



Study to determine flat-rate revenue percentages for the sectors or subsectors within the fields of (i) ICT, (ii) research, development and innovation and (iii) energy efficiency to apply to net revenue generating operations co-financed by the European Structural and Investment Funds (ESI Funds) in 2014-2020

FINAL REPORT

EUROPEAN COMMISSION

Directorate-General for Regional and Urban Policy
Directorate F — Operational Efficiency and Central Europe
Unit F1 — Competence Centre Operational Efficiency

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Luxembourg: Publications Office of the European Union, 2015

ISBN 978-92-79-48077-5
doi: 10.2776/09277

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List of acronyms and abbreviations

CB	Cross Border
CF	Cohesion Fund
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization
EC	European Commission
EE	Energy Efficiency
EIB	European Investment Bank
ESIF	European Structural and Investment Funds
ERDF	European Regional Development Fund
EU	European Union
FG	Funding Gap
ICT	Information and Communication Technology
MA	Managing Authority
MS	Members State
NRA	National Regulation Authority
OP	Operational Programme
RDI	Research, Development and Innovation
ROA	Return on Assets
ROCE	Return on Capital Employed
ROP	Regional Operational Programme
ROS	Return on Sales
SME	Small and Medium Enterprise
SF	Structural Funds

FOREWORD

The European Commission, Directorate Regional and Urban Policy, has selected CSIL, in partnership with t33, for a service contract (CCI No. 2013CE160AT111) to determine flat-rate revenue percentages for the sectors or subsectors within the fields of (i) ICT, (ii) research, development and innovation and (iii) energy efficiency to apply to net revenue generating operations co-financed by the European Structural and Investment (ESI) Funds in 2014-2020.

This Final Report presents the results of both the data collection and the data analysis phases, including the description and quantification of revenue generating projects by sectors and subsectors, the analysis of expected profitability and the estimation of flat-rate revenue percentages.

The Report has been discussed with the Commission services in occasion of the Third Steering Committee meeting, held in Brussels on February the 16th, and presented to the Member States during the Experts Group meeting held on March the 13th.

The Report is organised as follows:

- Chapter 1 illustrates the justification of the study, the methodology and the data sources accessed to build the database of historical data on revenue generating projects 2007-13.
- Chapters 2 to 5 present the sample features, the analysis of funding gap rates and the proposed flat rate revenue percentages for the RDI, ICT and EE sectors.

The References and a set of Annexes close the Report.

The information and views set out in this Report are those of the authors and do not necessarily reflect the official opinion of the Commission. The Commission does not guarantee the accuracy of the data included in this study. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use which may be made of the information contained therein.

Executive summary

Motivation and objective

This study provides the information basis that will feed into the activities of the European Commission when formulating the delegated act referred to in Art. 61(3) of Regulation (EU) No. 1303/2013. The objective of the study is to determine the flat rate revenue percentages for sectors or sub-sectors within the fields of Information and Communication Technologies (ICT), Research, Development and Innovation (RDI), and Energy Efficiency (EE) that should be applied to revenue-generating operations co-financed by the European Structural and Investment (ESI) Funds over the period 2014-2020.

The flat rate approach implies that Member States (MSs) may choose to apply a flat rate revenue percentage to proportionally reduce the operation's eligible expenditure, as an alternative to project-specific calculation of discounted net revenue (or to application of reduced co-financing rates for particular priority axes).¹

On the basis of historical data, market profitability assessment and additional evidence from interviews with Managing Authorities (MAs), beneficiaries and market experts, the present study discusses the extent to which the application of flat rates is feasible in the selected sectors and sub-sectors and, when relevant, suggests the rates that should be applied.

Methodology

Following the provisions of Art. 61(3), flat rates must be determined "*taking into account historical data, the potential for cost recovery and the polluter-pays principle where applicable*" of those operations that have been financed in the period 2007-13 under the provisions of Art. 55 of Reg. 1083/2006. Historical data relates to the so-called "Funding Gap" (FG) rate, defined as the share of discounted investment cost not covered by discounted net revenue, which is the parameter used in the period 2007-2013 to modulate the eligible expenditure and in turn the EU grant.²

Several sources of information were investigated at both EU and MS levels to collect the relevant historical data, including:

- the Major Projects sample extracted from the "Infoview" database of DG REGIO;
- the JASPERS archive on revenue-generating operations collected in early 2013;
- information collected by means of a structured survey of the Managing Authorities (MAs) of the European Union;
- information collected by means of an in-depth analysis of 14 selected Operational Programmes (OPs) in the Czech Republic, France, Italy, Lithuania, Poland, Slovakia, Spain and the UK.

¹ See Art. 61(2) of Reg. 1303/2013.

² Note that the rules between the programming periods have slightly changed. The analysis of the "financing gap" does not appear anymore in the new legislation and has been replaced with the "calculation of the discounted net revenue of the operation" as referred to in Article Art. 61(3).

In addition, interviews were carried out with project analysts, business associations and market operators to complement and better qualify the quantitative evidence, as well as to discuss the main profitability factors of the markets.

Finally, a financial statement analysis at the firm level was carried out based on the balance sheet data of 257,726 firms operating in sectors that are comparable to the investment projects considered in this study. The objective was to estimate trends in sector profitability and homogeneity in order to better frame the flat rate revenue percentages calculated on the project's historical data.³

Findings

1. Critical lack of historical data for revenue-generating projects in the selected sectors 2007-13

As observed by a previous assessment,⁴ the existing historical data is limited. The collected data set includes a total of 206 operations, of which 69 in RDI, 34 in ICT and 103 in the EE sector.

According to the data collected from the MAs, revenue-generating operations as defined in Art. 55 of Reg. 1083/2006 are estimated to account for around 0.5% of total operations financed in RDI, 0.1% in ICT and 0.8% in EE. In the remaining cases:

- Operations were exempted from the application of Art. 55 of Reg. 1083/2006 because they did not generate revenues or the revenues did not fully cover the operating costs. This was true for about 16% of total operations in RDI; 26% in ICT and 48% in EE. Operations in RDI were exempted in many cases because, owing to the high degree of uncertainty related to the research product, the expected revenues were not sufficient to cover the operational costs. In the case of district heating or grid efficiency interventions under EE, the underlying reason was that savings in operating costs were offset by an equal reduction in the subsidy (or tariff) received, the two effects cancelling each other out.
- Operations were exempted because the total cost was less than EUR 1,000,000 (27% of total operations in RDI; 54% in ICT and 34% in EE). This involved operations in ICT supporting SMEs to provide, install and service computer equipment and software. This was also the case for projects related to the thermal insulation of buildings or housing, and to studies, laboratory activities, exchange of good practices, as far as the EE and RDI sectors were concerned, respectively.
- Operations were subject to the rules on State aid in keeping with Art. 87 of the Treaty (57% of total operations in RDI; 20% in ICT and 17% in EE). This was the main exemption affecting investments that support research and innovation in firms, which entailed the obligation to ensure conformity with the EU State aid framework. This was also frequent in broadband investments, where EU State aid regulations are generally applicable except for certain categories of

³ Given the conceptual (and computational) differences between project and firm performances, as well as the specific scope of interventions supported by the Cohesion Policy, the financial analysis at the firm level should not be meant as a tool to estimate the absolute values of the returns that can be achieved by investments supported by ESI Funds.

⁴ See JASPERS (2011), Implications of the use of a flat rate in revenue-generating projects.

aid compatible with the internal market in accordance with the General Block Exemption Regulation.

2. Reference flat rates can be calculated only for a number of sectors and sub-sectors

The lack of a comprehensive set of historical data is exacerbated when splitting the sectors into sub-sectors, with problems of accountability encountered in terms of the size, homogeneity and geographical coverage of the sample.

The results of the statistical analysis of FG rates, based on sectors and sub-sectors with sufficient evidence, are taken as a reference indicator for the estimation of flat rates for the period 2014-20. The flat rate revenue percentages were estimated as the best approximation of: $Flat\ rate = 1 - Average\ FG$.

The results of the analysis of FG rates are presented below:

Sector (sub-sector)	No. of Projects	No. of countries	Avg. FG (%)	Median FG (%)	Min. FG (%)	Max. FG (%)	Standard Dev. FG (%)	Max/Min ratio	Resulting Flat Rate (%)
RDI	69	12	81.5	87.7	19.5	99.9	19.2	5.1	20
<i>Research</i>	23	7	85.2	95.0	46.1	99.9	17.2	2.1	15
<i>Innovation</i>	46	10	79.7	87.5	19.5	99.7	20.1	5.1	20
ICT									
<i>Broadband</i>	21	6	69.8	70.3	16.5	98.8	23.2	6.0	30
EE	91	8	58.8	58.9	14.5	95.2	20.9	6.5	40
<i>EE in Buildings</i>	35	3	50.9	48.8	14.5	92	19.9	6.3	50
<i>District heating</i>	42	5	69.8	70.7	34.5	95.2	16.1	2.8	30
<i>Grid efficiency</i>	14	2	50.9	54.2	15.5	82.3	21.2	5.5	50

3. Large variations in revenue generation occur across projects within the same sector or sub-sector

The sectors and sub-sectors concerned are heterogeneous in terms of capacity to generate revenues, as shown by the distance between minimum and maximum FG rates, as well as the standard deviation.

The main reason for the large variations in revenues in RDI is the heterogeneity of the industry; project concepts and intervention logic vary according to the field of application. In fact, what is considered an acceptable and normal level of profitability differs greatly from one scientific field to the next. In general, highly innovative sectors and technology-intensive sectors are those that generate higher profits.

As to ICT, the profitability of broadband investments can vary considerably both across and within countries. The experts and the business operators interviewed stressed how investment profitability is linked to the characteristics of the implementation area, and in particular to the population density and the intensity of

the regulatory framework. Accordingly, projects sharing similar technical characteristics but implemented in different areas, even in the same country, can record different financial performances.

Variability in EE can be explained by the differences in both project size, where small operations generally have a lower FG than larger projects, and project type, where investments in district heating perform worse than in grid efficiency or renewables. Such differences can be partly explained by the fact that (renewable) electricity delivered to the grid can more easily generate a revenue than heat provided to final user through district heating, where prices are often defined at an administrative level and do not accurately reflect operational costs.

4. The calculated flat rates are in line with estimated market profitability in the different sectors

Overall, the calculated flat rates were found to be consistent with the market trends in the different sectors, as discussed qualitatively with the stakeholders interviewed, and also quantitatively by means of the financial statement analysis at firm level.

Focusing on RDI, the estimated flat rates show a relatively low capacity for revenue generation, where, on average, more than 80% of the initial investment is not covered by the expected net revenues. This aspect was stressed during the interviews. As a matter of fact, RDI projects substantially differ from conventional business support measures since they support activities that are experimental and far from the market. Consequently, they are less profitable and their financial sustainability depends on subsidies or other contributions from the MSs. The quantitative analysis supports this finding and shows that those firms and institutes whose core business is research performed negatively over the period 2007-12, as measured by an average ROA of 0.5%. This is presumably the result of a contraction in public and private expenditure for research purposes, especially basic and experimental, in times of recession.

At sub-sector level, operations in *Innovation* show greater revenue-generation potential (FR=20%) than operations in *Research* (FR=15%). As pointed out by the interviewees, this is explained by the proximity to the market, which is a primary factor affecting the revenue-generation capacity. The closer to the market, the higher the profitability of the investment. Accordingly, incubators and science parks generate higher revenues (in relative terms) than centres for fundamental or applied research. Again, the analysis of financial statements at firm level confirms this. Those firms that are closer to the market and not dependent on public funding performed well over the period of reference, with an average ROA of 8.3%.

Turning to ICT, the results of the FG rates analysis show that *Broadband* is a sector with good revenue-generation capacity (FR=30%) and this is in line with the expectations of the business operators, according to whom this business involves high levels of risk and uncertainty, but also potential for profit. The results of the analysis of financial statements confirm the positive performance of the industry over the period 2007-12, as well as its stability over time, even if large variations in firms profits occur depending on the conditions of the markets where these operate.

Finally, as to EE, the analysis shows that this is the sector with the largest revenue-generation capacity. The calculated FR (40%) is the highest in the sample, including those sectors where flat rates were already calculated by the legislator. This aspect is linked to the nature of the interventions aimed at energy efficiency. By cutting energy

costs, these interventions generate a net income that is accrued by service providers (e.g. in the case of district heating or electricity distribution) if the saving is not (fully) reflected in an equal reduction in the sale price. As pointed out by sector experts, this mechanism should also be accounted for in light of the future energy price scenario. Energy prices are expected to increase in coming years. The higher the prices, the larger the effectiveness of the projects and, in turn, the expected financial gains.

Conclusions

We suggest establishing the following flat rate revenue percentages for the selected sectors and sub-sectors:

- **RDI: 20%.** The choice to establish a unique flat rate for the sector as a whole is based on the consideration that challenges exist in defining project types according to an agreed classification system, because projects can encompass multiple activities that include several aspects of the innovation process (e.g. in the case of large “umbrella” projects that incorporate different types of intervention). Therefore, from the beneficiaries’ perspective, a unique flat rate for the sector might have greater legal certainty when applying for co-financing. In addition, a disaggregation of rates for sub-sectors is of less importance in RDI because these projects are subject to considerable uncertainty and actual profitability may therefore vary significantly compared to the projections made at the project appraisal and approval stage. Finally, the volatility of revenues (as measured by the standard deviation in the FG rate) is not reduced when the analysis is narrowed down to the sub-sector level.
- **Broadband: No Flat Rate.** The key motivation lies in the consideration that broadband investments show large variations in financial profitability both across and within countries. The main drivers of profit are the characteristics of the implementation area, including population density and the intensity of the regulatory framework. Hence, to avoid over-compensating operations implemented in favourable markets and under-compensating those targeting the more disadvantaged regions, it would be necessary to divide the flat rates into at least two investment types. However, given the limited data available (only 21 operations, of which more than half submitted in France), such disaggregation of the sample is not possible.
- **EE: No Flat Rate.** EE investments show large variations in financial profitability. Energy prices are the main drivers of profit and these can be expected to be highly variable over time and across countries. The profitability of the sector is also influenced by other country-specific policy factors, especially in terms of price setting and broader regulatory frameworks. Hence, it is highly likely that any possible over-(under)compensation generated by the adoption of the flat rate system would be unevenly distributed across and within the MSs. Considering that many OPs are likely to support operations in different sub-sectors of EE, the establishment of a unique flat rate for the sector as a whole may be seen as too risky by the MAs, which may not be able to finance projects in certain sub-sectors (e.g. district heating) to the level needed to make them viable. Large variations in revenue-generation are, however, reported at the sub-sector level too so that further disaggregation of the rate would not solve the issue and would encounter accountability problems in terms of the size, homogeneity and geographical coverage of the sample.

These conclusions should be considered as preliminary. It is suggested to re-examine the adoption of flat-rates in the ICT and EE sectors at a later stage of implementation of ERDF OPs 2014-2020. Such re-examination should consider any changes in EU legislation and market conditions in the MSs which influence the revenues generated by EE investments.

1 Scope and methodology

Justification of the study

The objective of the study is to determine **flat-rate revenue percentages** for the sectors or subsectors within the fields of Information and Communication Technologies (ICT), Research, Development and Innovation (RDI), and Energy Efficiency (EE) to apply to revenue-generating operations co-financed by the European Structural and Investment (ESI) Funds in the period 2014-2020.

The flat rate approach implies that Member States may choose to apply a flat rate revenue percentage to proportionally reduce the operation's eligible expenditure, as an alternative to project-specific calculation of discounted net revenue (or to application of reduced co-financing rates for particular priority axes).⁵ To do so, the Commission has to establish in advance a set of flat rate revenue percentages for the main fields of intervention of Cohesion Policy. While those referred to a number of sectors and subsectors have been already set and are indicated in Annex V of Regulation (EU) No 1303/2013, Art.61(3) of the same Regulation states that "*the Commission shall be empowered to adopt delegated acts in accordance with Article 149 establishing flat rates for sectors or subsectors within the fields of ICT, RDI and energy efficiency*".

The present study shall feed into the activities of the Commission in producing the delegated act indicated in Art.61(3). There shall be, in principle, only one flat rate per sector (or subsector), and there will be one set of flat rates for all Member States.

The justification of the study lies therefore in the legal obligation for the Commission to come up with evidence that supports the determination of a certain flat rate for each of the sector under consideration, or, alternatively, that clearly demonstrates it is not possible to establish such a rate with a sufficient confidence, or that it is possible but for some specific sub-sectors only. Accordingly, the target of the study is to collect, for each (sub)sector, sufficient data that provides in the end robust evidence to establish flat rates. Considerations in terms of sample size, geographical coverage and variability of revenues shall be made to assess the robustness of the rates.

Data collection

Following the provisions of Art. 61(3), flat rates must be determined "*taking into account historical data, the potential for cost recovery and the polluter-pays principle where applicable*" of those operations that have been financed in the period 2007-13 under the provisions of Art. 55 of Reg. 1083/2006. Historical data relates to the so-called "Funding Gap" (FG) rate⁶, which is the parameter used in the period 2007-2013 to modulate the eligible expenditure and in turn the EU grant.

Note that the rules between the programming periods have slightly changed. The analysis of the "financing gap" does not appear anymore in the new legislation and has been replaced with the "calculation of the discounted net revenue of the operation" as referred to in Art. 61(3). For sake of simplicity, the expression FG rate is however used throughout the text.

⁵ See Art. 61(2) of Reg. 1303/2013.

⁶ FG is a cost-recovery ratio. In particular, it is an estimate of the share of the (discounted) investment cost that is not covered by the project (discounted) net revenue over a reference time horizon.

While for more traditional sectors such as transport and environment the available historical dataset of Major Projects was sufficiently large, representative and homogenous to allow for calculating average values of FG rates, such data was not available for the sectors concerned by the present study. For the sake of simplicity, the requirements used by the legislator to calculate the flat rates in the other sectors are recalled in the Table below.

Table 1. Adopted flat rates in Rail, Road, Urban transport, Waste and Water

Sector	N. of Projects	Central tendency			Range		Variability		Ad-opted flat rate
		N. of countries	Average FG	Median FG	Min FG	Max FG	Max/Min FG	Standard Dev FG	
RAIL	79	14	86%	86%	53%	99%	1.85	8%	20%
ROAD	105	10	76%	77%	53%	95%	1.79	11%	30%
URBTRANS	35	6	81%	83%	51%	94%	1.83	12%	20%
WASTE	19	N/A	85%	91%	68%	98%	1.44	10%	20%
WATER	129	13	82%	84%	42%	99%	2.36	11%	25%

Source: adapted from Jaspers (2011)

Different sources of information have been accessed, at both EU and MS levels, to collect the sample of historical data in the sectors concerned by this study. These refer to:

- **Major Projects:** data on revenue-generating projects contained into the Commission's database of 2007-2013 major projects has been gathered from the Commission services extracted from "Infoview". Data extraction concerned 13 categories of investment, as per annex IV of Regulation 1023 (2006), which have been grouped under the three concerned sectors RDI, ICT and EE. The sample consisted of 153 projects, of which 25 revenue-generating projects.
- **Other operations available at EU level:** additional data on funding gap rates of non-major operations have been gathered from Jaspers, thus allowing a further increase of the sample. Such additional information were collected by Jaspers in early 2013 by means of a survey to MAs carried out with the support of DG REGIO.
- **Survey to the Managing Authorities:** the study team conducted a survey to gather data on revenue generating operations co-funded by the ERDF OPs implemented in the period 2007-2013 in the sectors of ICT, RDI, and EE, as well as to quantify them out of the total number of operations submitted.
- **Fieldwork in the Member States:** an in-depth analysis of 14 selected Operational Programmes (in Czech Republic, France, Italy, Lithuania, Poland, Slovakia, Spain and the UK) has been carried out to collect additional systematic data on revenues generating projects and to cross-check the validity of the data collected from the other sources. The outcome of the fieldwork is summarized in the Operational Programmes Sheets included in Annex III. Also, 25 public and private beneficiaries have been interviewed to

gather more detailed project-specific information that allowed to better qualify the data set.

In addition, interviews with policy makers, business associations and market operators have been carried out to discuss the overall sector profitability and the main factors affecting the project's capacity for revenue generation. For the list of interviewees see Annex I.

For a detailed description of the data collection activities carried out by the study team please refer to Annex II.

The integration of the data sources allowed the collection of a sample of historical data on revenue generating projects that has been used for the analysis of funding gap rates and the determination of flat rates, as illustrated in the Chapters 2 to 5.

The sample includes 206 operations, of which 69 in RDI, 34 in ICT and 103 in EE sector. Operations that were exempted from applying Article 55 (Revenue-generating projects) of Regulation (EC) No 1083/2006 are (in principle) excluded from the sample, namely:

- operations with no net revenue generation, i.e. that do not generate revenues or whose revenues do not fully cover the operating costs (FG =100%);
- operations subject to the rules on State aid within the meaning of Article 87 of the Treaty (no FG);
- operations whose total cost is lower than EUR 1,000,000 (no FG).⁷

Analysis of financial statements at firm level

A financial analysis at the firm level was carried out based on the balance-sheets data of 257,726 firms operating in sectors that are comparable to the investment projects considered in this study. The objective was to estimate trends of profitability for those markets where investments are expected to be financed with the flat rate system.

For this purpose, the average values of different performance indicators - and in particular of the Return On Asset (ROA) - in the period 2007-12 have been used. In fact, considering that operation's cost of investment is positively correlated with the value of firm's total assets, the ROA, computed as net income over total assets, can thus be seen as related to the flat rate⁸.

On the other hand, the following conceptual and computational differences apply:

- the ROA gives an indication of the capital intensity of the company; the flat rate the capacity of future net revenue to cover project's investment cost;
- the ROA is calculated on historical data over a given year-basis; the flat rate is based on forecasts of future cash flows and discounting process;

⁷ The amendment of Article 55(5) of Regulation (EC) No 1083/2006 made by Regulation (EC) No 1341/2008 of 18 December 2008 consisted in replacing the provision on proportionate monitoring arrangements for operations whose total cost is below EUR 200,000 by a limitation of the application of the provisions of Article 55(1) to (4) to operations co-financed by the ERDF or the Cohesion Fund the total cost of which exceeds EUR 1,000,000.

⁸ The flat rate (FR) can be expressed as: $FR=1-FG$, where FG is the funding gap rate. FG is computed as: $FG=(DIC-DNR)/DIC$, where DNR are discounted net revenues and DIC are discounted net costs. Simple algebra thus leads to: $FR= DNR/DIC$.

- in the ROA, the net income includes all sources of revenue (including those from financial investments or subsidies); in the flat rate, the net revenues include only the “*cash in-flows directly paid by users for the goods or services provided by the operation, such as charges borne directly by users for the use of infrastructure, sale or rent of land or buildings, or payments for services*”⁹;
- in the ROA, the “negative” component of the ratio (in the denominator) include all tangible and intangible assets of a company (e.g. physical assets such as real estate or stocks, a claim on debts, such as accounts receivable or liens, or a right, such as a patent); in the flat rate it includes only the cost of the project’s initial investment. Both indicators are calculated net of depreciation and taxes.

The financial analysis at the firm level is deemed useful in the context of this study to frame the operation’s revenue generation potential (and the relative flat rate) within general trends of profitability.

At the same time, the use of such analysis has some limitations to be acknowledged. In particular, as mentioned, there is a conceptual difference between the performance of a project and the performance of a firm. In addition, the sample includes for the large majority companies, mainly large private firms, operating in viable markets, while the beneficiaries of the ESI Funds (usually public or municipalized companies or authorities) operate in contexts of market failures where businesses are not self-sustainable. Hence, it must be stressed that the market analysis is used to underline a tendency of sector profitability and homogeneity but not to estimate the absolute values of returns that can be achieved by the investments supported by ESI Funds.

The methodology used for the financial statements analysis is presented in detail in Annex IV, while the results are discussed in the sector chapters.

