interv. Field 1	Sales of new-to-market products	-2.1	Innovation	10%	High	1.15	-0.2	
Interv. Field 2	Business R&D expenditures (% of GDP)	-3.2	Composite	30%	High	1.15	-1.1	
Interv. Field 2	Public R&D expenditures (% of GDP)	-1.2	Composite	30%	High	1.15	-0.4	
Interv. Field 3	Research co-operation between universities and industry	-1.1	Composite	25%	High	1.15	-0.3	
Interv. Field 3	SMEs involved in innovation co-operation (% of all SMEs)	-1.5	Innovation	10%	High	1.15	-0.2	
P.A. 3	**ITC**						**-0.5**	**46.3%**
Interv. Field 1	ITC use in the private sector	-3.1	Composite	45%	High	1.15	-1.6	
Interv. Field 1	Citizens' Internet access and use	-1.9	Factors	40%	High	1.15	-0.9	

Priority Axis	Indicators	Gap (not weighted)	Weighting				Gap (weighted)	Financial allocation (%)
			Weighting competitive phase		Weighting agenda convergence			
			Competitive phase	Phase weighting	Convergence degree	Coefficient		
Interv. Field 2	e-Government	-2.5	Innovation	10%	High	1.15	-0.3	
Interv. Field 2	e-Education	-1.0	Innovation	10%	High	1.15	-0.1	
Interv. Field 2	e-Health	-0.3	Innovation	10%	High	1.15	0.0	
Interv. Field 3	Electronic commerce	-0.7	Composite	33%	High	1.15	-0.3	
Interv. Field 3	Information security	-0,\.5	Composite	33%	High	1.15	-0.2	
P.A. 4	**Indicators - energy efficiency and renewable resources**						**-0.26**	**19,8%**
Interv. Field 1	Making energy efficiency a priority of the Romanian society	-1.1	Composite	30%	Low	0.85	-0.3	
Interv. Field 1	Energy intensity	-2.8	Composite	30%	Low	0.85	-0.7	
Interv. Field 1	Developing the eco-efficiency in the energy consumption field	-1.4	Factors	40%	Low	0.85	-0.5	
Interv. Field 2	Weight of electricity produced from renewable resources within the national gross electricity production	1.2	Factors	40%	Low	0.85	0.4	

ANNEX 8: Methodology for gap calculation in IT sector

In order to calculate the gaps for Priority Axis 3, the Eurostat database was used – chapter: "Information society", "Policy indicators". In addition to this source, indicators from the Global Competitiveness Report (GCR) have been included. The use of these two sources aimed to provide a full coverage of the domain, as well as create the option of continuous update.

Despite all this, the lack of data for Romania in the case of some indicators brought on the use of SIBIS and eEurope+ reports. Considering that eEurope+ indicators are available only for candidate countries (referring to 2003), and in order to maintain comparability to the EU group, a correction factor was applied to the average, the maximum and the minimum value. Thus, using a very similar Eurostat indicator, the gap between the candidate countries' average and that of EU was determined. For the cases where the similarity between eEurope+ and Eurostat indicators was not good enough, but even the difference between Romania and the candidate countries was significant, the gap was estimated only with reference to these countries. During future exercises, the data series will be rebuilt on the basis of Eurostat indicators available at that time.

Corrections were applied to the following indicators:

Indicator	Correction
Share of population owning a PC	The Eurostat indicator's calculation method differs. The difference relative to the candidate countries has been maintained.
Share of population owning a PC connected to the Internet	The gap between the candidate countries and the EU25 average was calculated on the basis of a similar Eurostat indicator. (The share of households with Internet acces in 2004). The average value is multiplied by 1.145; the maximum value multiplied by 1.3.
The share of individuals using the Internet to interact with public authorities (official documents download)	The gap between the candidate countries and the EU25 average was calculated on the basis of a similar EU25 indicator (the same indicator, but observing those who have accessed the Internet during the last 3 months The average value is multiplied by 1.213; the maximum value multiplied by 1.41. Observation: Luxembourg was not considered the maximum value.
The share of individuals using the Internet to interact with public authorities (persons who returned filled-in forms)	The gap between the candidate countries and the EU25 average was calculated on the basis of a similar EU25 indicator (the same indicator, but observing those who have accessed the Internet during the last 3 months The average value is multiplied by 1.116; the maximum value multiplied by 1.06.
Number of protected Internet servers/ million of inhabitants	With the average value of both EU15 and the candidate countries (of 2003) available, the EU25 average was calculated as a weighted average depending on the population of the two entities.

Indicator	Correction
The share of individuals owning an Internet connection who have encountered problems caused by computer viruses during the last 12 months	The gap between the candidate countries and the EU25 average was calculated on the basis of a similar Eurostat indicator. (The share of households with Internet access in 2004). The average value is multiplied by 1.17; the maximum value multiplied by 4.62 and the minimum is multiplied by 0.92.
The share of Internet users who took measures regarding computer security	The gap between the candidate countries and the EU25 average was calculated on the basis of a similar Eurostat indicator. (The share of households with Internet acces in 2004). The average value is multiplied by 1.02; the maximum value multiplied by 1.27 and the minimum is multiplied by 0.61.
The share of physicians who keep electronic records of their patients	The Eurostat indicator's calculation method differs. The difference relative to the candidate countries has been maintained.
The number of computers/ 100 school students	The Eurostat indicator's calculation method differs. The difference relative to the candidate countries has been maintained.
The number of computers/ 100 high-school students	The Eurostat indicator's calculation method differs. The difference relative to the candidate countries has been maintained.
The number of computers connected to the Internet/ 100 high-school students	The Eurostat indicator's calculation method differs. The difference relative to the candidate countries has been maintained.
The share of Internet users (during the last 3 months) who purchased goods electronically	The gap between the candidate countries and the EU25 average was calculated on the basis of a similar Eurostat indicator. (The share of households with Internet acces in 2004). The average value is multiplied by 1.19; the maximum value multiplied by 4.27.
The share of firms who received on-line trade order	The gap between the candidate countries and the EU25 average was calculated on the basis of a similar Eurostat indicator. (The share of households with Internet acces in 2004). The average value is multiplied by 1.145; the maximum value multiplied by 2.45.
The share of firms with e-commerce accounting for more than 1% of the turnover	The Eurostat indicator's calculation method differs. The difference relative to the candidate countries has been maintained.

C. SUPPORT DOCUMENTS FOR STRATEGY SECTION

Annex 9

The National Broadband Strategy
Analysis-diagnosis of broadband communications sector development in Romania, November 2006
Roland Berger Strategy Consultants

In Romania, the rural population represents about 45%, but urban/rural digital divide is estimated at the level of a multiple between 10-15 (according to the results of the Analysis-diagnosis of broadband communications sector development in Romania, November 2006), thus indicating a huge potential of reducing digital divide.

As a result of the diagnosis analysis of Broadband National Strategy there were identified as **market failure areas the under-served small urban and rural areas with low coverage or no coverage at all (taking into consideration the number of population, and internet connection access as main criteria)**

For under-served small urban and rural communities the development of broadband communications **can support economic and social integration by facilitating the access to new and superior goods and services, as well as opportunities to participate in digital economy or information society.**

The main restrictions in these areas with potential impact on the access to broadband services are:

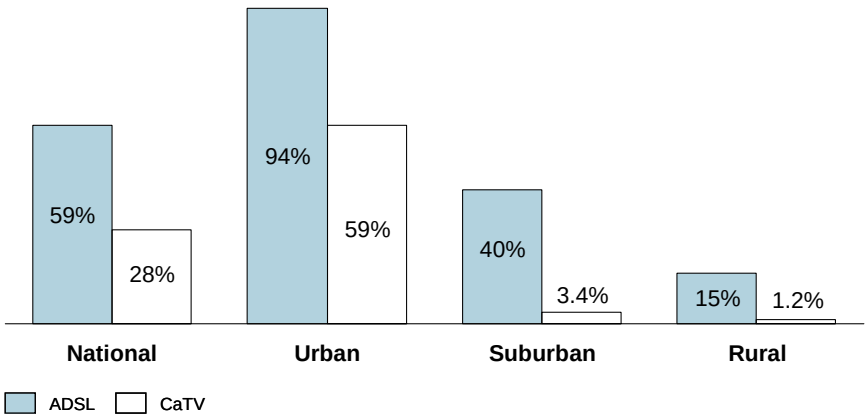
- The high investment costs necessary for the extension of networks in rural areas – 45% of the Romanian population is concentrated in the rural environment but the fixed telecommunications infrastructure is very poorly developed, leading to higher investments for ensuring the access to broadband.
- The perspective of low income for operators – taking into consideration the fact that the available income for the rural population is estimated at a very low level.
- Low income of residential consumers

Analysis of broadband communications services offer

In spite of an increased offer dynamics, and consequently, of broadband communications services market, the focus of growth was permanently on urban areas. Under such conditions, high commercial attractivity of urban areas related to a low level of profitability estimated in small urban areas, and moreover, in rural ones, have conducted to the creation of a **significant divide between urban, suburban and rural areas (according to chart 1).**

A first estimation, regarding the size of **digital divide**, carried out on the basis of a similar methodology as the one used by the European Commission, indicates a difference/a ratio on the degree of covering with broadband services of about 2.5:1, in the case of the comparison urban versus suburban environment, respectively a ratio of about 6:1, in the comparative analysis of urban versus rural environment.

Chart 1 - Broadband services coverage (ADSL and Ca TV in Romania, December 2006)



Methodological specifications: The separation on environments was possible by including in the urban environment municipalities and towns, in the suburban environment being included localities (exclusively municipalities and towns) with a population over 6.500 inhabitants, and for the rural environment being considered localities (exclusively municipalities and towns) with a population under 6.500 inhabitants. This chart takes into consideration the National Regulatory Authority for Communications (NRACIT) broadband definition as minimum 128kbps for data transmission rate.

Under-served geographic areas and less favoured demographic groups from the broadband access point of view

On the basis of the results of market analysis of broadband communications services and the analysis of the present offer features of broadband services, it has been carried out the delimitation of geographic areas and homogeneous demographic groups who need boosting strategies of developing broadband services, adapted to their specific needs.

The evaluation of geographic areas and less favoured demographic groups from the point of view of the availability and accessibility of broadband services has been structured on two analysis directions – **demand and supply.**

Identifying geographic areas with a scarce demand market

The main conclusions of the analysis on the broadband services demand are the following:

- In the Muntenia/Oltenia/Dobrogea and Moldova regions – there are recorded the lowest penetration rates both for PCs and for the internet access – this suggests the necessity to create the preconditions for the use of broadband services.
- In the Muntenia/Oltenia/Dobrogea regions – there is recorded the lowest degree in frequency for the use of internet connection – this suggests the necessity to stimulate the degree of use.
- In Ardeal – there is recorded the lowest intensity of internet use, given the higher penetration and use rates – this suggests the necessity to identify and promote the relevant content for the inhabitants of this region.

- Regarding the intention to acquire, expressed on the time dimension – the potential demand in the Muntenia/Oltenia/ Dobrogea and Moldova regions should materialize the latest (between 40 and 50% of the respondents would acquire in a time interval bigger than 1 year) – this suggests the necessity to stimulate acquisition in a shorter time interval.

Identification of geographical areas unfavoured by market supply

After an analysis of the distribution of the areas uncovered by public **fix communications services**, a number of counties with a low degree of availability of these services was revealed. This low degree can be translated by low access of the population to public fix communication services and by high number of localities uncovered by these services in every county. One can notice that most of the unfavoured areas because of lack of availability of the public fix communication services can be found in the south and south-west regions, while half of the north region is well covered by these services, except one county.