⁹ Article 61 (Operations generating net revenue after completion) of (EU) Regulation 1303/2013)

2 Research, Development and Innovation

2.1 Structural and Cohesion Funds expenditure

Under the 2007-13 framework, support for research and technological development (R&TD), innovation and entrepreneurship, including strengthening research and technological development capacities, and their integration into the European Research Area, was a priority for the Structural and Cohesion Funds.¹⁰

According to the review of the ERDF/CF Progress in implementation reported by the managing authorities on allocations decided, amounts allocated to projects and the core indicators used for ERDF and Cohesion Fund¹¹, over the period, EUR 52,859.4 million of ERDF and CF have been allocated to the RDI sector in all Member States and cross-border programmes.

Infrastructure investments (PT code 02) accounted for about one fourth of the total relative expenditure. About a half (48%) was devoted to measures supporting private research and innovation in firms, especially SMEs. The category "Technology transfer and improvement of cooperation networks", which encompasses projects such as incubators, technological parks and hubs of innovation and excellence, absorbed almost 10% (Table 2).

Table 2. Innovation & RTD. Adopted OPs

PT Code	Category	Euro Million	%
01	R&TD activities in research centres	5,944.5	11%
02	R&TD infrastructure and centres of competence in a specific technology	11,208.1	21%
03	Technology transfer and improvement of cooperation networks	4,852.4	9%
04	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	5,394.9	10%
06	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	1,969.9	4%
07	Investment in firms directly linked to research and innovation	10,284.1	19%
09	Other measures to stimulate research and innovation and entrepreneurship in SMEs	7,792.5	15%
74	Developing human potential in the field of research and innovation, in particular through post-graduate studies	5,413.1	10%
	Total	52,859.4	100%

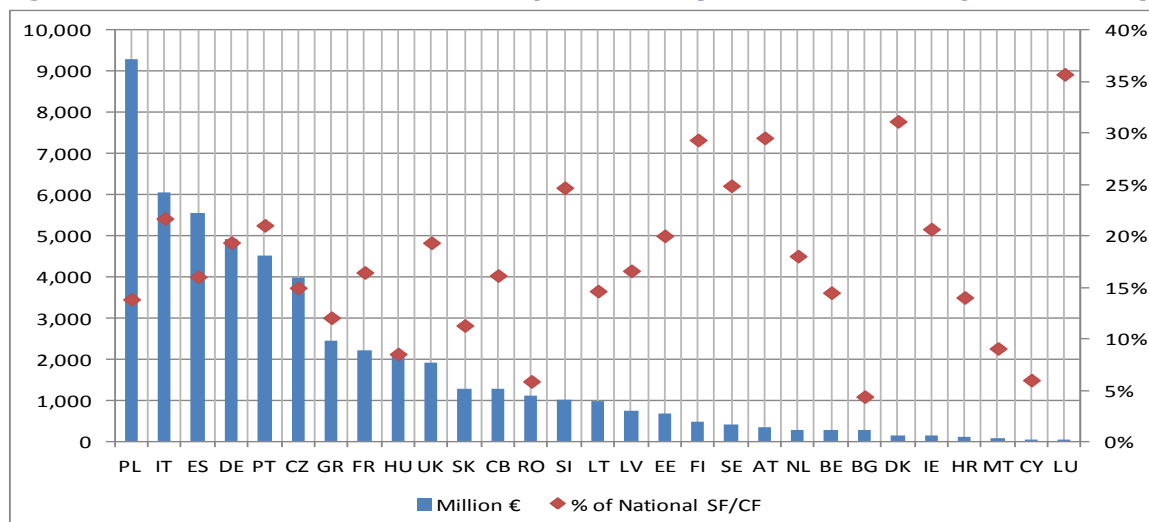
Source: EC data

Differences in expenditure across countries exist. Poland, Italy and Spain allocated the largest amounts (higher than EUR 5 billion) of funds to the "Innovation & RTD" theme across all the EU28 countries. In relative terms, however, Luxembourg, Denmark, Austria and Finland devoted around or more than 30% of their overall financial envelope to this priority (Figure 1).

¹⁰ See for example Article 4 Regulation No 1080/2006 on the European Regional Development Fund.

¹¹ As, available on DG REGIO website, see

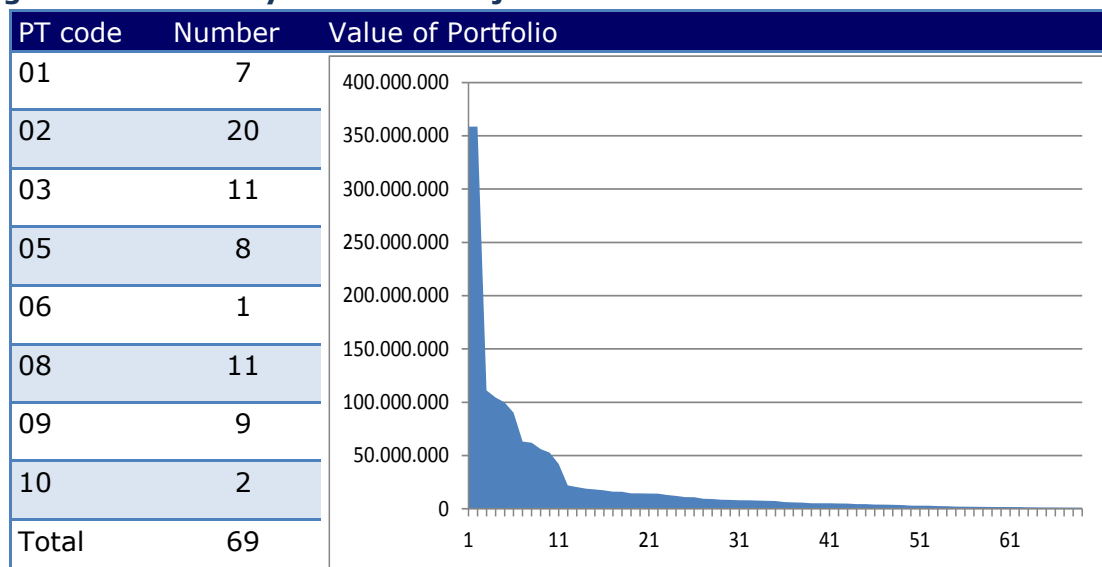
Figure 1. Innovation & RTD. Adopted OPs by Member States (Million EUR)



2.2 Revenue generating projects 2007-2013

The sample of historical data on revenue generating projects collected by the study team in the RDI sector in the period 2007-2013 amounts to 69 operations. Of these, 9 are major projects.¹² Operations are distributed along ten priority themes. Investment priority n.2 “R&TD infrastructure and centres of competence” encompasses the largest number of operations (20) (Figure 2). The total value of the portfolio is 1.8 EUR billion. Projects total investment costs are shown to range from 358.6 EUR million to 1.1 EUR million, with an average of EUR 26.2 million. The first 10 largest projects account for some 1.4 EUR billion, which is around 78% of the total expenditure.

Figure 2. Priority themes & Project value



¹² 31 operations, although pertaining to relevant priority themes, have been excluded from the sample because consisting of projects for which a research and/or innovation component is not evincible de facto. These operations include support for creation or development of economic areas spatially concentrated, such as industrial poles or clusters, or spatial plans for public services, manufacturing facilities and warehouses in municipalities, without any reference to combining knowledge and technology for the development of innovative products or processes. For this reason, they and from the analysis of average profitability.

Type of Projects

Operations in the sample have been grouped into sub-sectors on the basis of common typologies of investment (Table 3).

Table 3. RDI subsectors

Sub-sectors	N. of operations	Total investment costs (EUR)	Average costs (EUR)	% of total costs
Research	23	397.144.517	17.267.153	22
Innovation	46	1.425.569.277	30.990.636	78
Total RDI	69	1.822.713.794	26.416.142	100

More details on the sub-sectors are illustrated below:

- **Research** (*Infrastructure, capacity and support services for research*): 23 operations. This group includes operations supporting applied research in various scientific and technological fields with the purpose of developing new knowledge acquisition directed to a practical purpose but not yet ready for commercial use. In only very limited cases the operations addressed an infrastructural investment (either to be created or extended), but mostly the acquisition of technical equipment (or staff) to develop specific research schemes in laboratories or research centres. Examples are the purchase of equipment, installations and high-speed computer networks in RDI centres, workplaces, and laboratories in a specific technology, e.g. clinical research centre, microscopy facilities, laser light facilities, laboratories for biological studies. Project total investment costs range from 111.1 EUR million, for the construction of new buildings of the Ljubljana's University faculties, to 1.2 EUR million, for developing an academia-business experiment of direct deposition of surface acoustic wave sensors by aerosol jet printing technique in Belgium. The average investment cost is 16.7 EUR million.
- **Innovation** (*Infrastructure, capacity and support services for innovation*): 46 operations. This group includes operations supporting business-to-business or business-to-academia cooperation aimed at combining knowledge and technology for the development of new or improved products, services and business processes. Projects mostly consisted of renovation of centralised buildings and services dedicated to facilitating scientific research and business activities and reinforcement of systematic cooperation of R&D institutions with the business sphere. Examples are incubators or technology/science parks. To a lower extent, industrial parks that focus on manufacturing but with the intent of creating high technology economic development and advancing knowledge. In financial terms, the smallest operation (1.1 EUR million) concerns the implementation of a technological platform to develop collaboration with industrial partners, especially with SMEs, in the fields of paper, biomaterials, bioenergy and bioprocesses (France). The largest (358.6 EUR million) is about the creation of the Rail Technology Centre in Malaga to steer, plan and implement strategies and actions in the area of innovation in High Speed for railways. The average investment cost is 31.6 EUR million.

Productive investments fostering private RDI¹³ are excluded from the sample because they were not requested to calculate the FG, in compliance with State aid financing mechanism (see below).

The classification builds on the historical project data collected for the previous programming period but it also takes into account the strategic framework of the new Cohesion Policy and the expectations related to the project pipeline in the period 2014-2020 (see box 1).

Box 1. RDI priorities in the new programming period

In line with Thematic Objective 1 "Strengthening research, technological development and innovation" of Art. 9(1) of Regulation 1303/2013 and investment priorities indicated at Art. 5(1) of Regulation 1301/2013, as far as other policy documents on smart specialisation, investments in this sector should aim to promote innovation and to strengthen applied research, and be related to business needs and capabilities. Projects that focus on supporting the carrying out of basic research without any direct practical application or commercialisation potential are likely to be less of a priority in the new programming period. The emphasis in supporting RDI is rather on translating knowledge into business opportunities, through applied research, closer cooperation between enterprises, science parks, product and service development and the role of technology transfer. This is also reflected in Horizon 2020, where the emphasis has switched to supporting RTDI projects with a higher level of technology readiness

According to interviews from the field, in the new programming period, there will be a continued and even reinforced focus on research and innovation in 2014-2020, where EU policy makers expect to support similar types of project (with the notable exception of fundamental research).

Note that within the same subsector the range of possible interventions is wide, where RDI projects' characteristics differ, given the variety of facilities and instruments that are generally referred to in this field. This is the reason why, for instance, there is no established and agreed definition of research infrastructure in the economic literature¹⁴. In addition, overlaps across subsectors may also occur because projects can encompass multiple activities ranging throughout the whole innovation process spectrum. In fact, the combination of knowledge creation with knowledge transfer activities ultimately intended for the commercialisation of research results, aims indeed to produce direct economic impacts at regional/national level and to strengthen industrial competitiveness.

These aspects reflect the intrinsic heterogeneity of the RDI sector, but can also be meant as a limitation of the classification.

¹³ E.g. vouchers aimed at process/product/design innovation, large scale prototype testing, intellectual property acquisition, protection, licensing and exploitation, creative thinking, user-centered innovation, placement of researchers and assistants, etc.

¹⁴ Different definitions and classifications are proposed, including the classical large scientific machines, such as telescopes, particle accelerators or research vessels, but also virtual infrastructures providing electronic services. The Strategy Report on Research Infrastructures prepared by the European Strategy Forum on Research Infrastructure (ESFRI, 2011) also includes among research infrastructures electronic surveys, such as the European Social Survey, and other facilities for data collection and storage, like databases, archives, libraries and computer grids.

Costs & Revenues

According to the EU beneficiaries interviewed in the field, the main categories of investment and operating costs do not vary according to the subsector. Civil works, equipment, information technologies, land acquisition and planning and design are the main investment cost items. Cost of scientific, administrative and technical personnel, intellectual property purchase costs, maintenance of buildings, materials, energy, waste disposal and other utilities are the main operating cost items.

In terms of revenues the two subsectors are instead featured by own, typical, sources of income (Table 4).

Table 4. Sources of income. RDI sector

Research	Innovation
Research contracts ¹⁵	Rental income
License royalties	Service income
Spin-out equity realisations	
Student fees	
Consulting income	
Rental income	
Service income	

Source: Interviews

Scope for application

According to data collected from the MAs, the share of revenue generating operations is estimated to be around 3% of the total number of operations submitted in the period 2007-13 in RDI (Table 5).

Table 5. Revenue generating projects 2007-2013. RDI sector

Revenue generating projects	Non-revenue generating projects			Total
	Due to lack of net-revenues	Due to State Aid	Due to < 1MEUR	
0.5%	16.1%	56.8%	26.6%	100%

Source: Survey to MAs

The main cause for exclusion from application of Art. 55 on revenue generation is that operations had to comply with the State aid regime and, accordingly, they were not subject to funding gap calculations. This exemption affected the productive investments with positive financial performance (as measured by the Financial Net Present Value). They included, in particular, "investments in firms directly linked to research and innovation" (PT code n.07). Support was granted to both small and large companies operating in different sectors (e.g. manufacturing, health, energy). Innovation produced through the investment, like the invention of a new product, service or productive process, can be commercially exploited by the firm, with a likely effect on profit. This entailed the obligation to ensure that the operations conform with the EU State aid framework.

¹⁵ In general, research contracts granted from the public sector are considered revenues only if they are payments against a service directly rendered by the project promoter. Following the recent EU orientations, this condition is often verified when the ownership of the expected research output is transferred to the contracting public entity and does not remain with the research institution.

In 27% of cases, RDI operations fell under the threshold of 1 EUR Million. The evidence from fieldwork is that many Operational Programmes have funded measures whose investment nature is very small scale. Projects referred to joint studies, laboratory activities, exchange and acquisition of knowledge and good practices with no or very limited investment in equipment and machines. They usually involved public or public-equivalent institutions without private interest.

Finally, in 16% of cases, operations have been exempted from applying Art. 55 because of the lack of the net revenues. As pointed out by both decision makers and project promoters interviewed in the field, this is related to the fact that RDI projects differ substantially from conventional business support measures because supporting activities, such as studies, researches, consulting, testing and other services, that are experimental and far from the market. The level of revenues attained from these activities varies largely from one project to another and also depends on the method used for revenue estimation (see box 2). Owing to the high degree of uncertainty related to the research product, however, these revenues are in most cases insufficient to cover the project operational costs. As a consequence, they need to rely on public financing sources. Besides the EU and national/regional capital contributions that are common to all ESIF-funded operations, there is a variety of other funding sources for research projects granted by European, national or regional public and private parties¹⁶. Such funding mechanisms may widely vary across countries in terms of their characteristics depending on the country-specific institutional set-ups. However, although contributing to the project financial sustainability and profitability, they are all considered as 'transfers from State or regional budgets' and not revenues according to the interpretation given in the "Revised Guidance Note On Article 55 for ERDF And CF of Council Regulation (EC) No 1083/2006: Revenue-Generating Projects"¹⁷.

¹⁶ Examples include regional funding schemes for RDI activities, public grants e.g. under the Horizon 2020 framework, ordinary public transfers, private co-financing, etc.

¹⁷ COCOF 07/0074/09.

Box 2. Methods for revenue estimation

As far as the methodology for estimating revenue is concerned, two different methods are usually applied depending on the project typology.

In case of higher education/research infrastructure, estimates are usually based on the institution's current capacity to generate revenue (and so they are not specific to the project itself). Accordingly, the share of revenues attributed to the project cannot exceed the average capacity of the institution. This can lead to situations where revenues are even underestimated, because the project potentially performs better than average. Equally, expected revenue may be overestimated, for instance because the amount of contract research resulting from infrastructure investment to improve RTDI facilities or to upgrade equipment is below expectations.

When projects deal with commercialization of a research product, two alternative mechanisms are commonly used to fix the price of the product: production cost or market prices. The former mechanism involves accounting for all the costs sustained to produce and commercialize the product. This generally leads to high prices because production costs sustained to carry out R&D activities are usually high. While this method seems more convenient since it guarantees the full cost coverage, the high prices that result may affect the competitiveness of the product. The latter is based on the analysis of the market. In this case, the final price usually does not cover all the costs sustained because the prices on the market are lower than those needed to pay back all the costs of R&D activities sustained before the industrialisation phase. Indeed, market price normally covers the marginal cost of production plus a margin established by reference to those commonly applied by undertakings active in the sector concerned.

Source: Authors based on interviews

Geographical coverage

In terms of number of operations, the country coverage in the RDI sector as a whole is relatively large with 12 countries involved. The distribution is also quite homogenous: Poland (21%), Belgium (20%), Netherlands (8%) and France (7%) are the most represented countries in terms of number of operations submitted.

In case of *Research* subsector, the coverage is more limited (but still acceptable): 7 countries are involved in total, with operations mostly concentrated in Belgium (10 out of 23). In *Innovation*, the coverage is larger (10 countries) and the leading country is Poland (19 out 46), see Table 6.

In terms of project value, the picture changes with the countries where major projects take place being rewarded. In the *Research* group, the investment value is distributed across 7 countries, namely France (29%), Slovenia (28%), UK (17%), Netherlands (11%), Poland and Czech Republic (3%) In *Innovation*, half of the project cost (50%) is in Spain, the second ranked country, Poland, follows with 12% (Table 7). The RDI sector as a whole follows a trend relatively similar to the *Innovation* subsector.

Table 6. Country Coverage. N. of operations per country

	BE	DE	ES	FR	LT	MT	NL	PL	PT	SI	UK	CZ	Total
Research	10			4			3	2		1	2	1	23
Innovation	10	1	2	3	2	1	5	19	1		2		46
Total RDI	20	1	2	7	2	1	8	21	1	1	4	1	69

Table 7. Country Coverage. Project value per country (%)

	BE	DE	ES	FR	LT	MT	NL	PL	PT	SI	UK	CZ	Total
Research	9			29			11	3		28	17	3	100
Innovation	9	6	50	0	1	2	4	12	4		11		100
Total RDI	9	5	39	7	1	1	6	10	3	6	12	1	100

2.3 Funding gap rates analysis

This section presents a statistical analysis of the funding-gap (FG) rates of the revenue-generating projects contained in the RDI sample, which can be taken as a reference indicator for the estimation for flat rates for the period 2014-2020.

The analysis is carried out for both *Research* and *Innovation* subsectors. In addition, to cope with some limitations of the classification system (already illustrated in see section 2.2), the flat rate is also calculated at the level of the sector as a whole (i.e. Total RDI).

The following variables have been calculated for the analysis of the funding-gap rates: Average FG; Median FG; Min FG; Max FG; Max/Min FG; Stand. Dev FG.

The flat rate revenue percentage is then estimated as the best approximation of:

$$\text{Flat rate} = 1 - \text{Average FG}$$

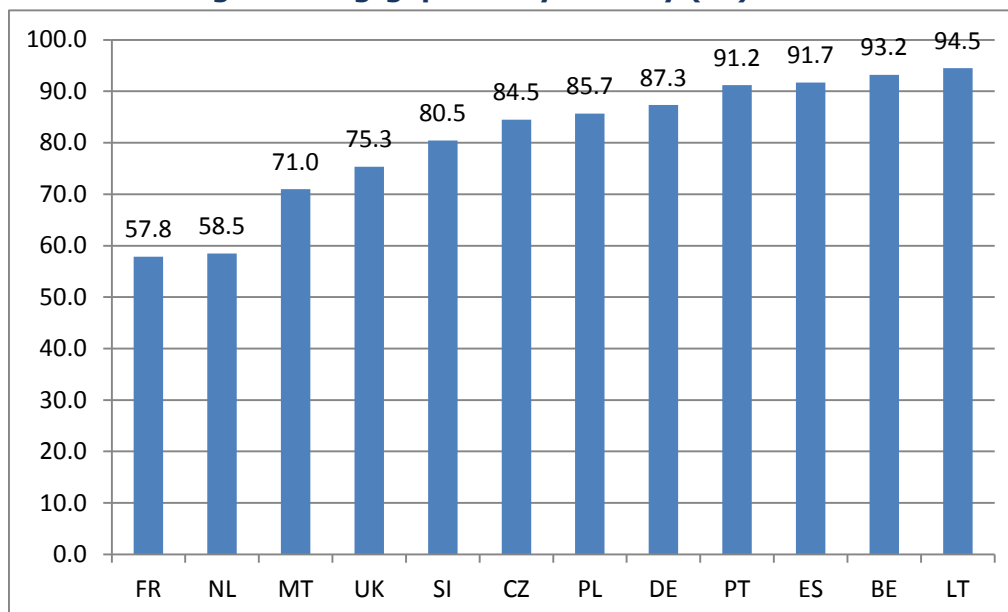
As illustrated in the JASPERS Report "Implications of the use of a flat rate in revenue generating projects" (2011), no adjustment to variations in regional income is deemed necessary since the correlation between funding gaps and regional income is low and adjustments are already considered at the level of modulation of co-financing rates depending on the regions. A correction of the flat rate based on regional income may result in duplication and therefore is not recommended.

In the following Table 8 and Figure 3 the outcome of the analysis is synthetically presented.

Table 8. Analysis of the funding-gap rates

Sector	N. of projects	Central tendency		Range		Stand. Dev FG	Max/Min FG	Possible Flat rate
		Avg. FG	Median FG	Min FG	Max FG			
Research	23	85.2	95.0	46.1	99.9	17.2	2.1	15%
Innovation	46	79.7	87.5	19.5	99.7	20.1	5.1	20%
Total RDI	69	81.5	87.7	19.5	99.9	19.2	5.1	20%

Figure 3. Average funding-gap rate by country (%)



The results of the funding gap rates analysis underlines three main aspects, also emerged during the interviews in the field, featuring the RDI sector:

- Large deviations in the potential to generate revenue exist, even within the same subsector. This is shown by the large distance between minimum and maximum FG rates, as well as the standard deviation (which is always higher than the maximum values adopted for urban transport, 12%). For instance, in *Research*, the net revenues are expected to cover more than 50% of the investment cost (FG =48.1%). This is the case of the acquisition of equipment for the Centre for Research and Development in Caligny (FR) for automotive crash-tests. On the other hand, in the case of another research centre, such as CEWAC (BE), the expected revenue coverage is nearly zero (FG=99.9%). In such case the centre offers research, studies and technical advices to companies in the fields of welding, fluid mechanics vacuum and ultrahigh vacuum. In *Innovation* subsector, this tendency is even more prominent, where the expected FG rate of developing the Centre for Innovation and Electronic Research (FR) is five times lower than that of constructing and commissioning Podlaski Industrial Park in Poland. The main reason for large standard variation of revenues is due to the heterogeneity of the RDI industry; project concepts and logics of intervention vary in light of the field of application. In fact, different scientific fields have varying levels as to what is considered an acceptable and normal level of profitability. Highly innovative sectors and technological-intensive sectors are those generating higher profits, depending on the Technology Readiness Level¹⁸.
- The proximity to market is the primary factor affecting the revenue generation potential. The closer to the market, the higher the profitability of the investment. Accordingly, incubators and science parks generate higher

¹⁸ Technology readiness levels (TRLs) are measures used to assess the maturity of evolving technologies during their development and in some cases during early operations. Generally speaking, when a new technology is first invented or conceptualized, it is not suitable for immediate application.

revenues (in relative terms) than centres for fundamental or applied research, although rental income may account for a significant proportion of anticipated revenues. This is shown in the analysis, where the average FG in *Research* is 5.5 percentage points lower than in *Innovation*.