Chart 2 - Territorial coverage for the fixed communications support[46]

[46] The degree of territorial coverage was estimated taking into consideration all the population from the localities where there are communications services, regardless of the fact that all the households can be found or not in the coverage of send/receive equipment. In consequence, the **evaluated values are overestimated**, but they offer a very accurate clue as to the degree of digital divide in Romania.
The methodology is in line with the one used by the European Commission in similar analyses regarding the evaluation of the dimension of digital divide.

The thresholds used to differentiate between counties and to identify the low coverage areas are the following:

Coverage degree	% of population not covered by fixed communication services	% of localities not covered by fixed communications services
I (lowest)	> 15%	>33%
II	10-14%	>30%
III	4-9%	20-30%
IV (highest)	1-3%	<20%

The present development degree of **mobile communications** and the future strategies of the operators that are on the market, substantiate the high level of competitiveness on this market segment.
The services offered through GPRS and EDGE technologies can cover the need for mobile access to Internet up to a basic level for almost all the country's population and most of Romanian territory – except high mountain areas, some areas limited to Ardeal and also some limited zones in Moldova. A similar situation is encountered in the case of CDMA 1x technology, which has a very good coverage at national level, except high mountain areas, some zones close to the south borders and in the north but also a few zones in Dobrogea and Moldova.
In spite of all this, the availability of the mobile broadband services above 2 Mbps is limited because the operators prefer to address only to big cities. Unfortunately, they exclude a large number of users, mainly in the rural areas.

On the other side, the main demographic groups which have been identified as potentially disadvantaged as regards availability and accessibility to broadband services are:
• Persons living in the rural areas
• Persons over 40 years old
• Persons in the households whose monthly average income is lower than 1200 RON - approx. 340 Euro
• Persons who use Internet only outside the households
• Persons who have limited studies

Results of the analysis on map drawing of under-served geographic areas

In the evaluation of **under-served** geographic areas, it has been taken into consideration both the existent situation at consumers' level, as well the one regarding the offer of broadband communications services on both supports (fixed and mobile).

By cumulating the results obtained through bi-dimensional analysis (demand, offer), it has been identified geographic areas all over the country that need boosting instruments of broadband services development (according with chart 3).

In order to be actual and neutral from the technological point of view, the broadband definition must take into account both the present stage of development of technologies and applications, and to offer enough flexibility for development and future innovations through a progressively increasing value of the minimum transfer speed.

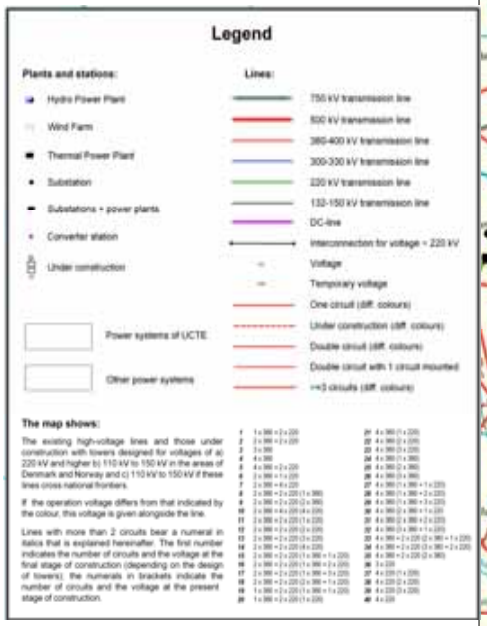
A 2004 Commission Communication referred to "a wide range of technologies that have been developed to support the delivery of innovative interactive services, equipped with an always-on functionality, providing broad bandwidth capacity that evolves over time and allowing the simultaneous use of both voice and data services".