- The institutional set-up, technological progress and business maturity of a country also affect the operation's revenue generation potential. In principle, the more mature the innovation landscape and the state of development of research policies in the country, the higher the level of public and private expenditure, which, in turn, increases the profitability¹⁹. In countries such as France, Netherlands and the UK the FG rate is, on average, lower (<75%). That is, the tendency is to design operations that accrue revenues from the market, in the form of payments against a service rendered. On the top of that, in countries such as Spain, Portugal, Belgium and Lithuania, the FG rate is on average higher (>90%). That is, operations' sustainability is mainly based on public funding in the form of subsidies.

2.4 Market analysis

The analysis of financial statements has been carried out on a sample of 39,090 firms operating in sectors that are comparable to the investment projects addressing the RDI priorities of the Cohesion Policy (Table 9).

Table 9. NACE Rev.2 sectors considered in the analysis

Sector	Sub-sector	NACE Rev2 (2 digit)
RDI	Research	72 Scientific research and development
	Innovation	70 Activities of head offices; management consultancy activities 74 Other professional, scientific and technical activities 82 Office administrative, office support and other business support activities

The following Table 10 provides a breakdown of the firms according to the nature of their ultimate owner, which can be private (i.e. Employees/Managers/Directors, Financial company, Industrial company, Individuals, and Private equity); public (Public authority, State, Government); a Foundation or Research institute; or Bank, Insurance company, Mutual, Pension and Hedge Funds, and Venture capital. As shown in the Table, the vast majority (93%) of firms in the sample have private ownership.

¹⁹ On the other hand, market-related aspects such as price variations are less relevant in RDI than in other sectors because most interventions relies mainly on public contributions and subsidies

Table 10. Number of firms by ultimate ownership (per year)

Ownership	N. of firms	%
Private ownership	36,445	93%
Public authority, State, Government	645	2%
Foundation/Research Institute	781	2%
Bank, Insurance company, Venture Capital, Funds	1,219	3%
Total	39,090	100%

Source: Own elaboration on Balance Sheets data

As illustrated in Chapter 1, the financial statement analysis is aimed at framing the calculated flat rates within overall trends of sector profitability and homogeneity.

The results show that firms with core business in research only (especially if basic), including both public and private companies, foundations and research institutes, performed negatively over the period 2007-12, as measured by an average ROA of 0.5% (Table 11). Vice-versa, firms that are closer to the market and not dependent on public funding, i.e. firms providing consulting and business support services in several scientific and technical fields, performed positively (ROA = 8.3%).

In dynamic terms, it can be noted that there has been a general decline of the sector between 2007 and 2012 (-9.5%), suggesting the impact the crisis has had on the profitability and financial performance of European firms in RDI sector. Again, large differences exist at subsector level: the ROA value in *Research* has decreased considerably more than in the *Innovation*, -126% vs. -10%, respectively. This is presumably the result of shrink of public and private expenditure for research purposes, especially basic and experimental, in times of recession.

Table 11. ROA values. Summary statistics for RDI sector and subsectors

	ROA Conditional average 2007-2012	ROA % change 2007-2012
Research	0.5%	-125.9%
Innovation	8.3%	-9.5%
RDI	7.2%	-38.9%

These results presented so far reflect, on the hand, the capital intensity of the RDI industry. Overall, this industry is less capital intensive than other, e.g. *Railway*²⁰, requiring higher amount of fixed capital in relation to other factors of production such as labour. Within RDI, the capital intensity differs, where firms with core business in research (especially if basic) usually require larger amount of capital than firms with core business in innovation.

On the other hand, they confirm the findings of the funding gap rate analysis, according to which the closer to the market, the larger the revenue generation potential of Cohesion Policy operations. In fact, operations in *Innovation* showed

²⁰ Predicted values for the ROA in the Railway sector is of 4.5%.

greater revenue-generation potential (Flat Rate=20%) than operations in *Research* (Flat Rate=15%). Accordingly, incubators and science parks generate higher revenues (in relative terms) than centres for fundamental or applied research.

In conclusion, the calculated flat rates are in line with the estimated market profitability trends at subsector levels.

2.5 Conclusions

The analysis of the funding gap rates, based on historical data sample of revenue generating projects submitted in the period 2007-2013, shows that the flat rates revenue percentages would be:

- **Research: 15%**
- **Innovation: 20%**
- **Total RDI: 20%**

A trade off exists in applying flat rates at sector vs. subsector level. When assessing the pros and cons of both approaches (that are obviously mutually exclusive), the following considerations shall be taken into account:

- a) The introduction of flat rates, at any level, will have limited impact because most investments have a non-revenue generating nature, i.e. the revenues are not expected to cover the operational costs. Hence, the need to rely on public subsidies. As shown, in the past the share of projects that applied Art. 55 on revenue generation was limited (around 0.5% of the total). Given the reinforced priority of ERDF to invest in *Innovation*, a slight increase in the number of operations benefitting from the simplification of the flat rate system is expected in the new programming period. However, in absolute terms, the impact will be marginal as compared to the volume of the operations.
- b) RDI projects are subjected to considerable uncertainty with regard to revenue generation because they support activities that are experimental in nature and far from the market. Actual profitability may therefore vary significantly compared with projections made at the project appraisal and approval stage. Even if a flat rate revenue percentage is calculated *a priori*, this can deviate from the actual project performance to a larger extent than "conventional" business support measures. Hence, the relatively lower importance of disaggregating the rates.
- c) Challenges in defining project typologies according to an agreed classification system exist. In many cases, it is difficult to establish a clear distinction between support to research vs. innovation because projects can encompass multiple activities that include several aspects of the innovation process. Therefore, beneficiaries may seek to have their project categorised as one type of project because of a higher rate, or conversely be reluctant to have their project categorised as another, which could create legal uncertainties if the categorisation were to be challenged. From a beneficiary perspective, a flat rate for the sector as a whole might have greater certainty when applying for co-financing, especially in case of large "umbrella" projects that incorporate different types of RDI interventions.

- d) Variation in profitability depends mainly on the degree of proximity to the market. This is particularly evident in the analysis of financial statements at firm level, where firms in *Research* have performed significantly lower than firms in *Innovation* between 2007-2012. In the analysis of funding gap rates, this aspect is confirmed, although to a lower intensity (the funding gap rates vary, on average, of $\pm 5\%$).
- e) All proposed flat rates relies on a standard variation of revenues larger than the maximum value previously used by the legislator to calculate flat rates in the other sectors. However, the difference is considered acceptable in light of the type of industry concerned which encompasses investments in several technological fields.

On the basis of the considerations made above, **the study team suggests to establishing the flat rate for RDI sector as a whole.**

3 Information and Communication Technology

3.1 Structural and Cohesion Funds expenditure

According to the review of the ERDF/CF Progress in implementation reported by the managing authorities on allocations decided, amounts allocated to projects and the core indicators used for ERDF and Cohesion Fund, over the period 2007-2013, EUR 14,654.7 million of SF and CF have been allocated to the Information Society priority in all Member States and cross-border programmes. The “soft” components of the ICT (i.e. not related to an infrastructural realisation/upgrade), including services and applications, received the largest support, where 57% of the total expenditure addressed the priority codes N. 13, 14, 15. These include, in particular, services and applications for citizens and public administrations such e-health, e-government, e-learning, etc. Among the “hard” components, 17% of the of expenditure was allocated to the Broadband subsector.

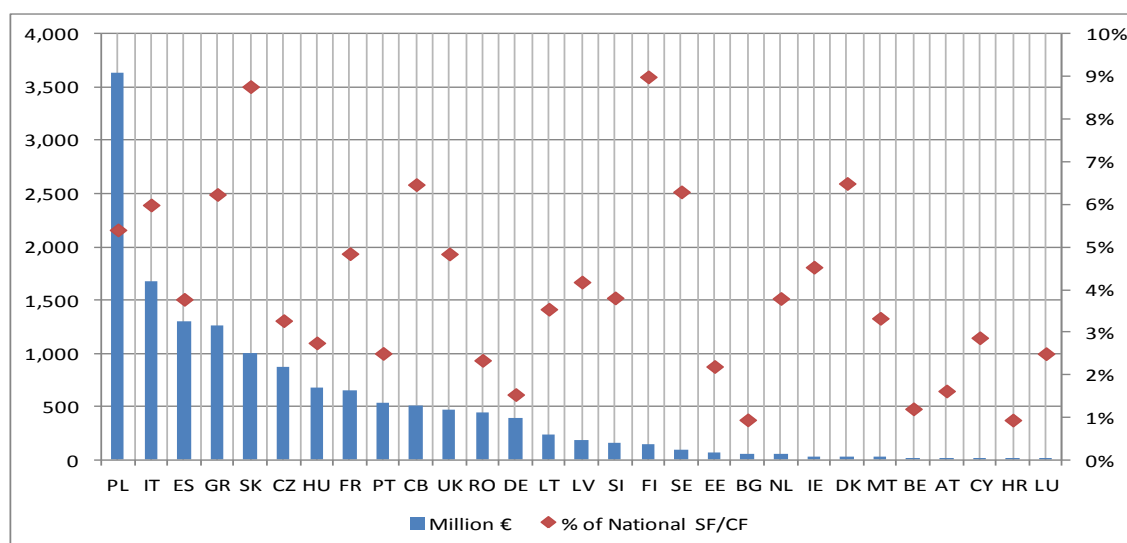
Table 12. Information society. Adopted OPs

PT Code	Category	Euro Million	%
10	Telephone infrastructures (including broadband networks)	2,457.0	17%
11	Information and communication technologies	3,423.2	23%
12	Information and communication technologies (TEN-ICT)	472.3	3%
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	5,279.6	36%
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	1,473.4	10%
15	Other measures for improving access to and efficient use of ICT by SMEs	1,549.2	11%
	Total	14,654.7	100%

Source: EC data

The following chart shows the breakdown of SF and CF expenditure by country. Across the EU28, Poland, Italy, Spain and Greece allocated the largest amounts (higher than 1 billion EUR) to the Information society priority. In relative terms, however, Finland and Slovakia lead, with around 8% of their overall SF and CF expenditure.

Figure 4. Information society. Adopted OPs by Member States (Million EUR)



3.2 Revenue generating projects 2007-2013

The sample of historical data on revenue generating projects collected by the study team in the ICT sector in the period 2007-2013 amounts to 34 operations, including 14 operations with investment cost lower than EUR 1,000,000²¹, for a total investment of EUR 1.56 billion. Of these, 12 are Major Projects.

In addition, in the effort to further increase the sample, the study team investigated those Major Projects that were submitted under the State aid framework (in Italy and UK) and therefore were not subject to the calculation of the FG. The objective was to see if FG rates could be implicitly derived, provided that the State aid intensities were calculated based on any kind of estimation of (net) revenues. Therefore, the financial information included in the State aid notifications available on DG COMP website have been analysed. However, no evidence of any link between aid intensity and the operations' revenue generation potential was found. Therefore, these operations could not be included.

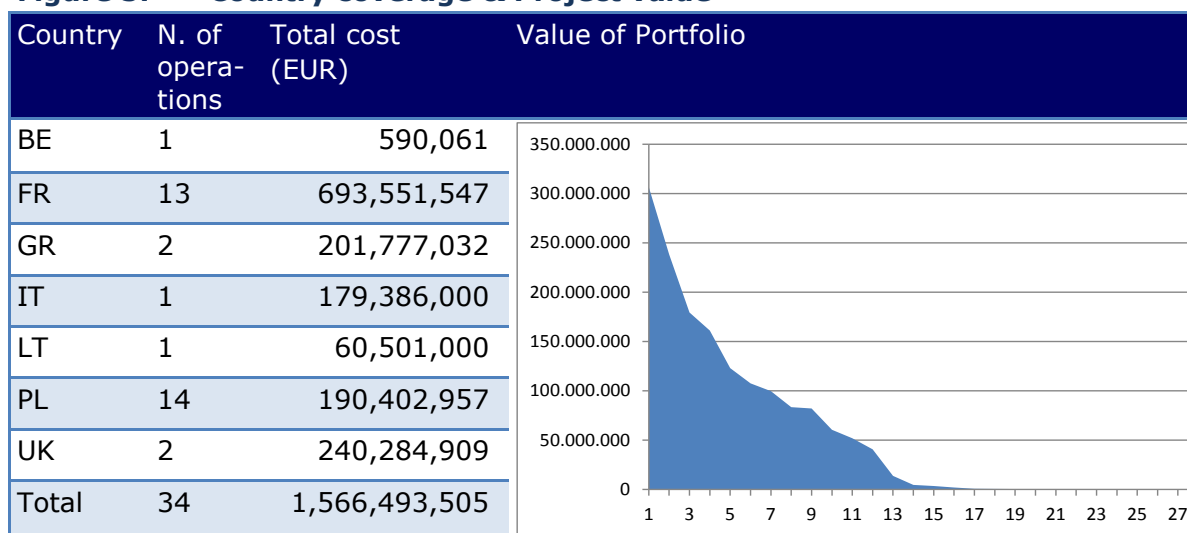
Operations in the sample mainly concerned investments in the priority themes n. 10 "Telephone Infrastructure" (92% of the total expenditure) and n. 11 "Information and communication technologies" (8%). The remaining categories of ICT, based on the codes for the priority theme dimension as defined in Annex II of the Commission Regulation (EC) No 1828/2006, are marginal.

Projects investment costs show very large variability, ranging from over EUR 306.5 million to EUR 0.01 million, with an average of EUR 46.0 million. Hence, the average investment is considerably high, as compared e.g. to RDI (EUR 8.9 million) and EE (EUR 16.5 million). The first 3 largest projects account for some EUR 724.2 million, which is around 46% of the total expenditure. This is basically due to the presence in the sample of broadband investments requiring large initial investments.

²¹ In fact, to increase the sample size, it was possible to collect data on the FG rates relative to those operations approved before the amendment of Art. 55 entered into force in December 2008 and implying the shift of the threshold from EUR 200,000 to 1,000,000.

The sample covers in total 7 countries (Belgium, France, Greece, Italy, Lithuania, Poland and the UK). Most operations have been submitted in Poland (15) and France (13). In financial terms, the largest expenditure occurs in France (EUR 693 million) followed by the UK (EUR 240 million). Poland absorbs only 12% of the value of portfolio (Figure 5).

Figure 5. Country coverage & Project value



Type of projects

Operations in the sample have been grouped into sub-sectors on the basis of common typologies of investment (Table 13).

Table 13. ICT subsectors

Sub-sectors	N. of operations	Total investment costs (EUR)	Average costs (EUR)	% of total costs
Broadband	21	1,520,993,305	72,428,253	97.1%
e-Health	10	2,194,159	219,416	0.1%
Other	3	43,306,042	14,435,347	2.8%
Total ICT	34	1,566,493,505	46,073,338	100.0%

More details on the sub-sectors are illustrated below:

- **Broadband:** extension and/or upgrade of the existing national/regional backhaul and/or access networks, either fibre or cable, for both fixed and wireless access solutions. Projects belonging to this group respond to the need of increasing coverage and take-up of digital services. When implemented in convergence regions (e.g. Poland and Italy), they consist in the extension of (basic) broadband network, i.e. projects deploying fibre (or cable) networks and related support infrastructures to areas, especially rural or remote, that are currently not covered by any access. The focus is on the regional backhaul network, with two exceptions of projects developing tele-information networks at the municipal level in Poland (access network). When implemented in competitiveness regions (e.g. France and the UK), projects consist of network quality improvements, i.e. deploying fibre access networks of a higher quality (e.g. NGA) to increase the uptake rate in the area. This group includes 21

operations (of which 11 are major projects) accounting for a total investment of EUR 1.52 billion (96% of the total value of portfolio). The average investment cost is EUR 72 million, with large variability: from EUR 0.1 million for testing increased internet speed in the municipality of Saint Hilaire de Court (FR) to EUR 306.5 Million for deployment of next generation networks in the Province of Manche (FR).

- **E-health:** development of ICT solutions in the field of healthcare. This group includes 10 operations, accounting for a total investment of EUR 2.2 million (i.e. 0.1% of the total value of the portfolio). The average investment cost is around 220.000 Euro. All the projects belonging to this group consist of the application of the same intervention logic to several hospitals located in Dolnoslaskie region, Poland. The main objective is to replace traditional with digitalized radiology treatment by endowing hospitals with upgraded IT equipment and software. Beneficiaries of the EU funding are the hospitals that use tele-radiology. End users are both the patients, who receive faster and highly specialised diagnostics, and the doctors, who can maximise their skills and experience. The investments are carried out by one company which offers its services to the various hospitals. All operations have been financed within the Polish Regional Operational Programme Dolnoslaskie. Although they formally account as a set of separate operations, *de facto*, they are replications of the same intervention logic to more recipients of the same region. Accordingly, they cannot be considered a subsector suitable for the application of the flat rate system and they have been excluded from further analysis (see next section).
- **Other.** It includes 3 operations for a total investment of EUR 43.3 million that, because of their nature, cannot be grouped under a common type, namely:
 - o an educational framework, supporting the development of high level skills in areas of identified need for the software industry (UK);
 - o the use of satellite technology for development of a space pole (BE);
 - o the implementation of an integrated operational information system in the Greek Electricity Transmission System Operator (GR).

It must be stressed that the ICT sample, taken as a whole, is not representative of the main types of investment related to this sector. Therefore, it cannot be taken as reference sector suitable for the flat rate system, in the same way as *e-Health* and *Other*. Accordingly, the analysis of the FG rates is carried out for the *Broadband* subsector only (see next section).

The proposed classification builds on the historical project data, collected for the previous programming period, but it also takes into account the strategic framework of the new Cohesion Policy and the expectations related to the project pipeline in the period 2014-2020 (see box 3).

Box 3. ICT priorities in the new programming period

The EU policy framework for ICT is driven by the Digital Agenda for Europe and the Industrial Policy Update, which includes a new initiative for digital entrepreneurship as part of the Entrepreneurship 2020 Action Plan. The policy framework foresees that, by 2020, all Europeans will have access to much higher Internet speeds of above 30 Mbps, and 50 % or more of European households will subscribe to Internet connections above 100 Mbps.

Europe-wide access to broadband infrastructure is considered essential for a digital economy. It helps to stimulate social and economic cohesion and, as such, is one of the priorities of the cohesion policy. The priority is on next generation access networks, i.e. networks that are capable of delivering broadband access services with enhanced characteristics (i.e. with speeds above 30 Mbps). Accordingly, the following areas of investment are expected:

- Broadband infrastructure extending or upgrading the regional backbone/backhaul network, the area networks or, in limited cases, the last mile-connections.
- ICT products and services to enterprises to foster productivity in economic activities (e.g. e-commerce).
- ICT applications for public administration for better provision of services to citizens (e.g. e-government, e-learning, e-inclusion, e-culture and e-health, digital security, open data, smart city).

Source: EC (2014)

Costs & Revenues

On the basis of the information collected from business operators and project promoters, the main categories of costs related to the operation in the sample have been identified (Table 14). Focusing on *Broadband*, from a technical point of view the realisation of the backbone network is relatively easier (and cheaper) than realising the distribution/access network. The main cost drivers are the morphology of the territory and the technical specificities of the project. In general, around 80% of the investment cost is given by civil works. Operating costs mainly refer to the network amortisation.

Table 14. Investment & Operating costs

Subsector	Investment costs	Operating costs
Broadband	Passive components: cable, optical fibre, antenna, etc. Active components. router, hub, switch, etc.	Maintenance Interconnection charges Energy consumption Technical and administrative personnel
E-health	Purchase of ICT equipment	Technical staff External services Maintenance Replacement of short-life equipment

Source: Interviews

The sources of revenues not only depend on the subsector but also on the investment type and the business model adopted (see box 4):

- **Broadband.** In case of pure infrastructure investments, revenues come from granting access to infrastructure by wholesale operators and include fees for

data transmission service, network connection, hosting services, dark fibre rental, ducts rental, and masts rental. In case of vertically integrated investments (e.g. in co-operative models that provide services up to final users), the revenues are based on:

- subscriptions paid by citizens, businesses and/or public administration²²;
 - unbundling obligations, i.e. the regulatory process of granting unbundled access to multiple operators to use connections from the telephone exchange to the customer's premises.
- **E-health.** Revenues come from the Polish National Health Fund, which uses different reimbursement schemes (per procedure or per patient) depending of type of treatment given to the patient.

Box 4. Broadband business models

According to the business operators interviewed as well as to other sources²³, broadband projects are often connected with high levels of risk and uncertainty, e.g. driven by high upfront investment costs, a long time-lag of returns, technological/regulatory uncertainties, or possible changes in demand. To cope with that, typical business models have been associated to broadband investments:

- **Separation model:** the infrastructure is separated from the service, the two components are operated separately. This model responds to the need of risk diversification, where the infrastructure-related risk is relatively lower. It is applied mainly in Northern countries.
- **Co-operative model:** publically owned fibre backbone that allows individuals/neighbourhoods to pay to have the infrastructure extended to their premise, and then pay at the cost of service. In this model the companies responsible for deployment and exploitation of the network are owned by the customers.
- **Publicly supported model:** privately owned backbone receiving specific government support, mainly in the form of loans at special rate and sovereign guarantees.
- **Collocation model:** competing infrastructure providers installing electronic equipment at the mainframes run by market operators in a context of price regulation.

Source: Authors based on interviews

Scope for application

According to data collected from the MAs, the share of revenue generating operations is estimated to be very limited, i.e. around 0.2% of the total number of operations submitted and approved in the period 2007-13 in ICT (Table 15).

²² Usually set as a fixed price per month, even if variable prices are still associated to data service provision in the mobile sector.

²³ See Cep 2013, p. 20.

Table 15. Revenue generating projects 2007-2013. RDI sector

Revenue generating projects	Non-revenue generating projects			Total
	Due to lack of net-revenues	Due to State Aid	Due to < 1MEUR	
0.1%	25.9%	20.1%	53.9%	100%

Source: Survey to MAs

In 54% of cases, Art. 55 on revenue generation was not applied because the operations' total cost was below EUR 1,000,000. This is a condition affecting in particular the implementation of projects for micro and small entrepreneurs, aiming at increasing innovation of the regional economy. Typical project examples are:

- support to technical, IT and organisational undertakings, leading to the implementation of a service networks among cooperating entrepreneurs;
- providing, installing and servicing computer equipment and/or necessary software to enable automation of business processes, to coordinate cooperation in the enterprises and/or to support start-up investments;
- increasing the access to knowledge and innovative technological solutions (advice support);
- carrying out information activities (organization of seminars, conferences, training, etc.), as well as activities, related to development of the recommended management model and retention of implemented broadband networks.

The second reason for exclusion from application of Art. 55 is a lack of the net revenues (26%). As emerged from the fieldwork in the Member States, this exemption applies typically to the implementation of ICT services for public administration and citizens. These projects consist of developing digital solutions to increase the use of information technics in different fields such as e-government, e-health, e-education, e-culture and e-learning. Project examples are several and may concern: systems for electronic issuing of ID cards, electronic ticketing for urban transport, platforms to exchange services between administrative departments, database systems with the use of electronic signature for citizens, systems supporting digitisation of cultural heritage resources, including library and archive resources, museum virtual resources, interactive Internet information networks, open public data, etc. Hardly any of these projects is revenue generating, either because the additional revenues do not cover the additional operating costs or because the operating costs savings are offset by an equal reduction of the public expenditure (this latter condition applies in particular to e-government).

Finally, 20% of operations underwent a verification of compatibility with State aid rules so that provisions of Art. 55 did not apply. This is in particular the case of broadband investments, where EU State aid regulation is generally applicable except for certain categories of aid compatible with the internal market set within the General Block Exemption Regulation, provided that certain conditions are met. In general, broadband is a business featured by market uncertainty but also potential for profit, especially in the backhaul network. In this regard, the EU regulatory framework (see

box 5) is helpful to avoid project overcompensation: a company receiving EU support is then obliged to commercialise the service at regulated prices.²⁴

Box 5. EU regulatory framework for Electronic Communications

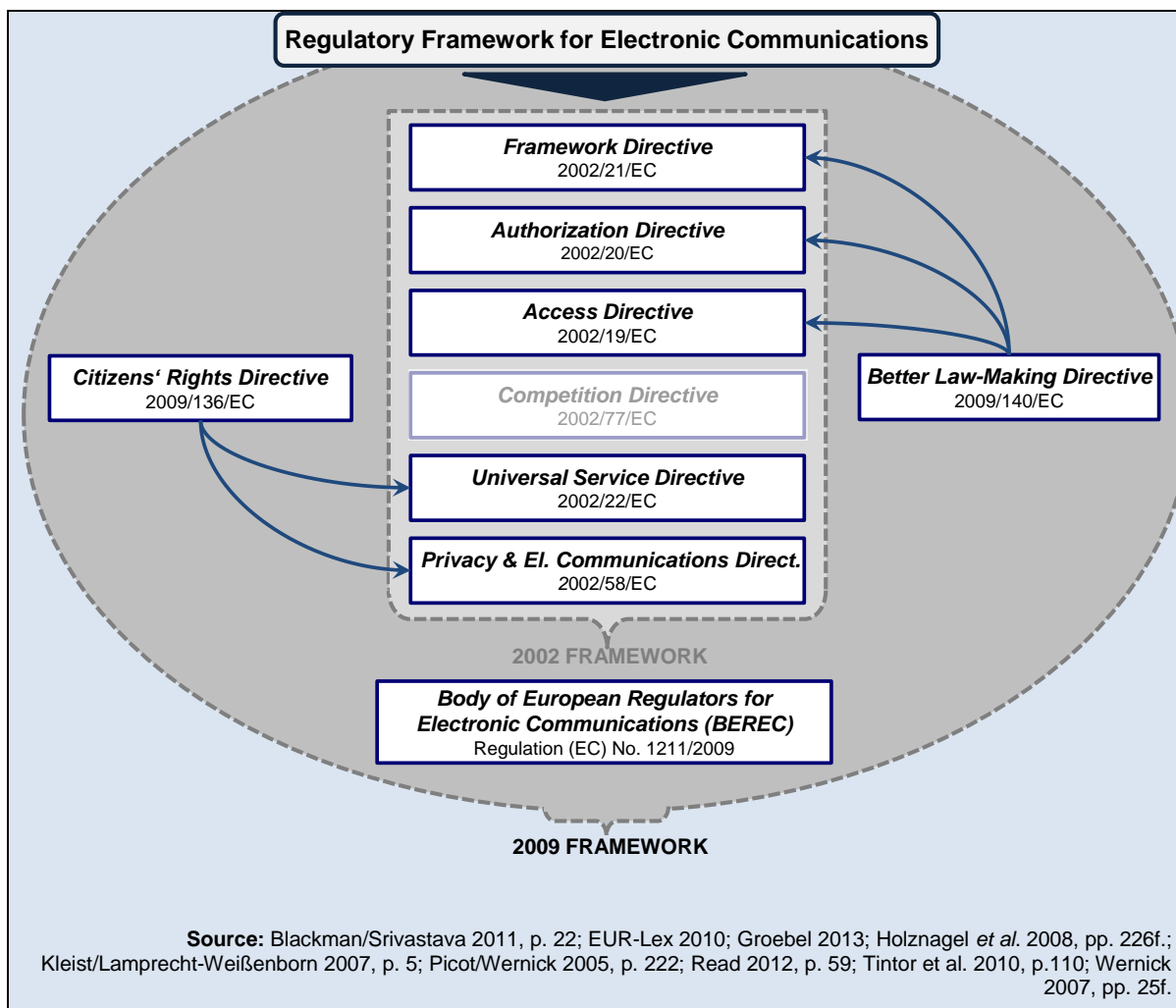
In 2002, after the successful initialization of a transition process that was planned to turn primarily state-owned monopolies into liberalized European telecommunications markets, the European Commission renewed the existing regulatory regime and created a framework for electronic communications, based on the fundamental principles of technology neutrality and the promotion of competition. The relevance of the 2002 framework extended to the regulatory measures for all telecommunication networks in Europe. Therefore, also fixed or mobile broadband networks are regulated according to this regime.

The main intention behind this so-called "Telecommunications Package" was the enforcement of further liberalization of the telecommunication market(s) and the creation of an adequate framework in order to cope with recent developments in the Internet, the mobile communication services, as well as the convergence of different types of media. Five distinctive directives²⁵ constitute the core of the framework that should be (and have been) transposed into national law of the European member states by 2003-07-24. The set of directives originally included the "Framework Directive" (2002/21/EC), the "Authorization Directive" (2002/20/EC), the "Universal Service Directive" (2002/22/EC), the "Access Directive" (2002/19/EC), and the "Directive on Privacy and Electronic Communications" (2002/58/EC). In addition, the regulatory framework was supplemented by the "Competition Directive" (2002/77/EC). For a more detailed description of the directives, see Annex III.

After a two-year consultation process with National Regulation Authorities (NRAs) and extensive negotiations between the European Commission, the Council of Ministers, and the European Parliament, a new Reform Package was adopted in 2009 that amended the regulatory framework by the "Better Law-Making Directive" (2009/140/EC) and the "Citizens' Rights Directive" (2009/136/EC), as well as by a new regulation, that formed a "Body of European Regulators for Electronic Communications" (BEREC). The reforms ought to come into effect in national laws of the EU member states by May 2011. While the Better Regulation Directive amended the Framework Directive, the Authorization Directive, and the Access Directive, the Citizens' Rights Directive had an impact on the regulations of the Universal Service Directive and the Directive on Privacy and Electronic Communications. Moreover, establishing BEREC was necessary to replace the informal European Regulators Group (ERG). The intention behind the adjustment of the framework referred to improving the regulation process, strengthening the competition and expanding the rights of consumers in the European telecommunications markets.

²⁴ Note that this happens in other sectors, too, e.g. the integrated water system.

²⁵ In addition, the framework also includes the radio spectrum policy of the European Parliament and of the Council (Decision No 676/2002/EC), "(...) taking account of the economic, cultural, scientific and social aspects of Community policy, as well as considerations of security, public interest and freedom of expression" and a decision of the European Parliament and of the Council on unbundled access to the local loop (Regulation (EC) No 2887/2000). See Holznagel et al. (2008), pp. 227f.



Geographical coverage

In the following Tables, a synthesis of the country coverage for each subsector, in terms of both number of operations submitted and total project value, is provided. In *Broadband*, 6 countries are involved, although more than half of the operations (13) were submitted in France only. In terms of project cost, the distribution is more balanced, with two poles: France absorbing 46% of the portfolio, on the one hand, and Lithuania with 4%, on the other. The remaining countries range between 11% and 16% of the project costs. As to *e-Health*, as mentioned, all operations have been implemented in Poland.

Table 16. Country Coverage. N. of operations per country

	BE	FR	GR	IT	LT	PL	UK	Total
Broadband		13	1	1	1	4	1	21
e-Health						10		10
Other	1		1				1	3
Total ICT	1	13	2	1	1	14	2	34

Table 17. Country Coverage. Project value per country (%)

	BE	FR	GR	IT	LT	PL	UK	Total
Broadband		46	11	12	4	12	16	100
e-Health						100		100
Other	1		94				5	100
Total ICT		44	13	11	4	12	15	100

3.3 Funding gap rates analysis

This section presents a statistical analysis of the FG rates of the revenue-generating projects contained in the *Broadband* sample, which can be taken as a reference indicator for the estimation for flat rates for the period 2014-2020.

The following variables have been calculated for the analysis of the funding-gap rates: Average FG; Median FG; Min FG; Max FG; Max/Min FG; Stand. Dev FG.

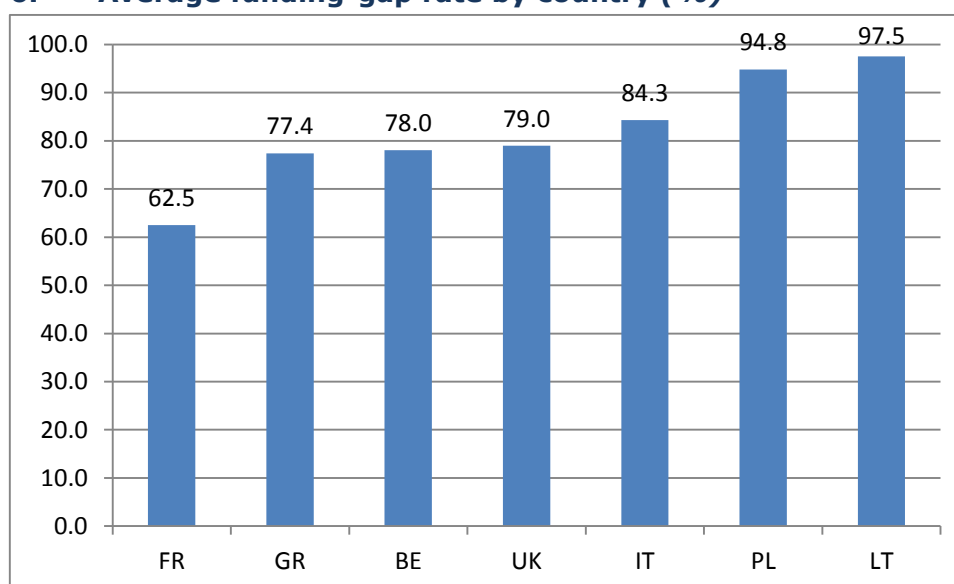
The flat rate revenue percentage is then estimated as the best approximation of:

$$\text{Flat rate} = 1 - \text{Average FG}$$

In the following, the outcome of the analysis is synthetically presented (Table 18 e Figure 6).

Table 18. Analysis of the funding-gap rates. ICT sector

Subsector	N. of projects	Central tendency		Range		Variability		Resulting flat rate
		Avg. FG	Median FG	Min FG	Max FG	Stand. Dev FG	Max/Min FG	
Broadband	21	69.8	70.3	16.5	98.8	23.2	6.0	30%

Figure 6. Average funding-gap rate by country (%)

The results of the FG rates analysis show that large variation in revenue generation exists across projects. On the one hand, there are operations, such as the digital

empowerment of Eure-et-Loir French department, that generate net revenues covering up to 85% of the initial investment cost (FG =16%). On the other, there are opposite cases, like developing the telecommunication network in the municipality of Chelm (Poland), where the (discounted) net revenues are nearly zero (FG=98.8%). More in general, as also confirmed by interviews to sector experts, the capacity to generate revenue in broadband investments can vary to a large extent both across and within countries. This behaviour is linked to some prominent aspects.

First, **telecommunication is mainly a demand-driven sector**, where revenue generation and profitability depend on the characteristics of the area and of the population served. In particular, the most prominent factors are:

- digital education: the higher the digital skills of the population, the larger the use of digital services and, in turn, the sector profitability;
- welfare and demography: projects implemented in areas with fast growing economies and positive demographic trends are more profitable than projects implemented in sparsely, disadvantaged or remote areas;
- demand aggregation of the public sector: the provision of digital services is secured over the medium-to-long term by aggregating demand from the side of public authorities (local government, libraries, hospitals, schools, etc.) and the local communities (business associations, civil communities/ groups, etc.);
- factors located downstream in the value chain: a sophisticated market with appropriate supply for internet applications (e.g. WWW, IPTV, other over-the-top services, M2M/IoT applications, etc.) tends to stimulate demand for internet access, provided that services can technically deliver a satisfying user experience.

On the other hand, there is no clear correlation between the technical specifications of the network and the demand for digital services. In other words, changes in the take-up rate of digital services cannot be reliably forecasted on the basis of changes to the quantity of services supplied. Accordingly, projects sharing similar technical characteristics but implemented in different areas, even in the same country, can be featured by very different financial performances.

The sector experts/business operators interviewed during data collection phase, including the project managers at the EIB, stressed several times the issue of the profitability as bounded to characteristics of the area and its population density. In particular, different financial profiles of broadband investment have been identified:

- in black areas, where a viable market already exists (and thus there is no need for EU support), it is possible to recoup the initial investment in 3-4 years;
- in grey areas, where the market is uncertain and investments need to be supported (preferably with loans), it is possible to recoup the initial investment in around 7-8 years;
- in white areas, where there is no market and investments need to be supported with grants, more than 20 years are needed to recoup the investment.

Another aspect to take into consideration in order to explain the variation of the profitability rates (across countries) is that **telecommunication is a regulated market**. The application of the EU regulatory framework for telecom (see box and

Annex III) has a number of implications on investment decisions, incentives, competition and prices, which, in turn, affect profitability.

Despite a high general coverage of fixed-line broadband access within the European Union, the broadband markets are still fragmented²⁶. MSs differ significantly regarding coverage/availability and take-up rates of fixed, NGA, or mobile broadband on the one side and show a high variety in prices, service quality, and the dynamic of competition on the other side²⁷.

In this context, National Regulation Authorities (NRAs) in MSs are authorized to impose on broadband operators with Significant Market Power²⁸ (often incumbents and former monopolistic players) obligations that might limit their financial expectations and investment plans. In the context of access regulation, according to Art. 1 Access Directive, NRAs may impose obligations on operators to meet reasonable requests for access to, and use of, specific network elements and associated facilities, *inter alia* in situations where the national regulatory authority considers that denial of access or unreasonable terms and conditions having a similar effect would hinder the emergence of a sustainable competitive market at the retail level, or would not be in the end-user's interest.

With respect to new entrants, however, the framework gives room for a considerable increase in infrastructure investments (collocation, infrastructure and network components).²⁹

In general terms, the sector profitability is conversely related to the intensity of the regulation in a given country: the larger the obligations to fulfil (on prices but also in terms of data protections, data conservation, etc.), the lower the profit. Hence, the localisation of the investment, and its institutional set-up, play a key role in defining revenue generation and profits.

In conclusion, broadband investments show large variation in revenue generation depending on the characteristics of the implementation area, including population density and intensity of the regulatory framework.

3.4 Market analysis

The analysis of financial statements at firm level has been carried out on a sample of 51,356 firms operating in sectors that are comparable to the investment projects addressing the ICT priorities of the Cohesion Policy (Table 24).

²⁶ For example, despite a steady increase in total broadband subscriptions, the penetration rates (as % of population) of fast broadband access (≥ 30 Mbps) ranged from 0.1% in Italy to 20.7% in Belgium. The prices for broadband access (12-30 Mbps) started from 10.30 EUR (Lithuania) to 46.20 EUR (Cyprus) per month (EU Commission, 2014b).

²⁷ COCOM 2014; see ITU 2014 for a global view.

²⁸ Article 14(2) of the Framework Directive provides the following definition of Significant Market Power: "An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers." In case the NRA declares an analyzed market as not effectively competitive, "it shall identify undertakings which individually or jointly have a significant market power on that market in accordance with Article 14 and the national regulatory authority shall on such undertakings impose appropriate specific regulatory obligations (...) or maintain or amend such obligations where they already exist" (Art. 16(4) 2002/21/EC; Art. 1 No. 18 2009/140/EC). Otherwise, if the analyzed market is regarded as being effectively competitive, National Regulation Authorities (NRAs) are not allowed to introduce or maintain any regulatory interventions.

²⁹ In Germany, for example, in 2013, the new entrants' investments (EUR 3.5bn) exceed those of the incumbent (EUR 2.9bn).

Table 19. NACE Rev.2 sectors considered in the analysis

Sector	Sub-sector	NACE Rev2 (2 digit)
ICT	Broadband	27 Manufacture of electrical equipment 61 Telecommunications
	ICT services	62 Computer programming, consultancy and related activities 63 Information service activities

The following Table 20 provides a breakdown of the firms according to the nature of their ultimate owner, which be private (i.e. Employees/Managers/Directors, Financial company, Industrial company, Individuals, and Private equity); public (Public authority, State, Government); a Foundation or Research institute; or Bank, Insurance company, Mutual, Pension and Hedge Funds, and Venture capital. As shown in the Table, only 1% of the firms in the sample have a public ownership.

Table 20. Number of firms by ultimate ownership (per year)

Ownership	N. of firms	%
Private ownership	49,272	96%
Public authority, State, Government	299	1%
Foundation/Research Institute	626	1%
Bank, Insurance company, Venture Capital, Funds	1159	2%
Total	51,356	100%

Source: Own elaboration on Balance Sheets data

Focusing on the ROA indicator, the results of the analysis are summarized in Table 21. The full set of tables (including the results on the other indicators) are presented in Annex IV. The analysis shows in particular that:

- **Firms in ICT performed well over the period 2007-12.** The average ROA for the sector as a whole is 9.0%. At the sub-sectors level, firms with core business in the provision of *ICT services* fared better than firms grouped under the *Broadband* industry, which, however, have not worsened their position from 2007 to 2012 (Table 21). This can be explained because those firms that invest in the fixed assets of the telecommunication industry bear high capital costs (and thus the ROA ratio is lower) but, on the other hand, operate in stable (and often regulated – see Annex v) markets, relatively “protected” from demand and price variations. Overall, in ICT the average drop in the ROA indicators from 2007 to 2012 was of only -28%, which is significantly less than what firms, operating in EE (-66%) and RDI (-126%) sectors, have experienced. The same tendency is evinced by looking at the other performance indicators (see Annex IV).

Table 21. ROA values. Summary statistics for ICT

(Sub)sector	ROA Conditional average 2007-2012	ROA % change 2007-2012
Broadband	6.42	-0.07
ICT services	9.15	-12.90
ICT	9.0	-27.54

- **Large variation in firms performance occurred both across and within countries.** This is evidenced by the mean values of the ROA, ranging from 3.3% in Slovenia to 16.1% in Lithuania³⁰ but also by the high standard deviations (Table 22).

Table 22. ROA by country. ICT sector 2007-2012

Country	Min	Mean	Max	st. dev.
AT	-96.4	4.9	65.2	24.5
BE	-99.4	5.4	100.0	19.5
BG	-100.0	14.6	100.0	30.7
CY	-54.3	-14.0	11.9	25.2
CZ	-99.5	7.5	96.9	22.5
DE	-99.8	7.7	99.4	24.7
DK	-99.1	6.4	96.7	28.6
EE	-97.8	12.3	96.0	28.2
ES	-100.0	3.3	99.5	19.3
FI	-100.0	11.5	100.0	28.5
FR	-99.9	7.3	100.0	21.9
GB	-99.9	4.7	100.0	26.6
GR	-95.9	6.1	94.8	20.4
HU	-100.0	8.7	99.3	24.1
IE	-98.5	7.4	98.1	29.1
IT	-99.4	5.0	99.4	15.4
LT	-95.3	12.4	97.4	28.4
LU	-81.3	8.6	60.8	17.1
LV	-95.2	16.1	99.8	38.6
MT	-6.1	23.0	92.0	23.1
NL	-98.5	7.3	100.0	21.9
PL	-100.0	4.1	100.0	28.9
PT	-99.7	4.3	98.3	20.3
RO	-99.8	12.7	99.9	33.3
SE	-100.0	8.9	100.0	26.2
SI	-98.9	3.3	92.7	17.8
SK	-99.6	3.9	100.0	25.4

³⁰ Where the two extremes are excluded due to the limited number of firm-level observations available.

These results presented so far are in line with the indications emerging from the analysis of the FG rates as well as of the evidence collected during the interviews. In particular:

- The insight that telecommunication is an industry with some market risks but also good potential for profit is confirmed. This aspect already emerged when looking at the operations level because most ERDF/CF operations in broadband have been financed in the period 2007-13 within the State aid framework, which applies to productive (and usually profitable) investments.
- The results show that telecommunication is a quite stable market, less sensible than other to price variation (the ROA, as matter of fact, has not changed between 2007 and 2012). This issue was particularly stressed by interviewing the sector experts and analyst involved in the appraisal and financing of ERDF/CF operations, such as Jaspers and EIB.
- Finally, the large variation in revenue generation capacity emerged at operation level is mirrored by similar large variation of firms performance, again both across and within countries.

3.5 Conclusions

The analysis of the funding gap rates, based on historical data sample of revenue generating projects submitted in the period 2007-2013, shows that the flat rate revenue percentage for the *Broadband* subsector would be equal to 30%.

The following considerations shall be, however, taken into account with regard to the establishment and application of flat-rate revenue percentages in the ICT sector:

- The flat rate system will not apply for most broadband projects because of the scope for competition and the non-negligible risk of distortion (e.g. broadband investments in areas where there is already some type of coverage of the service) which will make them subject to the State aid regime.
- In the context of the ESI Funds, the expected areas of investments are Broadband, on the one hand, and ICT services, on the other. While being clearly distinct from a conceptual and technical point of view, the two areas vary also in the capacity to generate revenues (and to make profit). The return of investment is generally higher in *Broadband* than in *ICT services*. Hence, it is recommendable to distinguish the flat rate revenue percentages at subsector level.
- The collected sample of historical data on revenue generating projects 2007-13 present several deficiencies, namely:
 - o the sample as a whole is not representative of the main types of investment related to the ICT sector;
 - o it was not possible to collect sufficient data to carry out the FG rate analysis for the *ICT services* subsector, whose results fall outside the findings of the study;
 - o in case of *Broadband*, the key issue is the little evidence the analysis relies on: 21 operations submitted, of which more than half in France

only. Given the limited data, it was not possible to further disaggregate the sample.

- Broadband investments show large variation in financial profitability (as shown by a standard deviation of 23% in the FG rate) both across and within countries. The main profitability drivers are the characteristics of the catchment implementation area, including population density and intensity of the regulatory framework. Hence, the establishment of a unique flat rate could imply over-compensating those operations implemented in favourable markets while under-compensating those that are focused on the extension of the service in more disadvantaged regions.

On the basis of the considerations made above, **the study team suggests not to establish the flat rate for the *Broadband* subsector**. However, it is suggested to re-examine the adoption of flat-rates at a later stage of implementation of ERDF OPs 2014-2020. Such re-examination should consider any changes in EU legislation and market conditions in the MSs, such as changes in regulatory frameworks as well as technology change, which can influence the revenues generated by the investments in ICT.

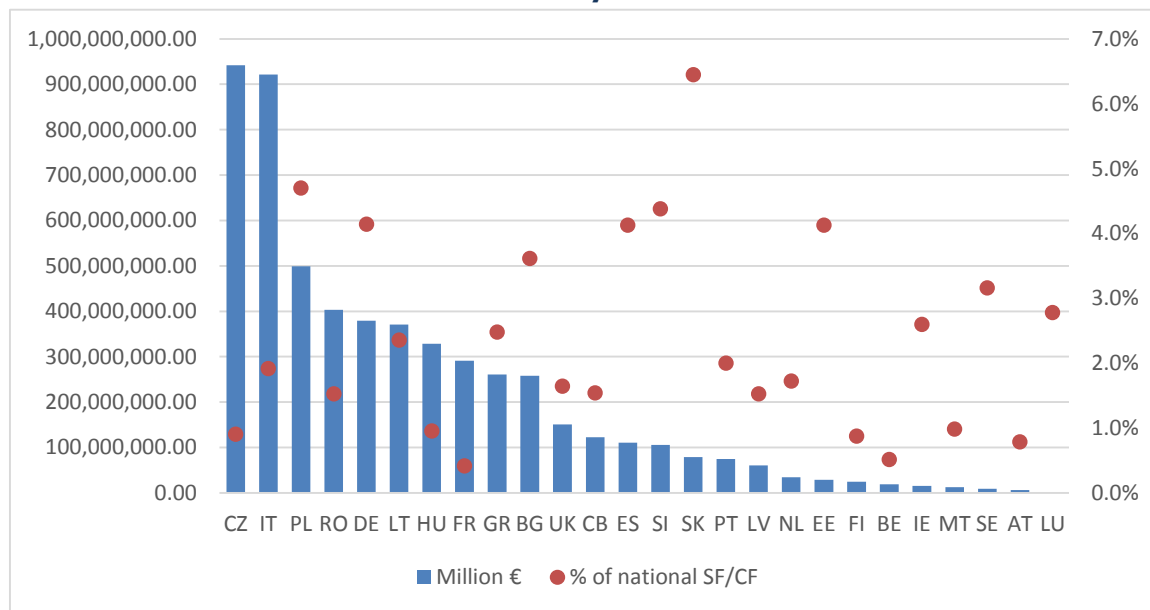
4 Energy efficiency

4.1 Structural and Cohesion Fund expenditure

In the 2007-2013 programming period, SFs funded energy efficiency operations including interventions in buildings, co-generation, district heating, energy efficiency in SMEs, renewable energy generation, energy management systems and others. Considering the impact of the financial crisis on the state of economy in the MSs, in 2009, the scope of the SF was broadened to cover the social housing (up to 4% of resources invested in energy efficiency and renewable energy sources).