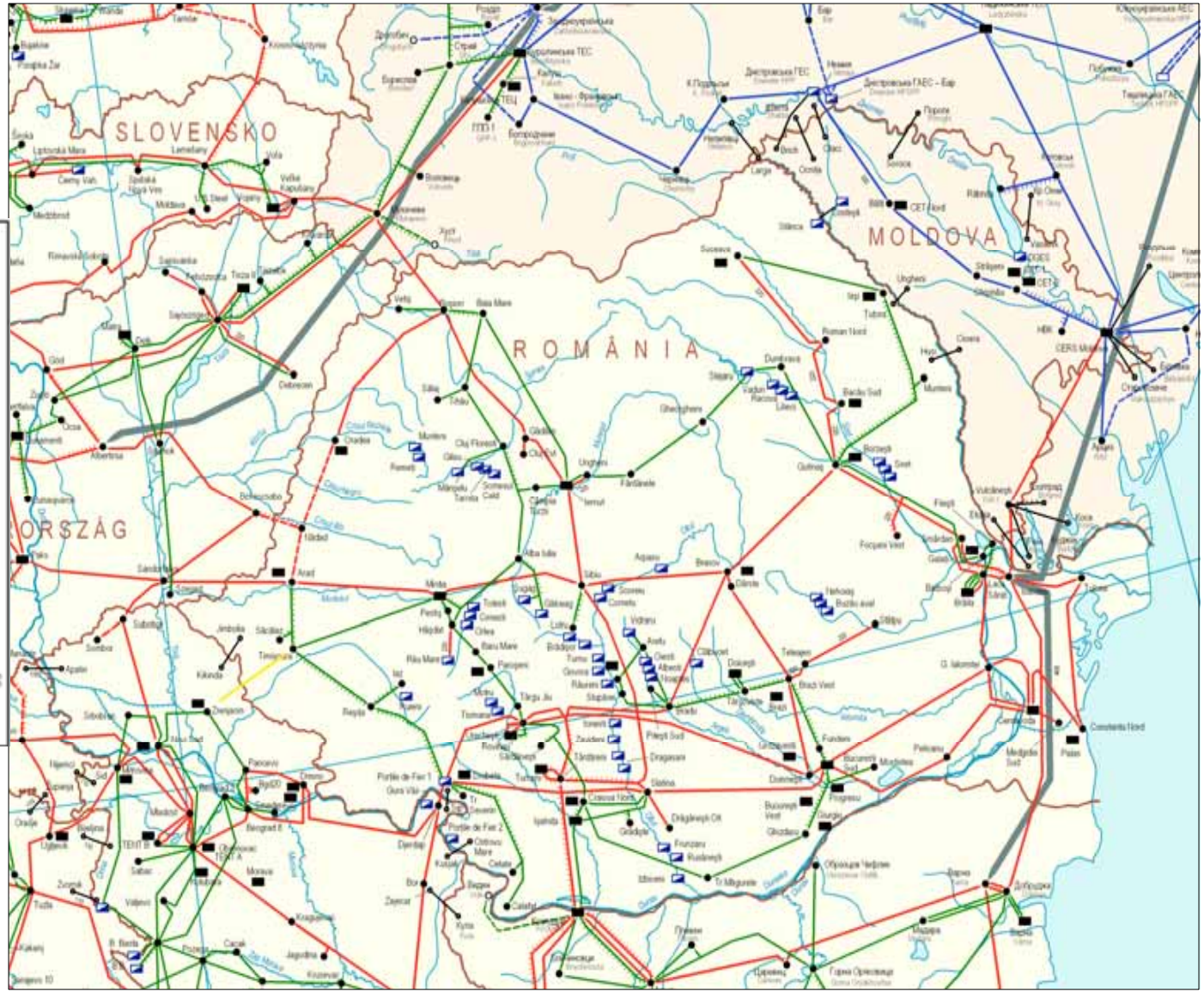
A common current understanding, according to"**Digital divide forum report: broadband access and public support in under-served areas"** is "a service that is always on, and can scale up to at least 2 Mbps".
Therefore, the national minimum agreed transfer rate for identifying the under-served areas based on the broadband access is 2Mbps.