By 2013, the expenditure allocated to energy efficiency represents about 2% of the total financial allocations to ERDF and CF. Funds are concentrated in 13 Member States³¹ (see figure 7). On average, each OP allocated less than 10% of resources to this priority. However, the percentage reaches up to about 60% for specific programmes³².

Figure 7. Energy efficiency in adopted Ops by Member States, in Million € and % of total allocation by MS.



4.2 Revenue generating projects 2007-2013

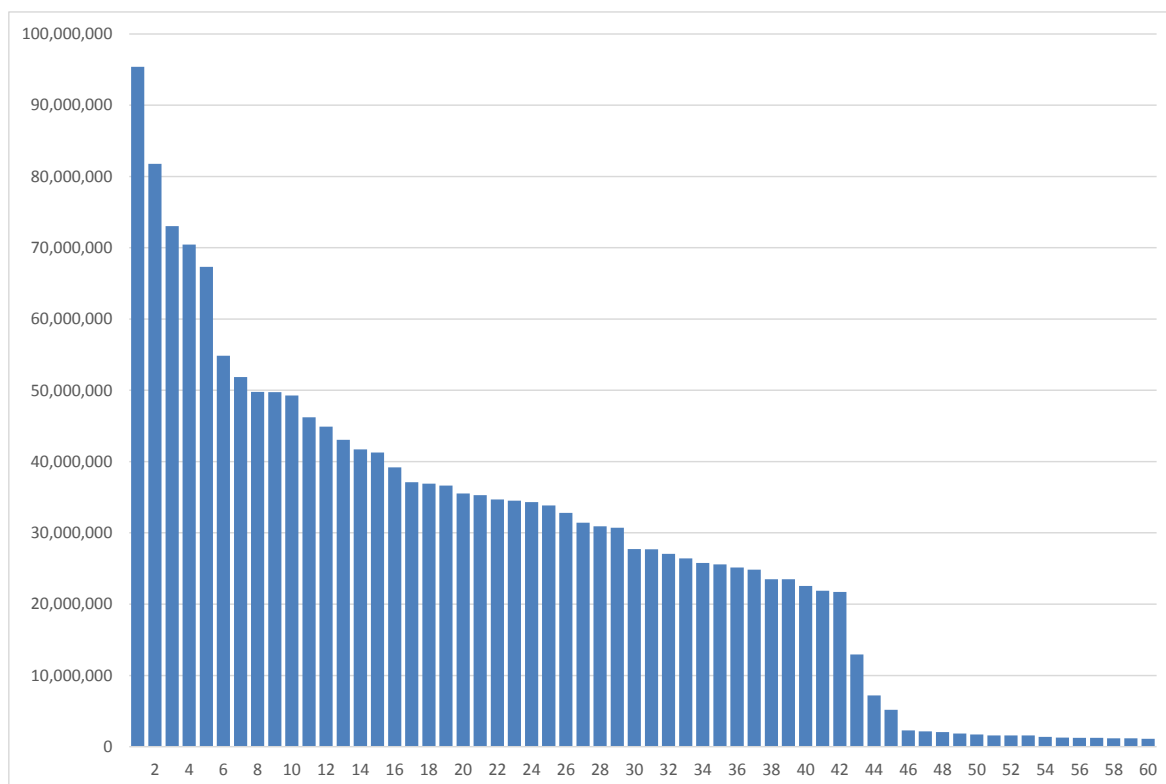
The sample of historical data on 2007-2013 revenue generating projects in the energy efficiency sector amounts to 111 operations. Of these, 7 are Major Projects and 47 are projects with investment cost under €1 million. The sample covers eight countries: Greece, Romania, Hungary, Netherlands, Poland, France, Czech Republic and Spain. Hungary and Poland are by far the most represented countries, accounting for about 80% of the relevant operations in the sample.

³¹Bulgaria, Czech Republic, Germany, France, Greece, Hungary, Italy, Latvia, Lithuania, Poland, Romania, Slovenia, United Kingdom and some cross border programmes, representing more than 94% of the total allocated amount.

³²In the case of the Italian OP Renewable Energy and Energy Efficiency/2007IT161PO002.

The 64 projects with an investment cost higher than €1 million account for €1.7 billion. Project cost ranges from €95.4 to €1.1 million, with an average of € 28.6 million. The 47 projects with an investment cost lower than €1 million account for about €18 million, i.e. less than 1% of the total value of portfolio.

Figure 8. Financial size of EE projects with investment costs higher than 1 million euro.



Type of Projects

Operations in the sample have been grouped in four sub-sectors based on common typologies of investment, namely: *Energy efficiency in buildings*, *District heating*, *Grid efficiency*, and *Renewable energy*. For some projects including investments in equipment for air depollution, industrial machines or integrated investments at local or municipality levels, a sub-sector attribution was not possible so that they have been considered in a residual miscellaneous category *Other*.³³

Average investment cost varies across sub-sectors, from €29 million for *District heating* and *Grid efficiency* to less than €1 million for *Energy efficiency in buildings* (Table 23). Resources are concentrated in the fields of *District heating* and *Grid efficiency* (about 94% of the total value of portfolio), while *Energy efficiency in buildings* and *Renewable energy* represents only 2% of the total cost.

³³It should be noted that this classification entailed, in some cases, a certain degree of subjectivity. In fact, OP monitoring systems allocate energy efficiency projects to code 43, which covers a large range of interventions. Title of projects and measures under which they are supported can help to identify sub-sectors but cannot be considered an official basis for classification.

Table 23. EE subsectors

Sub-sectors	N. of operations	Total investment costs (EUR)	Average costs (EUR)	% of total costs
District Heating	42	1,221,844,107	29,091,526	70.0
Energy efficiency in buildings	35	26,845,636	767,018	1.5
Grid efficiency	14	418,412,268	29,886,591	24.0
Renewable energy	8	8,501,423	1,062,678	0.5
Other	12	73,517,986	6,126,499	4.0
Total EE	111	1,749,121,420	15,757,851	100.0

More details on the sub-sectors are illustrated below:

- **Energy efficiency in building.** This group includes operations supporting building energy retrofitting. Investments include efficient heating and cooling systems; wall, roof and floor renovation; windows double-glazing and, in certain cases, combined with previous energy saving investments, roof top photovoltaic panels for the production of renewable electricity. Project total investment costs range from €5 million, for the re-construction of the *refuge du goûter* in France to less than €80.000 for "The Mori Freedom Air Kindergarten to enhance the energy efficiency of building insulation and replacing windows and doors" in Hungary.
- **District heating.** This sub-sector includes investments in heat distribution networks at municipality or districts levels, including in some cases co-generation facilities (combined production of heat and power). Out of 42 operations, 28 are located in Poland. Most interventions focus on reconstruction and technological up-dating of already existing thermal heat system networks. The largest operation (€95 million) is related to the modernization of the heating system of Szczecin-left bank in Poland, while the smallest (less than € 150.000) relates to "Gas engine cogeneration implementation of the Pannonian Archabbey energy more efficient" in Hungary.
- **Grid efficiency (electrical transmission and distribution networks).** This group concerns projects aimed at the reduction of losses in power transmission and/or distribution systems, the substitution of transformers in the electricity distribution network, as well as projects in public lighting. Operations range from €51 million for the project "Reducing energy waste by replacing transformers, MV / LV for saving the ENEA Operator" to €140.000 for the project "Upgrading of public lighting system Zalaegerszeg" in Hungary.
- **Renewable energy.** This group includes few operations related to renewable energy plants with some components of energy efficiency. Projects are of small size: from around €1.2 million for the project "The Event House energetic modernization of renewable energy sources" to less than €400.000 for the "The Event House energetic modernization of renewable energy sources" in Hungary.
- **Other.** This class consists of different operations that cannot be grouped in any subsector: from investment in air depollution equipment in Romania ("Flue gas desulphurization plant for Unit No.7 from Isalnita TPP") to studies aimed to improve the energy efficiency performance in Hungary ("Budapest X. Stephen

district in the Black Elementary School and Eugene Szervátiusz indicators to improve energy”).

The classification builds on the historical project data collected for the previous programming period but it also takes into account the new strategic framework of Cohesion Policy and the expectations in terms of project pipeline for the period 2014-2020 (see box 6)³⁴.

Box 6. Energy efficiency priorities in the new programming period 2014-2020

Energy efficiency investments will be mainly supported under ESIF Thematic Objective 4 during 2014-2020 (see Article 9 Regulation 1303/2013). Investment priorities related to energy efficiency in TO 4 are the following:

- 4(b) promoting energy efficiency and renewable energy use in enterprise;
- (c) supporting energy efficiency, smart energy management and renewable energy in public infrastructure, including buildings, and in the housing sector;
- (e) promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures;
- 4(g) promoting the use of high efficiency co-generation of heat and power based on useful heat demand.

Compared to the previous period, the budget allocated to measures for a lower carbon economy is significantly higher. Additionally, a minimum share of resources will have to be invested in TO 4 priorities of at least 20% in the more developed regions. Indicative actions of high European added value to be implemented have been provided by Commission and include:

- energy efficiency measures and renewable energy use in SMEs (including information campaigns);
- investment in the wider use of Energy Performance Contracting in the public buildings and housing sectors;
- energy efficiency and renewable heating and cooling in public buildings, in particular the demonstration of zero-emissions and positive-energy buildings, as well as deep renovation of existing buildings to beyond cost-optimal level;
- integrated, sustainable and accessible urban mobility concepts in cities, city-regions and metropolitan areas, leading to reduced greenhouse gas (GHS) emissions, in particular through sustainable urban transport plans, including facilitating use of public transport, cycling and walking;
- integrated low-carbon strategies and sustainable energy action plans for urban areas, including public lighting system and smart grids.

During the interviews carried out by the study team, MAs and ERDF stakeholders provided a list of expected investments in EE over the next programming period, including:

- Lithuania: efficiency in energy production, buildings renovation, social housing (Jessica) and renewable energy;
- France: Renewable energy, energy efficiency in SMEs, buildings renovation and thermal optimisation;
- Netherlands: commercial buildings, process optimisation, sustainable transports and renewable energy;
- European Investment Bank (EIB): rehabilitation of public and private buildings.

Source: EC (2014) and interviews

³⁴ Part of the investments classified in the category 'grid efficiency' above will be included in the category 'supporting energy efficiency, smart energy management and renewable energy in public infrastructure, including buildings, and in the housing sector' in the new programming period 2014-2020.

Costs & Revenues

According to business operators and project promoters, the type of investment and operating costs vary according to the sub-sector and the type of operation considered. Equipment, construction activities, civil engineering, electronic devices (ICT) and specialized services (engineering) are the main investment cost items. Staff costs, maintenance of buildings and energy plants, materials, energy and other utilities are the main operating costs.

Costs depend highly on the location of the investment, the dimension of the project and the technology used. However, some examples of average standard investment cost by typology of intervention are illustrated in the following table³⁵.

Table 24. Standard average cost by subsector

Sub-sectors	Description of standard investment	Average cost
EE in Buildings	Thermal insulation of buildings – 3.500 m ² surface, dated seventies with substitution of a centralized heating system.	500k€
District heating	District heating – 2.000 meters length; providing energy to 40 users with a co-generator of 200kW heat generating capacity	2.500 k€
Grid efficiency	Batteries for capacity accumulation 250kW with network connection devices	400 k€
Renewable energy	Photovoltaic Plant (15kW) with electronic and network connection devices	30k€

Source: Authors

Sources of revenues also differ depending on the investment type (Table 25). Typically, EE interventions generate cost-savings, where the additional revenue is given by the difference between energy consumption costs borne either by final users (in case of *Energy efficiency in buildings*) or energy providers (in case of *District heating*, *Grid efficiency* and *Renewable energy*) before and after the intervention. In addition, revenues can also come from selling or renting of spaces, or from increase of tariffs on energy consumption (power and heat).

Table 25. Typical sources of revenues

Sub-sector	Description	Typical sources of revenue
EE in Buildings	Efficient heating and cooling systems; wall, roof and floor renovation; windows double-glazing	Cost saving, rents (surfaces) or sales (buildings)
District heating	Equipment (tubes), civil engineering, specialized services, energy plant (co-generation)	Tariff on energy (heat, cool and electricity distributed)
Grid efficiency	Transformers, batteries, specialized services, ICT technologies	Cost saving (reduction in energy transmission and distribution losses)
Renewable energy	Solar, wind, biomass, geothermal, hydroelectric plants and related technologies	Tariff on energy produced and emitted on the grid; cost saving (off-grid plants)

³⁵ Data refers to projects implemented in Italy.

Scope for application

According to data collected from the MAs, the share of revenue generating operations is estimated to be around 1% of the total number of operations co-funded in the period 2007-13 in EE (Table 26).

Table 26. Revenue generating projects 2007-2013. EE sector

Revenue generating projects	Non-revenue generating projects			Total
	Due to lack of net-revenues	Due to State Aid	Due to < 1MEUR	
0.8%	48.2%	16.5%	34.5%	100%

Source: Survey to MAs

Exclusion from application of Art. 55 is mainly due to operations that did not generate revenues or the revenues did not fully cover the operating costs (48% of the projects in the sample), as well as to operations under the €1 million threshold (34%).

As it concerns the lack of net revenues, decision makers, experts and project promoters indicated that without public subsidies the profitability of interventions in energy efficiency and energy saving is from moderate to low. Especially when the operations are carried out by/for public administrations providing a public service with no or with a low tariff system charged to the final users (as buildings renovation of schools, public libraries or hospitals or social housing) and/or when the energy cost-saving is not sufficient to compensate the other operating costs.

Evidence from fieldwork indicates that many Operational Programmes have funded small scale operations, under the €1 million threshold. This is particularly the case for projects related to energy efficiency in buildings.

Based on results from the study survey, about 17% of energy efficiency operations were supported under State aid schemes. These include aid for environment protection and energy (e.g. Picardie – France), Regional State Aid (e.g. Slovenia), *de minimis* or General Block Exemption Regulation (GBER) aid. Accordingly, these operations were not subject to funding gap calculation.

Box 7.. Community framework for state aid in energy efficiency and energy saving in the 2007-2013 programming period

According to "Guidelines on State aid for environmental protection and energy" (2001/C 37/03), section B, "Energy-saving measures should be understood as meaning among other things action which enables companies to reduce the amount of energy used in their production cycle". Investments in energy saving are deemed equivalent to investments to promote environmental protection and should play a major role in achieving economically the Community objectives for the environment.

Guidelines apply also to investments in the combined production of electric power and heat, if it can be shown that the measures are beneficial in terms of the protection of the environment because: i) the conversion efficiency is particularly high; ii) the measures will allow energy consumption to be reduced; or iii) the production process will be less damaging to the environment.

All these interventions are eligible at the basic rate of 40% of eligible costs. Eligible costs are the extra investment costs necessary to meet the environmental objectives.

Art.21 (Environmental investment aid for energy saving measures) and 22 (Environmental investment aid for high-efficiency cogeneration) of the **GBER** (Regulation (EC) No 800/2008) provide for incentives in energy efficiency. Eligible costs are i) the extra costs necessary to achieve a target in energy saving higher than level required by the Community standards or ii) the costs established by comparing the counterfactual situation in absence of State Aid. Aid intensity varies from 60% in the first to 20% in the second case (with an additional 10% in case of small or micro enterprises). Aid intensity for co-generation shall not exceed 45% of the eligible costs.

Besides the EU and national/regional capital contributions that are common to all ESIF-funded operations, there are a variety of other funding sources for energy efficiency interventions granted by national or regional public and private parties³⁶. Supports for improvement in energy efficiency and energy saving take the form of grants, subsidised loans and tax breaks. Incentives are often subject to the achievement of an energy efficiency performance standard, so as to contribute to the objective set under the National Energy Efficiency Actions Plans (NEEAP).

Geographical coverage

In terms of number of operations, the geographical coverage in the EE sector as a whole is relatively low with height countries involved. Above all, the distribution is not homogenous because most operations have been implemented in Hungary and Poland only (Table 27).

At subsector level, this limitation is exacerbated. Operations within the subsector *EE in buildings* covers 3 countries: Hungary (26), Poland (5) and France (4). *District heating* shows a slightly better coverage (5 countries), though Poland counts alone for more than 66% of the total (28 operations out of 42).

In terms of project value, the picture does not change much, where 84% of the total resources have been spent in Poland. The follow by Greece and Romania, with about 6% each. The other 3 countries are below 2%.

³⁶ See for example the various national schemes supporting energy efficiency in housing described in: Expert Evaluation Network delivering policy analysis on the performance of cohesion policy 2007-2013, *Renewable energy and energy efficiency of housing*, 2011.

Table 27. Country Coverage. N. of operations per country

	FR	ES	GR	NL	PL	RO	HU	CZ	Total
EE in Buildings	4				5		26		35
District heating			2		28	1	3	8	42
Grid efficiency					11		3		14
Renewable energy							8		8
Other	2	1		1		1	7		12
Total EE	6	1	2	1	44	2	47	8	111

Table 28. Country Coverage. Investment costs per country (million euro)³⁷

	FR	GR	NL	PL	RO	HU	CZ	Total
EE in Buildings	9.19			8.39		9.27		26.85
District heating		103.25		1,049.03	49.27	2.88	17.4	1,221.83
Grid efficiency				417.60		0.81		418.41
Renewable energy						8.50		8.50
Other	8,56		12.95		49.78	2.20		73.49
Total EE	17.75	103.25	12.95	1,475.02	99.05	23.66	17.4	1,749.08

4.3 Funding gap rates analysis

This section presents a statistical analysis of the FG rates of the revenue-generating projects included in the study sample, which should be taken as a reference indicator for the estimation of flat rates for the period 2014-2020. The analysis is carried out for the subsectors *Energy Efficiency in Buildings*, *District heating* and *Grid efficiency*. The subsectors *Renewable energy* and *Other* are excluded because encompassing operations that are different in nature and loosely related to the intervention logic of a standard EE investment. To cope with the sample's limitations in terms of size and geographical coverage, the flat rate is also tested at the level of the sector as a whole.

The following parameters have been calculated for the analysis of the FG rates: Average FG; Median FG; Min FG; Max FG; Max/Min FG; Stand. Dev FG.

³⁷ Investment costs for the unique project located in Spain has not be reported because lower than 20.000 €.

The flat rate revenue percentage is then estimated as the best approximation of:

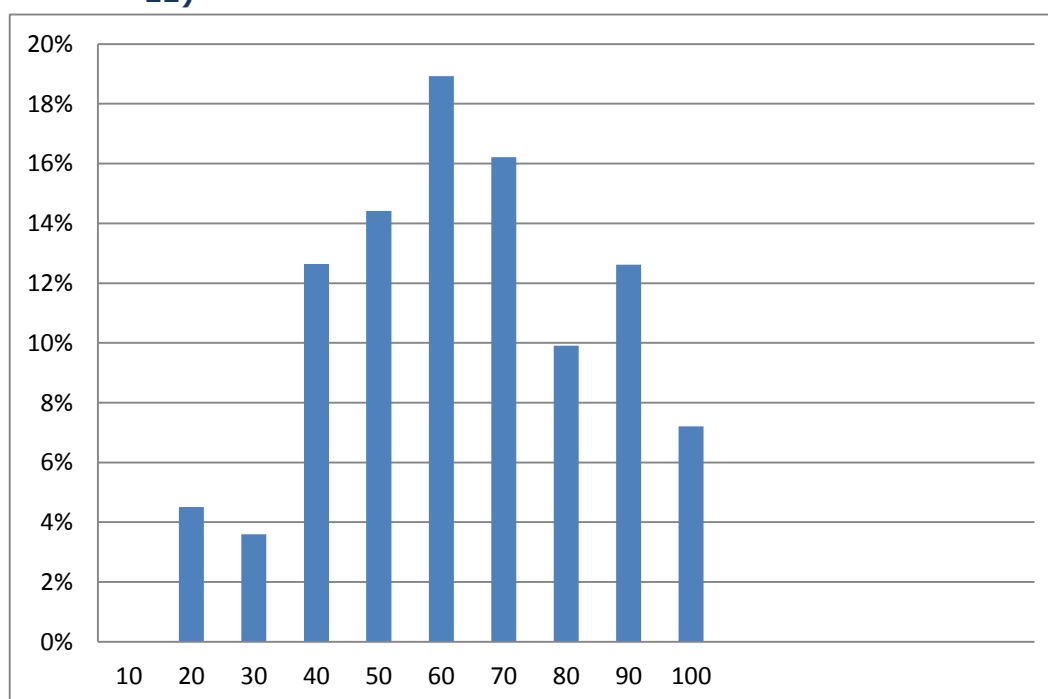
$$\text{Flat rate} = 1 - \text{Average FG}$$

Results of the FG rates analysis are presented below (Table 29 29 and Figure 9 9).

Table 29. Analysis of the funding-gap rates

(Sub)Sector	N. of projects	Central tendency		Range		Stand. Dev FG (%)	Max/Min FG	Resulting Flat rate
		Avg. FG (%)	Median FG (%)	Min FG (%)	Max FG (%)			
EE in Buildings	35	50.9	48.8	14.5	92	19.9	6.3	50%
District heating	42	69.8	70.7	34.5	95.2	16.1	2.8	30%
Grid efficiency	14	50.9	54.2	15.5	82.3	21.2	5.5	50%
Total EE	91	58.8	58.9	14.5	95.2	20.9	6.5	40%

Figure 9. Overall sample distribution across funding gap ranges (sector EE)



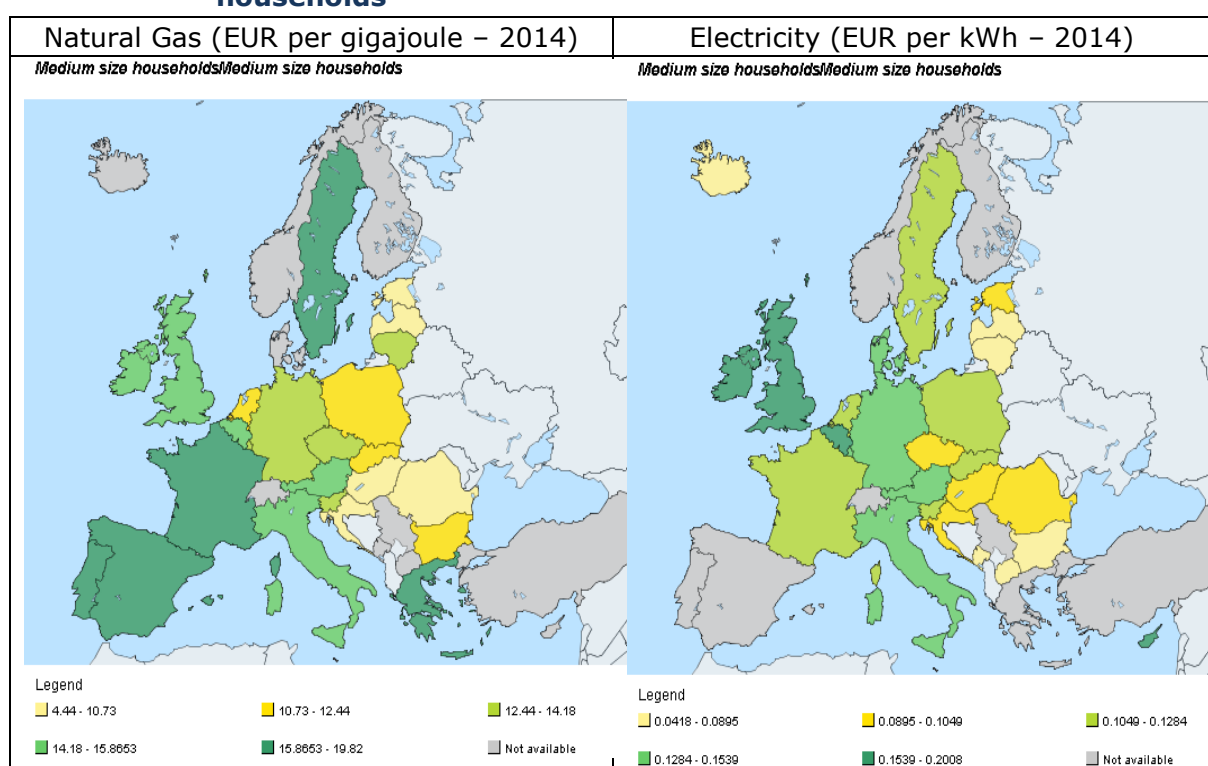
As shown in Table 29, EE projects have an average FG rate of 58.8%. Funding gap variability is however high, as measured by both the standard deviation (21%) and the max to min ratio (6.5). As shown by the bar chart in **Error! Reference source not found. 9**, most operations (i.e. around 65% of the total) have a FG rate higher than 50%, while in only 8% of cases the FG rate is lower than 30%.

Such large deviations in revenue generation is explained by the different profitability profiles of the intervention types contained in the sample. Also, the difference in project size matters, where small operations generally have a lower FG rate than large projects.

At sub-sector level, interventions in *Grid efficiency* perform generally better than in *District heating*³⁸. Such difference can be explained by the fact that heat supplied through district heating is often priced at an administrative level and the full cost recovery principle is not applied. On the other hand, interventions in *Grid efficiency* and *Energy efficiency in buildings* have larger revenue generation potential because operating in more liberalised markets³⁹.

At country level, the average FG rate in Poland is higher than the sample average, while Hungary shows the lowest revenue generation capacity. Differences between countries can be explained by the diversity of energy prices (see Figure 10) and regulatory frameworks across the MSs. Country differences also reflect the different type of operations financed.

Figure 10. Natural gas and electricity prices in EU MS (2014, medium size households)



Source: Eurostat

4.4 Market analysis

The market analysis provides a more general picture of the profitability trends of the firms operating in the EE sector and sub-sectors over period 2007-12 within the MSs overall economic context.

The analysis of financial statements, based on ROA, has been carried out on a sample of 160,280 firms operating in sectors that are comparable to the investment projects addressing the EE priorities of the Cohesion Policy (Table 30).

³⁸ The average FG rate in the two sectors are 70% and 50%, respectively.

³⁹ The average FG rate is around 50%.

Table 30. NACE Rev.2 sectors considered in the analysis

Sector	Sub-sector	NACE Rev2 (2 digit)
EE	Energy efficiency in private and/or public buildings	41 Construction of buildings
	Measures for energy saving and efficiency improvement of generation/ storage/ transmission/ distribution systems	43 Specialised construction activities
		33 Repair and installation of machinery and equipment
		35 Steam and air conditioning supply

The following Table 31 provides a breakdown of the firms according to the nature of their ultimate owner, which can be private (i.e. Employees/Managers/Directors, Financial company, Industrial company, Individuals, and Private equity); public (Public authority, State, Government); a Foundation or Research institute; or Bank, Insurance company, Mutual, Pension and Hedge Funds, and Venture capital. As shown in the Table, almost all firms (98%) are privately owned.

Table 31. Number of firms by ultimate ownership (per year)

Ownership	N. of firms	%
Private ownership	157,716	98.4%
Public authority, State, Government	551	0.3%
Foundation/Research Institute	1,043	0.7%
Bank, Insurance company, Venture Capital, Funds	970	0.6%
Total	160,280	100.0%

Source: Own elaboration on Balance Sheets data

The analysis on firm performance shows that the average ROA in the EE sector, calculated over the period 2007-12, is 5.8%. Significant differences exist at subsector level, where *Energy efficiency in private and/or public buildings* and *Measures for energy saving and efficiency improvement of generation/storage/transmission/distribution systems* have a ROA of 4.3% and 7.2%, respectively. If a 5% is taken as threshold for the performance to be positive, the former subsector is slightly negative. This is because it is made up of firms in the construction industry, which have been hit severely during the crisis.

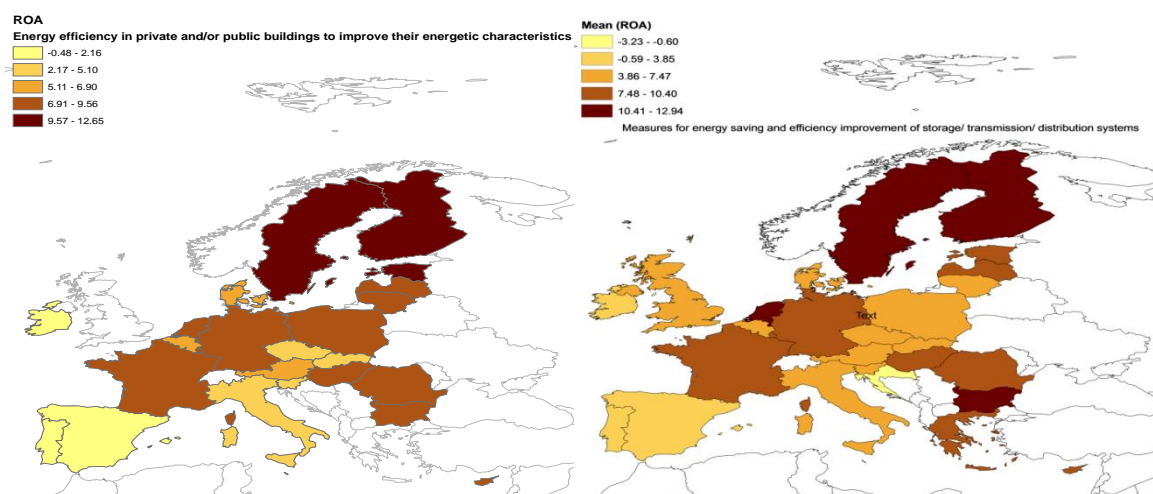
As in the other sectors, the ROA indicator has declined between 2007 and 2012 showing the overall effect of the crisis on the EU economy (-66.6%). Again, the largest drop is recorded for the firms in the construction industry, as encompassed in the subsector *Energy efficiency in private and/or public buildings* (-75.3%).

Table 32. ROA values. Summary statistics for EE sector and subsectors

(Sub)sector	ROA Conditional average 2007-2012	ROA % change 2007-2012
Energy efficiency in private and/or public buildings to improve their energetic characteristics	4.33%	-75.29
Measures for energy saving and efficiency improvement of generation/ storage/ transmission/ distribution systems	7.22%	-53.42
EE	5.80%	-66.45

In Figure 11, the average value for ROA is mapped at the sub sector level. As it happens in RDI and ICT, a wide heterogeneity across countries of both mean values and volatility (as measured by standard deviation) emerges. Mean values range, in fact, from -0.6 in Croatia to 12.5 in Finland demonstrating the high dissimilarity of market situations across Member States.

Figure 11. Geographic heterogeneity: ROA in the Energy Efficiency sub-sectors



Indeed, the factors driving profitability in the EE sector are not only linked to the demand of private housing or public buildings, but also depend on energy prices, available technologies and sector policy (i.e. taxes, incentives and regulatory framework). All these factors are country related.

4.5 Conclusions

Notwithstanding most EE operations co-funded by ERDF OPs in 2007-2013 are not subject to Article 55 of Regulation 1083/2006, the study has gathered data on a relatively good number of revenue generating operations. However, the sample is unbalanced in terms of countries covered, the operations being located for the most part in Poland and Hungary, and encompasses different typologies of investments with

specific financial profiles, i.e. interventions on power grids, roof insulation, co-generation and public heating, public lighting and also in few cases investments in renewable energies.

The analysis of the funding gap rates, based on historical data sample of revenue generating projects submitted in the period 2007-2013, shows that the flat rates revenue percentages would be:

- Energy efficiency in buildings: 50%
- District heating: 30%
- Grid efficiency: 50%
- Total EE: 40%

Central tendency statistics for the overall EE sample indicate a flat-rate of 40%. However, dispersion from the average is high, with a standard deviation of 21%. Additionally, flat-rate average weighted by total investment cost is equal to 68%, reflecting the fact that flat-rate is generally higher for larger size operations.

At the sub-sector level, operations in *Energy efficiency in buildings* and *Grid efficiency* show a higher revenue generation capacity (Flat rate=50%) than the overall sample (Flat rate=40%). The opposite applies to *District heating*, whose flat-rate is equal to 30%.

Considering the practical implications of adopting the flat-rate method, however, **it is proposed not to adopt any flat rate for EE sector and sub-sectors**. This is based on the following considerations:

- The impact of establishing flat rates in the sector is expected to be very limited, considering that almost all EE operations will be exempted due to lack of net revenues, their small financial size, or for being supported under State Aid.
- In view of the large variability in revenue generation, the application of a unique flat rate at the sector level can generate overcompensation for some operations (e.g. projects in *EE in Buildings* and *Grid efficiency*) while being unusable for other types of projects (e.g. projects in *District heating*). Given that many OPs support operations in different sub-sectors, a unique flat rate can be seen as too risky by the MAs. In fact, by adopting it, operational programmes may not be able to finance projects in certain sub-sectors to the level needed to make them viable.
- The analysis shows that the large variability in revenue generation occur even within sub-sectors. Thus, the issue is not solved by splitting the sector in subsectors, while additional problems of country coverage are encountered because the large majority of observations is concentrated in two countries only (Poland and Hungary).
- A certain degree of variability of the energy prices is expected during the period 2014-2020, which will be reflected in the profitability of the co-financed projects. This increases the risks for flat rates to generate over-compensation or, on the opposite, being discarded by MSs as method to determine the potential net revenue of co-funded operations.

It is suggested to re-examine the adoption of flat-rates in the EE sector and sub-sectors at a later stage of implementation of ERDF OPs 2014-2020. Such re-examination should consider any changes in EU legislation and market conditions in the Member States - energy prices and technology change in particular - which influence the revenues generated by EE investments.

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ENTSOG European Network of Transmission System Operators for Gas "Ten-Year Network Development Plan".

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Annex I. List of interviewees

Name	Institution	Function
Roman Doubrav	European Commission	DG ENER. Unit C.3. - Energy efficiency
Ciaran Dearle	European Commission	DG RESEARCH. Senior Policy Officer, Unit B5 - Spreading Excellence and Widening Participation
Hervé Dupuy	European Commission	DG CONNECT. Deputy Head of Unit Unit B5 -Broadband
Antonio Almagro	European Investment Bank	Energy Efficiency & Small Energy Projects (EE&SE) Division
Gruber Harald	European Investment Bank	Digital Econ. & Education (DEE) Division
Piovesani Laura	European Investment Bank	Innovative Industries Division
Robert Swerdlow	JASPERS	Knowledge Economy and Energy Division
Dorothee Teichmann	JASPERS	Knowledge Economy and Energy Division
Louis-Philippe Carrier	JASPERS	Knowledge Economy and Energy Division
Francesco Maria Angelini	JASPERS	Knowledge Economy and Energy Division
Christian Schemp	JASPERS	Knowledge Economy and Energy Division
Tauber Hartwig	FTTH Council Europe	Chair Policy & Regulation Expert Group
Alberto Moreno Rebollo	Telefónica España	Director de Regulación,
Arnold Picot	Ludwig-Maximilians-Universität, Munich	Prof. Dr. Dres. h.c. Forschungsstelle für Information, Organisation und Management Fakultät für Betriebswirtschaft
Stéphane Nottin	Commissariat général à l'égalité des territoires	Mission des Affaires Européennes
Francisca Rivero García	Instituto para la Diversificación y Ahorro de la Energía, IDEA, Ministerio de Industria, Energía y Turismo	Coordinación y Apoyo al Ahorro y la Eficiencia Energética / Jefa de Departamento.
Alessandro Venturin	D'appolonia S.P.A	Engineer
S. Siahaya,	Netherland Enterprise Agency ('De Rijksdienst voor Ondernemend Nederland - RVO.nl)	Energy Investment Allowance Advisor.
Ladislav Janicek	Brno Technical University	Bursar

Annex II. Data collection

Data gathering at EU level

At EU level, data gathering activities have concerned both quantitative and qualitative evidence.

In particular, data on revenue-generating projects contained into the Commission's database of 2007-2013 major projects has been gathered from the Commission services extracted from "Infoview". Data extraction concerned 13 categories of investment, as per annex IV of regulation 1023 (2006), which have been grouped under the three concerned sectors RDI, ICT and EE. The sample consisted of 153 projects, of which 25 are revenue-generating projects. This was the basis where a first bulk of historical data for funding gap rates was collected. Such sample updates and enlarges the data available to the Jaspers team at the time the note "Implications of the use of a flat rate in revenue generating projects" (2011) was prepared.

In a second phase, additional data on funding gap rates of non-major operations has been gathered from Jaspers allowing to further increase the sample. Such additional information were collected by Jaspers in early 2013 by means of survey to MAs with the support of DG REGIO.

On the qualitative side, a set of interviews with project managers/experts involved in project preparation and appraisal at the EC, EIB and JASPERS have been carried out. More specifically, the policy implications of financing revenue generating operations with the ERDF and the CF, as well as other EU instruments (notably COSME/CIF, LIFE and the 7th Framework Programme), have been discussed with the sector experts in the EC.

The interviews with JASPERS experts have been focused on the key features of the Major Projects supported in the assisted countries during the previous programming period.

The interviews at the EIB addressed the Bank's portfolio in the concerned sectors. Although different from ESIF operations because market oriented, the performance investigation of the Bank's operations helped to frame the matter and to have useful insights about the overall profitability of the sectors.

Survey to MAs

The study team conducted a survey to quantify projects that generate revenues in the relevant sectors and subsectors and gather data on the revenue generating operations co-funded by the ERDF OPs in 2007-2013 in the relevant sectors of ICT, RDI, and EE.

MAs in each of the EU Member States - with the exception of France⁴⁰ - have been contacted by email and provided with:

- a brief introductory message explaining the framework and the objectives of the study;

⁴⁰ The Commissariat général à l'égalité des territoires (CGET) has made available data concerning all revenue generating operations in FR - 407 projects, covering also the sectors of ICT, RDI and EE. For this reason, the country has been excluded from the survey exercise.

- a recommendation letter from the European Commission DG Regional and Urban Policy inviting the authorities to provide their cooperation to the study;
- a questionnaire template to be filled in with information on revenue generating operations co-funded by the 2007-2013 programmes in the relevant sectors.

Introductory message and the questionnaire template have been provided in four different languages: EN, IT, ES, DE. The questionnaire has been structured in three sections. The first collected contact details of the respondent and identified the relevant programme(s), while the others gathered the specific data relevant to the study, at programme and operation level respectively.

Before launching the survey, the draft questionnaire has been tested by carrying out a pilot exercise covering the ITC, RDI and energy efficiency operations selected by the ERDF ROP Marche 2007-2013 (CCI2007IT162PO007). The team of experts have collaborated with the MA to fill in the questionnaire, based on data available in the monitoring system. Based on results of the pilot case, some necessary modifications have been made to the survey template.

Respondents were asked to reply by October 31st, even in case the OP did not co-fund any revenue generating operations. Some days before the deadline, a short reminder was sent to all the MAs not having responded yet.

Responses from the MA were received from 15 out of 27 MS⁴¹, covering 44 OPs or 15.4% of the total. The following table provides an overview on the results of the survey in term of rate of response.

7 of the 44 OPs declared that revenue generating projects have been financed (about 16% of the total). Revenue generating operations have been reported in each of the relevant sectors (2007IT162PO007 reported revenue generating operations in both the ICT and EE sectors). At the end of 2013, the seven OPs allocated in total about EUR 630.4, EUR 30.4, and EUR 477.5 million to the RDI, ICT and EE sectors respectively.

⁴¹ As mentioned, the survey didn't cover French OPs.

Table II.1 Survey responses.

MS	Response No	Response %	MS	Response No	Response %
AT	-	0.0	IE	-	0.0
BE	3	75.0	IT	12	42.9
BG	-	0.0	LT	2	100.0
ETC	5	6.8	LV	-	0.0
CY	-	0.0	MT	-	0.0
CZ	3	23.1	NL	-	0.0
DE	2	11.1	PL	1	5.3
DK	1	100.0	PT	-	0.0
EE	2	100.0	RO	1	25.0
ES	1	4.3	SE	-	0.0
FI	-	0.0	SI	-	0.0
GR	1	10.0	SK	2	25.0
HR	-	0.0	UK	1	6.7
HU	7	53.8	Total	44	15.4

The following table provides the resources allocated to revenue generating operations out of the total resources allocated to the relevant sectors for each of the OPs individually. The data is reported only for the sectors under which revenue generating operations have been financed. As it can be noted from the table, when revenue generating operations are financed, these are generally given a significant share of the total resources allocated by the OP to the specific sector. In the table, the shares have not been calculated for the Belgian OPs as the EU resources allocated to revenue generating projects have not been provided by the respondent.

Table II.2 Resources allocated to revenue generating operations

CCI code	MS	No of revenue generating operations	RDI AR Community Amount in M. EUR	ICT AR Community Amount in M. EUR	EE AR Community Amount in M. EUR	RDI Share of revenue generating operations	ICT Share of revenue generating operations	EE Share of revenue generating operations
2007IT161PO002	IT	11	-	-	459.9	-	-	33.9%
2007IT162PO003	IT	4	-	8.0	-	-	61.7%	-
2007IT162PO007	IT	7	-	7.7	6.5	-	7.2%	53.0%
2007CB163PO021	CB	1	-	5.6	-	-	22.6%	-
2007BE161PO001	BE	n.a.	278.0	-	-	n.a.	-	-
2007BE162PO002	BE	n.a.	99.4	-	-	n.a.	-	-
2007BE162PO003	BE	n.a.	166.7	-	-	n.a.	-	-

As a last step of the survey, the study team gathered data from the MAs on the overall number of operations co-funded in the respective sectors in relation to the number of projects that have generated net revenues.

Taking into account the different reasons for non-application of Art. 55 (namely, no net revenues generation; subject to State aid; and below the threshold of EUR 1 million,) data has been gathered according to these three categories, from both the single MAs and the national authorities in charge of OPs coordination, and compared to the share of revenue generating projects supported by the OPs in the relevant sectors. The objective was to provide the legislator with a clearer idea of the benefits that can be generated by the Delegated Act referred to in Article 61 (3) in terms of simplification, once the whole set of project co-funded by the ERDF OPs in the relevant sectors is taken into account. This should also help clarify the relative impact the flat rates option may have on over-financing operations in the relevant sectors, due to variation of project net revenues. As result, data has been collected from 16 single OPs in RDI, 19 in ICT and 14 in EE, as well as from all ERDF OPs implemented in Finland, Latvia, Greece, Estonia, Portugal And Austria

The results of the survey at the level of the individual operations are presented in the respective sector chapters, together with the other sector evidence gathered by the study.

Fieldwork in the Member States

The study team carried out an in-depth analysis of a number of OPs selected on the basis of the criteria specified in the *First Interim Report*. The objective of the fieldwork was to:

- collect quantitative data in addition to the one gathered from the survey, if any, on number and typologies of revenue generating projects submitted in the period 2007-2013;
- cross-check the validity of the data collected from the different sources;
- gather more disaggregated data at operation level;
- gather qualitative information to better qualify the evidence and draw useful indications for the interpretation and synthesis of data.

The 10 surveyed OPs are listed in Table II.4.

Table II.3 Fieldwork analysis. Selected Operational Programmes

Sector	Country	OP
ICT	Poland	Innovative economy
	Slovakia	Information Society
	Spain	Aragon
RDI	Czech Republic	Research and Development for Innovations
	Italy	Research and Competitiveness
	Lithuania	Economic Growth
	UK	North East ERDF
EE	Lithuania	Promotion of Cohesion
	Romania	Increase of Economic Competitiveness
	France	Picardy

The fieldwork consisted of interviewing selected decision-makers in the MAs in order to collect systematic data on revenues generating projects.

With the exception of UK and Lithuania, however, no revenue generating operations have been financed within the selected OPs. According to the interviewees, reasons are manifold. More specifically:

- In the RDI sector, the income of the supported research centres and higher education institutions was expected not to exceed the operating costs (this is the case, for example, of the Czech OP). As to innovation-related projects, they were all in the pre-competitive phase and therefore, by definition, not capable to generate net revenues (this is the case of the Italian OP for which the nature of pre-competitive research is the rationale for public support).
- In the ICT sector, operations were designed for the use of public sector without establishment of charges (this the mostly the case of the Spanish OP) or they were financed under the State aid framework (in particular in the Polish and Slovak OPs).
- In the EE sector, interventions were subject to State aid rules in France (Picardy OP) or they were not revenue generating (Romania); in addition, in many cases, the operation's total cost did not exceed the 1 MEUR threshold.

In order to cope with such limitation, the study team has widened, wherever possible, the object of the analysis shifting from one OP to more national and regional OPs within a given country. The number of programmes that have been subject to fieldwork increased therefore to 15.

In addition, contacts with national authorities coordinating the management of ESI funds have been carried out to check if data on revenues generating projects are systematically collected at the national level and can be made available. In the case of France, the exercise was successful so that additional structured data concerning

revenue generating operations has been provided to the study team by *Commissariat général à l'égalité des territoires* (CGET).

Finally, an interesting outcome of the analysis is that some projects originally collected from the EC and JASPERS as revenue generating resulted to be eventually financed with FG=100 and thus they had to be erased from the sample. The reason was that, according to interviewees, adjustments on the cash flows forecasts were made at a later stage, following the observations received by the Commission services. Hence, the fieldwork was particularly useful to adjust the original database on revenue generating projects.

Interviews with beneficiaries, business associations and operators

Within the fieldwork activities, a total of 25 public and private beneficiaries have been addressed to collect more detailed project-specific information (Table II.5).

Project data have been gathered in structured fiches, following the format illustrated in the *Inception Report*.

The information collected has been used to better qualify the information from the survey. In other words, to understand how the specific nature and context of the projects influence investment profitability and its variability across operations, countries and within sectors.

In fact, what distinguishes this method for data collection is that, in addition to the ex-ante information already provided when applying to EU funds, EU beneficiaries have been asked to provide more updated data on costs/revenues that are currently being borne/accrued, as well as other information such as the expectations of the sector. They were also important to better understand the nature of the operation for categorisation purposes. In addition, a set of interviews with business associations or market operators have been carried out to discuss the main factors affecting project profitability. For the list of interviewees see Annex I.