Chart 3 - Territorial broadband services penetration

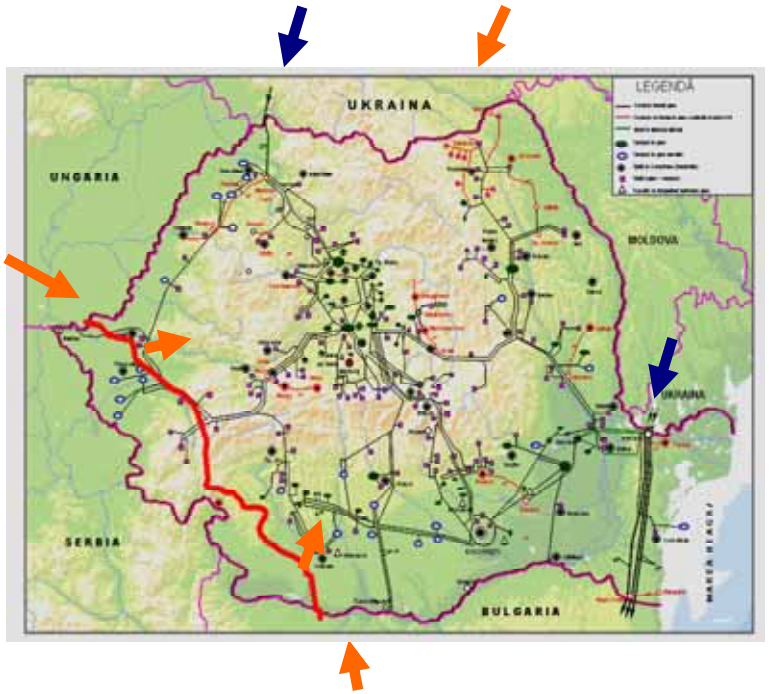
Broadband Services Penetration

Interconnected network of **UCTE**





Existing and future import directions



(double click on map to enlarge)

Annex 12

INDICATIVE LIST OF MAJOR PROJECTS

Priority Axis 4

KEY AREA OF INTEVENTION		Reducing the negative environmental impact of the energy system	
No.	**Company**	**Project name**	**Total value excluding VAT (EURO)**
1.	Romanian Authority for Nuclear Activities - "RAAN"	Installation of flue gas desulphuration at the factory chimney - Large Combustion Plant 2 (LCP 2)	62,200,000
2.	Craiova Power Complex	Installation of flue gas desulphuration at unit no 8 - 315 MW from Isalnita Power Plant	50,000,000
3.	Rovinari Power Complex	Installation of flue gas desulphuration at unit no. 4 at Rovinari Thermal Power Plant	57,140,000

Annex 13

INDICATIVE BREAKDOWN OF THE COMMUNITY CONTRIBUTION BY CATEGORY IN SOP IEC

Commission reference No: *CCI 2007RO161PO002*

Name of the programme: Sectoral Operational Programme Increase of Economic Competitiveness

Date of the last Commission decision for the Regional Operational Programme: __/__/__

(in euro)

Dimension 1 **Priority Theme**	
Code *	Amount **
01	75,095,316
02	241,377,573
03	63,044,364
04	37,547,704
05	218,584,206
06	62,405,367
07	131,416,964
08	493,358,433
09	142,216,479
10	68,970,617
13	153,268,047
14	114,951,028
15	45,980,412
33	35,116,145
34	47,885,653
35	21,069,687
36	47,885,653
37	7,023,229
39	57,462,783
40	19,154,261
41	47,885,653
42	67,039,914
43	161,534,269
48	126,418,123
85	40,518,137
86	27,012,092
Total	2,554,222,109

(in euro)

Dimension 2 **Form of Finance**	
Code *	Amount **
01	2,454,222,109
02	50,000,000
03	50,000,000
Total	2,554,222,109

(in euro)

Dimension 3 **Territory**	
Code *	Amount **
00	2,554,222,109
Total	2,554,222,109

* The categories are coded for each dimension using the standard classification.
** Estimated amount of the Community contribution for each category.