Table II.4 List of beneficiaries

Sector	Country	Operation Name	Beneficiary
EE	SK	Improving energy efficiency of production – Chemes	CHEMES a.s. Humenné, private sector
EE	SK	Increasing energy efficiency	CHEMOSVIT ENERGOCHEM,a.s., private sector
EE	SK	Reducing the energy intensity of the production process	ROSENBERG-SLOVAKIA, spol. s r.o., private sector
EE	SK	Reducing energy intensity TOMARK Ltd. Company	TOMARK, s.r.o., private sector
EE	SK	Increasing the energy efficiency of ZTS company	ZTS Strojárne, s.r.o., private sector
RDI	SK	Center of Excellence for New Technologies in Electrical Engineering	Institute of Electrical Engineering of Slovak Academy of Sciences
RDI	SK	Centre of Excellence of protection and use of agricultural biodiversity	Slovak University of Agriculture in Nitra
RDI	SK	Centre of Excellence of methods and processes of Green Chemistry	Comenius University in Bratislava
RDI	SK	Centre of Excellence of 5-axis machining-experimental base for high-tech research	Centre of Excellence of 5-axis machining-experimental base for high-tech research
RDI	SK	Retrofitting and extension of linguistic-cultural translating and interpreting centre	
RDI	CZ	Center for Advanced Microbiology & Immunology Research in Veterinary Medicine	Výzkumný ústav veterinárního lékařství, v.v.i. (Veterinary research institute)
RDI	CZ	ENET - Energy Units for Utilization of non Traditional Energy Sources	Vysoká škola báňská - Technická univerzita Ostrava (Technical University of Ostrava)
RDI	CZ	Centre of Engineering Research & Development Liberec	VÚTS, a.s.
RDI	CZ	Application Laboratories of Advanced Microtechnologies and Nanotechnologies	Ústav přístrojové techniky AV ČR, v.v.i. (Institute of Scientific Instruments of the ASCR)
RDI	CZ	Research and technology centre of renewable energy sources	Vysoké učení technické v Brně (Brno University of Technology)
RDI	UK	NeST 2	Durham County Council
RDI	UK	Sunderland Software City - Education & Innovation Activity	University of Sunderland
RDI	UK	PETEC Displays & Photonics Technologies Facility (PDPT)	Centre for Process Innovation
RDI	UK	DigitalCity Business 2010-12 Revenue	Middlesbrough Council
RDI	UK	NaREC Marine Testing Facility	The National Renewable Energy Centre (Public Corporation)
ICT	SK	Providing project-engineering documentation to build basic broadband infrastructure subsidized by public funds in "white spots" of Slovakia "	National Agency for Networking and Electronic Services (NASES)
ICT	PL	Teleradiology. Purchase of equipment and implementation of ICT communications technology for the County Health Center in Stone Mountain	Powiatowe Centrum Zdrowia w Kamiennej Górze Sp. z o.o. NZOZ Szpital Powiatowy
ICT	PL	Tele-information infrastructure and the service system at the regional level	City of Puławy
ICT	PL	Toruń Technology Incubator	City of Toruń
ICT	IT	Bulgas	Regione Autonoma della Sardegna (Sardinia region)

Annex III. Operational programmes sheets

Country	Spain
Operational Programme	ERDF Aragón 2007-2013
Sector(s)	Information and Communication Technology
Contact person(s)	Mr. Gabriel Navarro D.G. Presupuestos, Financiación y Tesorería, Gobierno de Aragón
Description	The programme aimed to improve the mechanisms for technological transfers between public research centres and businesses so as to help the region to better exploit its full potential, with considerable support being provided for research, technology transfer, innovation and entrepreneurship.
Sector funding	97.15 M EUR (49% of the programme total)
Revenue generating operations	<p>The measures where operations have been planned and are currently running in the ICT sectors are:</p> <p>Priority Theme 10:</p> <ul style="list-style-type: none"> - 1.10.1 Extension and improvement of the services of the information society (Mil EUR 29.47). This measure has already been fully implemented and has consisted primarily of investments in infrastructures to expand access to broadband networks and other advanced telecommunications services in all population groups, favouring in particular access to those for which this is more difficult, given the geographical feature of this region. This has enabled the establishment of the digitization of DTT services in its entirety. 110 operating centres have been built and are all in operation. This action was not considered as revenue generating because the backbone created is for public use (health sector, security, etc.) and so there is no scope for profit. Only in some cases, services to individuals have been given or are being given and then the rates permitted by the regulations as well as any amounts that barely cover maintenance costs are applied. - 1.10.2 Telecommunication sites for Services Information Society (Mil EUR 0.51). The measure has been completed and investments have been performed to supplement it. For the same reasons revenue generation has not been considered. <p>Priority Theme 103</p> <ul style="list-style-type: none"> - 1.13.1 Implementation, extension and improvement of the services of the information society (Mil EUR 17.60). With this measure operations have been performed to enhance the use of the Public Telecommunications Network Infrastructure of Aragón, corresponding to operations carried out under measure 1.10.1. Also, there have been studies and actions necessary to meet the objectives of the European Digital Agenda. Operations have also been undertaken in the field of open public data, reuse of public information, increase transparency of government. And other operations which are being conducted in the field of "Smart territories ". In this measure, scope for revenue-generation was not considered being it directed to public use. - 1.13.4 E-Government services and equipment needed (Mil EUR 30.10). With this measure continuous improvements are being implemented to the Aragon Administrative Services Platform as a basic and essential element in the exchange of services between general government of Aragon and homogeneous and consistent delivery of services to citizens, professional and enterprise. The measure is not generating revenue, since it is primarily for the public sector. - 1.13.5 Implementation of common tools for e-Government (Mil EUR 19.45). This measure is carrying out the development and implementation of a platform of tools and common services for e- Government which is required by the Government of Aragon and the rest of the Public Administrations in the region in order to incorporate the electronic medium to the administrative process, so as to comply with EU legislation. Given the type of business and target, revenue generation has not been considered.

Country	Poland
Operational Programme	Operational Programme Innovative Economy 2007-2013 (OP IE)
Sector(s)	Information and Communication Technology
Contact person(s)	Ms. Milena Tymendorf Competitiveness and Innovation Department at the Ministry of Infrastructure and Development (Managing Authority of the OP IE 2007-2013) Departament Konkurencyjności i Innowacyjności Ministerstwo Infrastruktury i Rozwoju Siedziba Departamentu: ul. Mysia 2, 00-496 Warszawa Adres do korespondencji: ul. Wspólna 2/4, 00-926 Warszawa Mail: Milena.Tymendorf@mir.gov.pl Phone: +48 22 273 81 20 Web page: http://www.poig.gov.pl/
Description	The OP IE is one of the six national programmes under the National Strategic Reference Framework which were co-financed from the EU funds. This programme supported entrepreneurs who wanted to implement innovative projects related to research and development, modern technologies, investments of high importance for the economy or implementation and use of ICT. Operational Programme Information Society (OPIS) is a reference document approved by the Government Resolution no. 1004/2006 of 6 December 2006 and the European Commission Decision of 17 September 2007, under which support will be provided to all society informatization projects supported by European Regional Development Fund (ERDF). The global objective of the Operational Programme OPIS is to create an inclusive information society as a tool for the development of high-performance knowledge-based economy.
Sector funding	Total budget for ICT (axis 7 and 8) is 2 138 659 138 EUR, while 1 817 860 267 EUR from ERDF. Total PO IE: EUR 10.18 billion consists of EUR 8.65 billion from the European Regional Development Fund (ERDF) and EUR 1.53 billion from the State budget.
Revenue generating operations	There is no project, either completed or incomplete, within the OP IE which would be classifiable as revenue generating. Projects either were not generating any revenues or even generated revenues used the state aid scheme. The measures where operations have been planned and are currently running in the ICT sectors are: Priority axis 7: Information society – establishment of electronic administration The total budget of the Priority Axis 7. amounts to 940 758 085 EUR, including 799 644 372 EUR from ERDF. the dominating group of the beneficiaries are government administration entities (ministries and central offices) that implement 75% of the projects. 24% of the projects are carried out by state organizational units (ZUS - Social Insurance Institution, Centrum Systemów Informacyjnych Ochrony Zdrowia – National Centre for Health Information Systems), and 1% - by scientific units. By 30 of September 2014, 38 projects received financial support (contracts were signed), each of them with investment costs above 1 million EUR and with the co-financing rate of 85% (what is maximum possible co-financing rate). The measure under this axis does not use the state aid scheme. The measure will have not a direct impact on the quality of competition. Priority axis 7: Information society – increasing innovation of the economy Budget of Priority Axis 8 totals 1 197 901 053 EUR, including 1 018 215 895 EUR from ERDF. Under priority axis 8. the support is provided for the following measures: 8.1 Support for economic activity as regards electronic economy. 8.2 Support for implementation of electronic business – B2B. 8.3 Counteracting digital exclusion. 8.4 Ensuring Internet access at the 'last mile' level. <u>Measure 8.1:</u> Support implementation of individual projects of micro and small entrepreneurs, aiming at provision of eServices, but the project may cover creation of digital products necessary for provision of this eService. Measure also covers a system project – support for the Implementing Authority for

	<p>creating and managing specialist Internet portal for the needs of measures 8.1 and 8.2 and promotion of measures as well as informing potential beneficiaries about a possibility of obtaining the support via organising information campaigns, promotion in electronic and traditional media, organising seminars and conferences.</p> <p><u>Measure 8.2:</u> support to technical, IT and organisational undertakings, leading to implementation of a service relation among cooperating entrepreneurs using IT systems designed to enable automation of business processes and to coordinate cooperation in the enterprises.</p> <p><u>Measure 8.3:</u> Projects consisting of the following components:</p> <ul style="list-style-type: none"> - subsidy completely or partially covering the costs of Internet access in households on the area covered by the project (max. for three years); - covering the costs of providing, installing and servicing computer equipment and/or necessary software in the households indicated by the project; - purchase of the service of conducting trainings for final users of the project on computer attendance, use of the Internet and acquiring other skills necessary for tele-commuting or successful education via the Internet (excluding professional trainings); - co-financing operational costs and the costs of employing and training LSU employees and/or non-governmental organisation participating in consortium with LSU, who will be responsible for the implementation of the measure; - co-financing of project promotion on the area covered by the project; - co-financing of the costs of coordinative activities aiming at reduction of digital exclusion. The goal of the coordinative activities has to be integration of persons threatened by digital exclusion. - carrying out coordinative activities at the strategic level aiming at reduction of barriers in the access to the Internet; - counteracting digital exclusion; - supporting potential beneficiaries in carrying out their investments; - increasing the access to knowledge and innovative technological solutions (advice support); - carrying out information and training activities (organization of seminars, conferences, training and educative actions), as well as activities related to development of the recommended management model and retention of implemented broadband networks. <p><u>Measure 8.4:</u> construction of a dedicated tele-information infrastructure between the nearest or most effective point of Internet distribution and target group(s). The average value of co-financing for a project under Priority Axis 8. amounts 166 thousand EUR (702.2 thousand PLN). It, however, differs depending on activity: from 105,3 thousand EUR (445.6 thousand PLN) under measure 8.2 to 470.3 thousand EUR (1 990 thousand PLN) under measure 8.3. The average co-financing rate of all projects was 71.2%.</p> <p>The measures under that priority axis does use the state aid scheme. Granted State aid is compatible with the common market according to Article 87, part 3 point c) of the EC Treaty. The measures will not have a direct impact on the quality of competition.</p>
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Country	Poland
Operational Programme	Regional Operational Programme for the Lubelskie Voivodeship
Sector(s)	Information and Communication Technology
Contact person(s)	Departament Regionalnego Programu Operacyjnego - Urząd Marszałkowski Województwa Lubelskiego w Lublinie, ul. Stefczyka 3b, 20-151 Lublin email: drpo@lubelskie.pl, tel. 81 44 16 738, fax. 81 44 16 740 Web page: http://www.rpo.lubelskie.pl/
Description	The Regional Operational Programme for the Lubelskie Voivodeship (CCI 2007PL161PO007) is one of sixteen Regional Programmes. These programmes are decentralized, implemented and managed by regions (voivodeships). The Regional Operational Programme for the Lubelskie Voivodeship consists of 9 priority axes, of which axis 4 is information society.
Sector funding	Financial allocation: Total for the sector: 69.43 million EUR. Contribution from the EU: 57.79 million EUR. Contribution from the national funds: 10.20 million EUR. The amount of private funds planned for the sector: 1.44 million EUR.
Revenue generating operations	<p>There were two ICT projects within the programme classifiable as revenue generating:</p> <ul style="list-style-type: none"> - Pulawy in the network - construction of broadband telecommunication networks and services, funding gap rate 96%. - Construction of low-cost data communications system for the residents of Chelm Internet, funding gap rate 98.75%. <p>Other projects were either were not generating any revenues or even generated revenues used the state aid scheme.</p> <p>The measures where operations have been planned and are currently running in the ICT sectors are:</p> <p>Priority axis 4: Information society Goal of the measure: To increase access to the broadband Internet and to use information technics. Types of projects (examples): Tele-information infrastructure and system of services at the regional level.</p> <ol style="list-style-type: none"> 1. Construction or extension of regional broadband networks co-operating with backbone regional or national networks. 2. Construction, re-construction or investment equipment of regional network management centres. 3. Construction, expansion or purchase of systems supporting management of implementation of public tasks concerning public administration, education, culture and tourism at the regional level. 4. Projects related to preparation of public institutions for implementation of e-circulation of documents, e-archives, development of database systems and e-services for citizens with the use of electronic signature. 5. Establishment of PIAPs as the element of a broader project, i.e.: <ul style="list-style-type: none"> - active – Tele-centres; - passive – Infomats; - intermediate model – various solutions that use access to the Internet for improvement of the effectiveness of statutory goals of institutions and NGOs; - hotspots. 6. Projects related to developing and establishing culture and tourist information systems, including interactive Internet information networks, culture and tourist information centres (in connection with development of PIAPs). 7. Construction or expansion of systems supporting/serving digitisation of cultural heritage resources, including library and archive resources, museum virtual resources (in connection with development of PIAPs). 8. Creation of Spatial Information System. <p>Contracts signed under priority axis 4. (as of 06.2014):</p> <ol style="list-style-type: none"> 1. Number of signed contracts: 61. 2. Value of signed contracts / issued decisions on financing (value of total expenditures): 238 339 080.48 PLN.

Country	Poland
Operational Programme	Regional Operational Programme for the Kujawsko-Pomorskie Voivodeship
Sector(s)	Information and Communication Technology
Contact person(s)	Departament Wdrażania Regionalnego Programu Operacyjnego - Urząd Marszałkowski Województwa Kujawsko-Pomorskiego Plac Teatralny 2a tel. (56) 62 18 700, fax (56) 62 18 730 rpowdrazanie@kujawsko-pomorskie.pl Web page: http://www.mojregion.eu/
Description	The Regional Operational Programme for the Kujawsko-Pomorskie Voivodeship (CCI 2007PL161 PO 006) is one of sixteen Regional Programmes. These programmes are decentralized, implemented and managed by regions (voivodeships). The Regional Operational Programme for the Kujawsko-Pomorskie Voivodeship consists of 9 priority axes, of which axis 4 is development of the infrastructure of information society.
Sector funding	Financial allocation: Total for the sector: 81 056 542 EUR Contribution from the EU: 66 520 582 EUR Contribution from the national funds: 11 795 644 EUR The amount of private funds planned for the sector: 2 740 316 EUR Financial allocation for the measure 4.1: 1. Total for the measure: 24 556 114 EUR. 2. Contribution of the EU: 20 729 979 EUR. 3. Contribution from the national funds: 3 826 135 EUR. 4. The amount of private funds planned for the measure: 0 EUR. Financial allocation for the Measure 4.2 (budget): 1. For the measure – total: 48 485 669 EUR. 2. Contribution from the EU: 41 153 599 EUR. 3. Contribution from the national funds: 7 332 070 EUR. 4. The amount of private funds planned for the measure: 0 EUR. Financial allocation for the Measure 4.3 (budget): 1. Total for the measure: 8 014 759 EUR. 2. Contribution from the EU: 4 637 004 EUR. 3. Contribution from the national funds: 637 439 EUR. 4. The amount of private funds planned for the measure: 2 740 316 EUR.
Revenue generating operations	There was one ICT projects within the programme classifiable as revenue generating: Torun Technology Incubator, funding gap rate 97.42% Other projects were either were not generating any revenues or even generated revenues used the state aid scheme. The measures where operations have been planned and are currently running in the ICT sectors are: Priority axis 4: Development of the infrastructure of information society Measures: 4.1 Development of ICT infrastructure. 4.2 Development of services and applications for citizens. 4.3 Development of commercial e-services. <u>Measure 4.1: Development of ICT infrastructure</u> Goal of the measure: to create conditions for development of modern information and communication technologies. <u>4.2 Development of services and applications for citizens:</u> Goal of the measure: To use information and communication technologies in public services. <u>4.3 Development of commercial e-services:</u> Goal of the measure: To increase the use of information and communication technologies in the economy. Contracts signed under priority axis IV (as of 06.2014) – all measures: 1. Number of signed contracts: 130. 2. Value of signed contracts/issued decisions on financing (value of total expenditures): 445 653 320.48 PLN.

Country	Slovakia
Operational Programme	Informatization Society 2007-2013
Sector(s)	Information and Communication Technology
Contact person(s)	<p>Mr. Norbert Molnar, Director General, Section of operational programmes, Office of the Government of the Slovak Republic: Address: Radlinského 13, 81107 Bratislava, Slovakia Mail: norbert.molnar@vlada.gov.sk Phone: +421220925946</p> <p>Mr. Michal Blaško, Director, Department of monitoring and evaluation of the OPIS, Office of the Government of the Slovak Republic Address: Nám. slobody 1, 81370 Bratislava, Slovakia Mail: michal.blasko@vlada.gov.sk Phone: +421220925946</p>
Description	<p>Operational Programme Information Society (OPIS) is a reference document approved by the Government Resolution no. 1004/2006 of 6 December 2006 and the European Commission Decision of 17 September 2007, under which support will be provided to all society informatization projects supported by European Regional Development Fund (ERDF).</p> <p>The global objective of the Operational Programme OPIS is to create an inclusive information society as a tool for the development of high-performance knowledge-based economy.</p>
Sector funding	<p>0.993 billion EUR (pursuant to Government Resolution no. 832/2006 on the draft update of the National Strategic Reference Framework of the Slovak Republic for 2007 - 2013 in the programming period 2007 - 2013 for projects intended within OPIS)</p>
Revenue generating operations	<p>There is no project, either completed or incomplete, within the OPIS (Operational Programme on Informatisation of Society 2007-2013) which would generate any income, thus would be classifiable as revenue generating.</p> <p>The measures where operations have been planned and are currently running in the ICT sectors are:</p> <p>Priority axis 1: E-Government and development of electronic services (770 315 776 EUR)</p> <p><u>Measure 1.1:</u> Digitalization of public administration and development of electronic services at the central level with aim of effective government (602 055 721EUR) The measure does not plan to use the state aid scheme. The measure will have not a direct impact on the quality of competition.</p> <p><u>Measure 1.2:</u> Digitalization of public administration and development of electronic services at local and regional level with aim of the effective self-government (168 260 055EUR) The measure does not plan to use the state aid scheme. The measure will have not a direct impact on the quality of competition.</p> <p>Priority axis 2: Development of repository institutions and renewal of national infrastructure (172 402 304EUR)</p> <p><u>Measure 2.1:</u> Digitisation of the content of repository institutions, the archiving, accessing and improving its systems acquisition, processing and protection (172 402 304EUR) The main objective is the improvement of the system of acquisition, processing, protection and utilization of knowledge and digital content repository institutions, modernization and completion of the infrastructure of repository institutions at the national level. Improvement of systems acquisition, processing, protection and utilization of knowledge and digital content repository institutions, modernization and completion of infrastructure repository institutions at the national level. The measure does not plan to use the state aid scheme. The measure will not have a direct impact on the quality of competition.</p> <p>Priority axis 3: Improvement of broadband Internet(13 177 826EUR)</p> <p><u>Measure 3.1</u> Development and promotion of sustainable use of infrastructure broadband access (13 177 826EUR) The main objective is to create engineering projects for broadband optical networks, which contribute to increasing penetration of broadband Internet. The</p>

	<p>project description, which will be implemented in the next programming period, is attached for information.</p> <p>Under measure 3.1 it is considered using the state aid scheme - State aid SA - 33151 (attached for information). Granted State aid is compatible with the common market according to Article 87, part 3 point c) of the EC Treaty. The measure will not have a negative impact on competition.</p> <p>Priority axis 4: Technical assistance (36 569 279EUR)</p> <p><u>Measure 4.1:</u> Technical assistance for MA OPIS (14 874 298EUR) The main objective of this measure is to ensure quality, effective and transparent management of OPIS The measure does not plan to use the state aid scheme. The measure will have not a direct impact on the quality of competition.</p> <p><u>Measure 4.2:</u> Technical assistance for IB/MA OPIS and (21 694 981EUR) The main objective of this measure is to ensure quality, effective and transparent management of OPIS The measure does not plan to use the state aid scheme. The measure will have not a direct impact on the quality of competition.</p> <p>As at 31 December 2013, the balance of total OPIS funds drawn (from ERDF) was EUR 387,803,283.64, i.e. 45.97% of total funds allocated to OPIS. In 2013, the funds drawn from the ERDF amounted to EUR 157,448,914.74, fully meeting the 2010 target (n+3). It should be stated that the fulfilment of the target was greatly contributed by the fact that the EC approved an exception for the Slovak Republic and allowed the application of n+3 also in 2011, thus decreasing the plan for 2013 by more than EUR 150 million.</p> <p>OPIS has brought, primarily for the beneficiaries in the 2007-2013 period, innovations and investments into the ICT development. The actual digitalisation and electronisation have become the driving force of economic growth and development. In the 2007-2013 programme period, OPIS interventions were one of the most significant instruments promoting digital economy in the environment of the Slovak Republic.</p> <p>The fulfilment of OPIS target indicators has not been distributed proportionally throughout the implementation period; it rather was an exponential function with a shift of the curve, i.e. postponement of the originally expected dates by 2-3 years, due to which the benefit of OPIS intervention was delayed and will only become visible after the full implementation of the majority of projects (in 2015).</p> <p>As concerns priority axis 1, the OPIS non-compliance with the proposed concept of the fundamental architecture for the integrated information system for public administration under the NKIVS is negatively evaluated, in particular due to the fact that the strategic documents no longer fully reflect the current priorities of electronic services of public administration and require to be updated. Overall, the building of the fundamental eGovernment components lags behind the original plan, which has a negative impact on the implementation of all projects financed from the OPIS. The progress of priority axis 2 is significantly affected by a single core project and its associated problems.</p> <p>Evaluated as negative is the zero contribution of the third OPIS pillar (PO3), which failed to contribute to a better access of households to broadband Internet between 2009 and 2013 to the planned extent.</p>
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Country	Slovakia
Operational Programme	Operational Programme Research and Development 2007-2013 (OP R&D)
Sector(s)	Research, development and innovations (RDI)
Contact person(s)	<p>Managing Authority (MA) for the OP R&D is the Ministry of Education, Science, Research and Sports of the Slovak Republic. The MA may delegate management and implementation of the operational program to one or more Intermediary Body under the Managing Authority (IB).</p> <p>The Intermediary Body for Measures 1.1, 2.1, 2.2, 3.1, 4.1, 4.2, 5.1 is the Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic for EU structural funds</p> <p>Mr. Vladimír Kováčik, the Secretary of the State Ministry of Education, Science, Research and Sport of the Slovak Republic Address: Stromova 1, 813 30 Bratislava Mail: infor@minedu.sk - Phone: +421248547155</p> <p>Mr. Ján Fabišík, Manager of programming, Division of EU Structural Funds, Department for Operational Programme Science and Research (MA of the OP Research and Development) Address: Stromova 1, 813 30 Bratislava Mail: jan.fabisik@minedu.sk - Phone: + 421259374555</p> <p>Mr. Peter Person, Director, Department of project management and Agency of Ministry of Education, Science, Research and Sport of the SR for EU Structural Funds Address: Hanulova 5/B - 841 01 Bratislava Mail: peter.person@asfeu.sk ; web: www.asfeu.sk ; Phone: +421918328604</p>
Description	<p>Operational Programme Research and Development (OP R&D") is a program document of the Slovak Republic under which assistance is being provided for development of knowledge-based economy in the period 2007 – 2013. The document defines the global objective, priority axes, measures and activities that will be supported in the territory of the Convergence and Regional competitiveness and employment over the period 2007 - 2013 using financial assistance from the European Regional Development Fund (ERDF). Geographically, the OP R&D covers the entire territory of the Slovak Republic.</p> <p>OP R&D includes two objectives - Convergence, which covers the entire territory of the Slovak Republic outside Bratislava Region and the Regional Competitiveness and Employment concerning exclusively Bratislava region. The document does not specify activities and specific measures for these two targets because of similar problems faced by all regions of Slovakia in the field of research and development. The reason for incorporation of both objectives in a joint program document is to unite and make transparent the necessary activities that will ensure synergies between the different program activities in the various regions of Slovakia. Since the area of Bratislava and its surroundings represents about 50% of research and development potential of the Slovak Republic, it is not possible without the same support in the future to guarantee the effective implementation of the objectives and vision of Lisbon Strategy equally, as Bratislava and surrounding area in research and development faces the same problems as other regions of Slovakia, i.e. it also refers to major structural problem of the whole territory of the Slovak Republic - insufficient instrumentation equipment and technical research and development infrastructure without which it is impossible to carry out the research itself and connect it with business. The situation is even more complicated and more severe that Bratislava region has about 50% of research and development potential of the Slovak Republic. Based on the above arguments, the Slovak Republic exempted transfer of part of funds from the Convergence objective to Regional competitiveness and employment.</p>
Sector funding	The entire OP budget is 1 422 841 617 EUR .
Revenue generating operations	<p>Managing Authority – the Ministry of Education, Science, Research and Sport of the Slovak Republic to date of the implementation process does not register projects, which showed signs of income-generating projects. This information is relevant to the whole Operational Programme Research and Development 2007-2014.</p> <p>Priority Axis. 1: Research and Development Infrastructure (budget 110 962 416 EUR) Measure. 1.1 "Modernization and building technical infrastructure for research and development" The main objective of this measure is modernization and upgrading of the technical infrastructure for research and development in the years 2007-2013 in order to increase the capacity of research and development institutions to cooperate</p>

effectively with research institutions in the EU and abroad, as well as entities of the social and economic practice through the transfer of knowledge and technology. The purpose of the Measure 1.1 is to create quality research and development infrastructure, which is a prerequisite for growth in the quantity and quality of the research and development in Slovakia. In particular, the existence of well-equipped and efficient teams in appropriately selected areas in accordance with the substantive priorities of research and development in Slovakia is essential for the attractiveness of the area for investors and it will positively influence the selection of partners for international solutions research and development issues. Activities are supported by non-repayable forms of assistance (grant assistance).

Eligible expenditure on revenue-generating projects for investment in infrastructure or other projects, where it is possible to objectively estimate the revenues, do not exceed the present value of the investment expenses, less the present value of net income from the investment over a specific reference period. If the co-financing are not entitled to any expenses, net income shall be allocated pro rata to the eligible and non-eligible parts of the investment expenditure.

The financial analysis of the project is carried by accrual method, i.e. project is evaluated on the basis of differences in cash flows between the scenario with the implementation of the project and an alternative scenario without the project. In the case of support for existing facilities / services, it is necessary to take into account the historical cost and it compares the scenario without the existence of the device and the scenario of active service for the project. Investment costs in this case consist of the investment costs for new projects and the current book value to existing equipment or the present value of debt service outstanding loans for existing equipment.

The amount of grant revenue-generating projects is set out in three steps:

- a) the detection rate financing gap in funding as a proportion of the difference of the discounted investment costs and discounted net revenue of the project to the discounted value of capital expenditure;
- b) finding out the modified basis for calculation of grant, i.e. the calculation of the value to which it will apply the level of support as the product of the rate of financial gap and eligible project costs;
- c) calculating the contribution from the operational program (the relevant European fund and the state budget) as the product of the amount of the modified basis for calculation of grant aid and the percentage of the respective EU funds and the state budget allocated to the priority axis under the operational program and program manual.

Projects where it is not feasible to estimate the revenue in advance, the revenue generated within five years of completion of the operation shall be deducted in accordance with paragraph 3 of Article. 55 of the General Regulation of the expenditure declared to the Commission.

If it is determined that an operation has generated net revenue, which is in accordance with paragraphs 2 and 3 of Article. 55 of Regulation disregarded certification body such net revenue shall be deducted at the latest when submitting the documents for the operational program pursuant to Article 89. 1 point. a). Request for payment of the balance shall be adjusted accordingly (deadline for submission of documents for final payment is 31. 3. 2017).

In case of income incurred already during the project, the MA is obliged to take account of such income, with respect to their impact on the recipient's ability to objectively estimate future revenues:

- a) revenue can be estimated - if the revenue generated permit to estimate the amount of future income, i.e. possibility of application of the financial gap, the MA invite the recipient to carry out a financial analysis based on the prediction of critical values established during the reference period. Based on data provided the MA determines the amount of new grant, taking into account the amount already paid grant so that the sum of all payments made does not exceed the newly set amount of grant;
- b) revenue cannot be estimated - if the revenue generated during the project implementation does not allow the recipient to objectively estimate future revenues, the MA includes the net revenues generated in the course of up to deduction, i.e. the total sum of the net revenue generated within five years from the completion of the project.

The foregoing provisions relating to revenue-generating projects within the meaning of Art. 55 of the Regulation apply only to projects co-financed by the ERDF and the Cohesion Fund and the total expenditure of more than 1 million. At the same time the foregoing provisions shall not apply to projects subject to State aid rules. Within the measure. 1.1 none State aid scheme is planned.

Priority Axis. 2: Supporting research and development (budget 616 443 624 EUR)

Measure. 2.1: Support for networks of excellence in research and development as pillars of regional development and interregional cooperation

The main objective of this measure is improving the quality of research facilities and support excellent research with emphasis on areas of strategic importance for the further development of economy and society.

The aim of this measure is the creation and promotion of centres of excellence in research that are directly involved in the educational process, or are focused on areas of strategic importance for the further development of economy and society. Activities are supported by non-repayable forms of assistance (grant assistance). For revenue generating project the related text under the measure 1.1 applies also to this measure.

Eligible beneficiaries

Groups of beneficiaries	Intensity of assistance (%)		
	ERDF sources	State budget sources	Own sources
Public sector			
Public universities (including universities of technology incubators and science and technology parks, universities)	85	10	5
Public bodies and institutions carrying out research and development	85	10	5
Regional and local government	85	10	5
Regional and local state administration	85	15	0
Slovak Academy of Sciences	85	15	0
Organizations, respectively. institutions carrying out research and development established by central government	85	15	0
State universities (including universities of technology incubators and science and technology parks, universities)	85	15	0
Private sector			
Natural and legal persons engaged by business and trade law	*	*	*
Professional organizations, associations and chambers **	80,75	14,25	5
Private universities (including universities of technology incubators and science and technology parks, universities)**	80,75	14,25	5
NGOs of research and development as defined in the Act No. 83/1990 Coll.**	80,75	14,25	5

* The maximum aid intensity is set in the aid scheme

** The aid intensities apply if the parties are not subject to State aid scheme

Within the framework of the measure. 2.1 the entities subject to State aid rules (any entity engaged in economic activity, regardless of its legal form meeting all the conditions set out in Article 107, part 1 of the EU Treaty) implement the R&D projects through a scheme of State aid for research and development. The beneficiaries of State aid may be subjects of public sector (e.g. public universities) and the subject of private sector (e.g. non-profit organizations, private universities) according to the table above and complying with the aforementioned conditions. The essential feature is whether the activities performed have the character of economic activity (e.g. renting of infrastructure, contracted research) or they are non-economic activities (independent research, activities in the field of technology transfer).

Measure. 2.2: Transfer of knowledge and technology from research and development into practice

The specific objective of this measure is increasing the degree of cooperation of R & D institutions with social and economic practice through knowledge and technology transfer, thereby contributing to increased economic growth of regions and Slovakia. The aim of the measure 2.2 is the support of innovative culture in research organizations, support research aimed at the real use of the results of the national economy and to create and promote the transfer of newly acquired knowledge and technologies into practice. Activities are supported by non-reimbursable (grant application) and repayable (innovative financial instruments) forms of assistance. Eligible activities are also supported by measure 1.1 if they are part of a larger project which meets the requirements of this measure.

For revenue generating project the related text under the measure 1.1 applies also

to this measure.

Under the measure 2.2 it is also possible to implement projects through the JEREMIE initiative in accordance with the "Proposal of the process of the implementation of the JEREMIE Initiative in the Slovak Republic in the programming period 2007-2013" approved by the Government Resolution no. 785/2007 on 19 September 2007.

Under Council Regulation (EC) No. 1083/2006 Art. 44 c) the transfer of ERDF funds shall be considered eligible under the JEREMIE, along with their associated amount of national co-financing on the Transition Account of the European Investment Fund ("EIF") in Luxembourg in accordance with the relevant Treaty financing.

The eligible beneficiaries are those mentioned in the table under the measure 2.1. Within the framework of the measure. 2.2 the entities subject to State aid rules (any entity engaged in economic activity, regardless of its legal form meeting all the conditions set out in Article 107, part 1 of the EU Treaty) implement the R&D projects through a scheme of State aid for research and development. The beneficiaries of State aid may be subjects of public sector (e.g. public universities) and the subject of private sector (e.g. non-profit organizations, private universities) according to the table presented under the measure 2.1. and complying with the aforementioned conditions. The essential feature is whether the activities performed have the character of economic activity (e.g. renting of infrastructure, contracted research) or they are non-economic activities (independent research, activities in the field of technology transfer).

Priority Axis 3: Infrastructure research and development in the Bratislava region (budget 25 489 894 EUR)

Measure. 3.1: Modernization and building technical infrastructure for research and development in the Bratislava region

The main objective of this measure is modernization and upgrading of the technical infrastructure for research and development in the Bratislava region in the years 2007-2013 in order to increase the capacity of research and development institutions to cooperate effectively with research institutions in the EU and abroad, as well as entities of the social and economic practice through the transfer of knowledge and technology.

The aim of the Measure 3.1 is to create quality research and development infrastructure, which is a prerequisite for growth in the volume and quality of research and development activities in the Bratislava region. In particular, the existence of well-equipped and efficient teams in appropriately selected areas of research and development is essential for the attractiveness of the area for investors and last but not least, it will positively influence the selection of partners for international solutions research and development issues. Activities are supported by non-repayable forms of assistance (grant assistance).

For revenue generating project the related text under the measure 1.1 applies also to this measure.

Eligible beneficiaries

Groups of beneficiaries	Intensity of assistance (%)		
	ERDF sources	State budget sources	Own sources
Public sector			
Public universities (including universities of technology incubators and science and technology parks, universities)	85	10	5
Public bodies and institutions carrying out research and development	85	10	5
Slovak Academy of Sciences	85	15	0
Organizations, respectively. institutions carrying out research and development established by central government	85	15	0
State universities (including universities of technology incubators and science and technology parks, universities)	85	15	0
Private sector			
Professional organizations, associations and chambers *	80,75	14,25	5
Private universities (including universities of technology incubators and science and technology parks, universities)*	80,75	14,25	5
NGOs of research and development as defined in the Act No. 83/1990 Coll.*	80,75	14,25	5

* The aid intensities apply if the parties are not subject to State aid scheme

No State aid schemes are applicable within the measure 3.1.

Priority Axis. 4: Supporting research and development in the Bratislava region (budget 346 234 8841 EUR)

Measure. 4.1: Support for networks of excellence in research and development as pillars of regional development in the Bratislava region

The specific objective of this measure is improving the quality of research facilities and support excellent research in the Bratislava region with emphasis on areas of strategic importance for the further development of economy and society.

The aim of this measure is the creation and promotion of excellence workplaces in research that are directly involved in the educational process, or are focused on areas of strategic importance for the further development of economy and society. Activities are supported by non-repayable forms of assistance (grant assistance). For revenue generating project the related text under the measure 1.1 applies also to this measure.

The eligible beneficiaries are those mentioned in the table under the measure 2.1. Within the framework of the measure. 4.1 the entities subject to State aid rules (any entity engaged in economic activity, regardless of its legal form meeting all the conditions set out in Article 107, part 1 of the EU Treaty) implement the R&D projects through a scheme of State aid for research and development. The beneficiaries of State aid may be subjects of public sector (e.g. public universities) and the subject of private sector (e.g. non-profit organizations, private universities) according to the table presented under the measure 2.1. and complying with the aforementioned conditions. The essential feature is whether the activities performed have the character of economic activity (e.g. renting of infrastructure, contracted research) or they are non-economic activities (independent research, activities in the field of technology transfer).

Measure. 4.2: Transfer of knowledge and technology from research and development into practice in the Bratislava region

The specific objective of this measure is increasing the degree of cooperation of R & D institutions in the Bratislava region with social and economic practice through knowledge and technology transfer, thereby contributing to increased economic growth of regions and Slovakia.

The aim of this measure is to promote innovative culture in research organizations, and support research aimed at the real use of the results of the national economy and to create and promote the transfer of newly acquired knowledge and technologies into practice. Activities are supported by non-reimbursable (grant application) and repayable (innovative financial instruments) forms of assistance. Eligible activities are also supported by measures 3.1 if they are part of a larger project which meets the requirements of this measure.

Under the measure 4.2 it is also possible to implement projects through the JEREMIE initiative in accordance with the "Proposal of the process of the implementation of the JEREMIE Initiative in the Slovak Republic in the programming period 2007-2013" approved by the Government Resolution no. 785/2007 on 19 September 2007.

For revenue generating project the related text under the measure 1.1 applies also to this measure.

The eligible beneficiaries are those mentioned in the table under the measure 2.1. Within the framework of the measure. 4.2 the entities subject to State aid rules (any entity engaged in economic activity, regardless of its legal form meeting all the conditions set out in Article 107, part 1 of the EU Treaty) implement the R&D projects through a scheme of State aid for research and development. The beneficiaries of State aid may be subjects of public sector (e.g. public universities) and the subject of private sector (e.g. non-profit organizations, private universities) according to the table presented under the measure 2.1. and complying with the aforementioned conditions. The essential feature is whether the activities performed have the character of economic activity (e.g. renting of infrastructure, contracted research) or they are non-economic activities (independent research, activities in the field of technology transfer).

Priority Axis 5: Infrastructure of higher education (budget 285 294 118 EUR)

Measure. 5.1: Building the infrastructure of universities and upgrading their internal equipment to improve the conditions of the educational process

The specific objective of this measure is enhancing the quality of education in universities through investment in physical infrastructure.

The aim of the measures 5.1 are investment activities focused on reconstruction and upgrade of facilities of universities and / or upgrade their internal equipment to improve the conditions in which the educational process takes place at universities.

Activities are supported by non-repayable forms of assistance (grant assistance). For revenue generating project the related text under the measure 1.1 applies also to this measure.

Eligible beneficiaries

Groups of beneficiaries	Intensity of assistance (%)		
	ERDF sources	State budget sources	Own sources
Public sector			
Public universities	85	10	5
State universities	85	15	0
Slovak Academy of Sciences (as a provider of education)	85	15	0

In the framework of the measure. 5.1 none State aid scheme applies.

Priority Axis. 6: Technical assistance for the Convergence (budget 26 123 372 EUR)

Technical assistance for the Convergence is a special priority axis of the OP R&D, which is intended to support the implementation of priority axes 1, 2 and 5 of the OP R&D.

The objective of the Priority Axis 6 is ensuring the implementation of the OP R&D in accordance with the requirements imposed on management, implementation, control, audit, monitoring and evaluation of the operational program and administrative structures responsible for the implementation of the operational program, providing support for project preparation as well as to inform the public, promotion and exchange of experience.

Eligible beneficiaries

Groups of beneficiaries	Intensity of assistance (%)		
	ERDF sources	State budget sources	Own sources
Public sector			
Ministry of Education, Science, Research and Sport of the SR	85	15	0
Agency of the Ministry of Education, Science, Research and Sport of the SR for EU structural funds (as IB)	85	15	0

Within the priority axis 6 Technical assistance for the Convergence none State aid scheme is planned.

Priority Axis. 7: Technical assistance for the Regional Competitiveness and Employment (budget 12 293 352 EUR)

Technical assistance for the Regional Competitiveness and Employment is a special priority axis of the OP R&D, which is intended to support the implementation of priority axes 3 and 4 of the OP R&D.

The objective of the Priority Axis 7 is ensuring the implementation of the OP R&D in accordance with the requirements imposed on management, implementation, control, audit, monitoring and evaluation of the operational program and administrative structures responsible for the implementation of the operational program, providing support for project preparation as well as to inform the public, promotion and exchange of experience.

Eligible beneficiaries

Groups of beneficiaries	Intensity of assistance (%)		
	ERDF sources	State budget sources	Own sources
Public sector			
Ministry of Education, Science, Research and Sport of the SR	85	15	0
Agency of the Ministry of Education, Science, Research and Sport of the SR for EU structural funds (as IB)	85	15	0

Within this priority axis none State aid scheme is planned.

Country	Czech Republic
Operational Programme	OP Research and Development for Innovations 2007 - 2013
Sector(s)	Research, Development and Innovation
Contact person(s)	Mr. Jackub Uchytill, Director, OP RDI implementation department Ministry of Education, Youth and Sports
Description	<p>The Operational Programme Research and Development for Innovation aim to strengthen the research, development and innovation potential of the Czech republic that shall contribute to its economic growth, competitiveness and to the creation of highly qualified workplaces so that the country can become important locations for the concentration of these activities within Europe.</p> <p>The OP is structured along five priority axes, namely:</p> <ul style="list-style-type: none"> - Axis 1: European centres of excellence: the main objective of the axis is creation of a limited number of Centres of Excellence, well equipped R&D centres with modern, sometimes unique research infrastructure, with a critical size. Two calls were announced within the axis. The first was focused on top R&D projects cooperating with leading international partners with relevance for the market and economic development of the country. The total allocation was EUR 704.2 million. Under this call five major project have been financed. The second call, with a financial allocation of EUR 36.4 million, was targeted to projects aiming at establishing and ensuring material and technical equipment for the new research teams which shall support efficient use of research infrastructures. - Axis 2: Regional R&D centres: the axis supports the establishment and development or R&D workplace with quality equipment focused on applied research and reinforcement of cooperation with the application area according to the needs of the region. Two calls with the same features and the same aim, i.e. supporting the creation and development of well-equipped, application-oriented workplaces with strong ties with the business sphere, took place. - Axis 3: Commercialization and popularisation of R&D. It includes two supported areas: <ul style="list-style-type: none"> o Commercialisation of results of research organisations and protection of their property rights. The support area focuses on the improvement, development and expansion of activities for commercialization of the R&D results, including the development of technology transfer centres, improvement of the system of protection and utilization of intellectual property rights and reinforcement of systematic cooperation of R&D institutions with the business sphere; o Promotion and providing information on R&D results. The support area focuses on enhancing the positive image of R&D among the general public and stepping up the interest of young generation in R&D. for instance, it support visitor centres and science learning centres. - Axis 4: Infrastructure for university education related to research : the axis promise to remedy the negative legacy of underfunding accumulated from the past while allowing a selective support for universities that are actively working on modernizing their curricula and educational methods. Investments supported are for instance lecture rooms, academic office spaces, libraries, ICT infrastructure. - Axis 5: Technical Assistance.
Sector funding	<p>The total financial allocation amounts to EUR 2,436 million of which EUR 2,070 million represents the contribution of the ERDF, i.e. 85% of the total allocation, and EUR 365 million represents the co-financing from the state budget.</p> <p>33.1% of the total allocation of the OP has been allocated both to priority axis 1 and priority axis 2 (i.e. Axes 1 and 2 account for the 66.2% of the total financial allocation of the OP). 10.3% has been allocated to priority axis 3. 20% has been allocated to priority axis 4 and the remaining to axis 5.</p>
Revenue generating operations	<p>There is no project, either completed or incomplete, within the Operational Programme Research and Development for Innovation 2007-2013 which would generate any income exceeding the total operating costs, thus would be classifiable as revenue generating. Also, there is no project subject to State Aid.</p> <p>The OP RDI target groups are primarily made up of R&D institutions and universities. This means mainly research organisations and other entities meeting the conditions of the Community Framework for State Aid for Research, Development and Innovation. Since the OP supports research organisations involved in non-economic activities the project revenues, which usually consist in contract and collaborative research, never exceed the operating costs. Otherwise, the project would infringe the State Aid Framework. Most projects financed during the last programming period have just started their operational phase. So any adjustment with respect to the initially expected income has not occurred so far and it is unlikely to occur in the future as well because the supported organizations want to remain research, and not business, organizations,.</p>

Country	Slovakia
Operational Programme	Operational Programme Competitiveness and economic growth 2007-2013
Sector(s)	Energy efficiency (EE)
Contact person(s)	<p>Body responsible for the implementation of measures for the energy efficiency within the Operational Programme Competitiveness and economic growth is Ministry of Economy of the Slovak Republic. The Intermediary Body for measures 2.1 and 2.2 is Slovak Innovation and Energy Agency which is also the executive body for the schemes for measure 2.1.</p> <p>Mr. Pavol Borovský, director, Department of Operational programs and methodologies Ministry of Economy of the Slovak Republic Address: Mierova 19, 827 15 Bratislava Mail: pavol.borovsky@mhsr.sk Phone: +421248547155</p> <p>Mr. Milan Hegeduš, Department of Operational programs and methodologies Ministry of Economy of the Slovak Republic Address: Mierova 19, 827 15 Bratislava Mail: milan.hegedus@mhsr.sk Phone: +42124854 1327</p> <p>Ms. Helena Ševcechová, Department of Operational programs and methodologies Ministry of Economy of the Slovak Republic Address: Mierova 19, 827 15 Bratislava Mail: sevcechova@mhsr.sk Phone: +421248542516</p>
Description	<p>OP Competitiveness and Economic Growth (OP C & EG) for the years 2007 - 2013 is processed following the strategy of the National Strategic Reference Framework for 2007-2013 (NSRF). It represents basic document setting out the direction and support of innovation, industry, tourism and other selected services utilizing the growth potential of regions with a focus to meet the global strategic objective of the NSRF in the programming period 2007-2013, which is "to significantly increase by 2013 the competitiveness and performance of regions and the Slovak economy while respecting sustainable development".</p> <p>OP C & EG elaborates specific NSRF priority "Promoting competitiveness businesses and services through innovation" through Priority Axis 1: Innovation and Growth Competitiveness, Priority Axis 2: Energy and Priority Axis 3: Tourism, which are within the NSRF hierarchically classified as a specific priority under the 2. strategic priority "Knowledge-based economy". Measures under Priority Axis 1 are linked to priority areas which are part of the Competitiveness Strategy of Slovakia until 2010 and the National Reform Programme (Lisbon and Gothenburg strategies and the Convergence Programme of the Slovak Republic to 2010) and other materials. The OP Competitiveness includes Priority Axis 4: Technical Assistance.</p> <p>The aim of support under the OP C & EG is to maintain and further develop a competitive and efficient manufacturing potential of industrial production, energy, and tourism potential and other selected services in terms of sustainable development, and thus effectively contribute to improving the economic performance of Slovakia as a whole, and reduce disparities in economic performance in regions of Slovakia. Attention is paid to promoting activities with a positive impact on employment and innovation development. Increase of competitiveness of the national economy is a permanent priority Slovakia's economic policy and competitiveness growth sectors included in this OP C & EG will affect the convergence economic level of Slovakia and its regions to the economic level of the EU at the end of the program the 2007 - 2013.</p>
Sector funding	<p>212 878 119 EUR</p> <p>This funding relates to the Priority Axis 2: Energy, while the entire OP budget is 1 139 117 648EUR.</p>
Revenue generating operations	<p>Under the OP Competitiveness and Economic Growth in the area of energy efficiency there are no projects generating income. The projects are implemented under the state aid schemes, and/or de minimis aid schemes, where the aid intensities (co-financing rate of eligible costs from public funds, i.e. ERDF and state budget) are set out, being understood that 100% of the contribution is divided in the ratio of 85% of ERDF funds and 15% from the state budget. These values are therefore not based on the value of the financial rate gap (calculated either ex-ante or ex-post as actually generated revenue),</p>

and/or from the "profitability" of the project but are set depending on the type of scheme.

In the case of the state aid scheme, the assistance was granted as regional investment aid (according to the Regulation EC no. 800/2008), which was possible to provide under "aid map for the SR" the assistance up to 40% of eligible costs for projects implemented in western Slovakia (outside of Bratislava Self-governing Region) and 50% for projects implemented in central and eastern Slovakia. In the case of de minimis aid (according to EC regulation 1998/2006) it was possible to provide to the beneficiary an assistance up to 200 thousands EUR (from different providers) for a period of three consecutive fiscal years.

At the level of priority axis there is not fixed general rate of co-financing of projects. General co-financing rate is linked solely to share of expenses covered by the ERDF (i.e. 85%) of the total public expenditure.

The measures where operations have been planned and are currently running in the EE sector are:

Priority axis 2 Energy (212 878 119 EUR)

Measure 2.1 Increasing energy efficiency in production and consumption and introducing advanced technologies in the energy sector (145 244 480EUR)

The purpose of this measure is to bring the energy intensity level comparable to the EU 15, achieve energy savings, increasing the efficient use of primary energy sources in order to reduce energy costs as well as to increase the share of renewable energy sources on the total energy consumption. Supported are also activities that lead to increased use of renewable energy sources, as well as activities aimed at savings and energy efficiency in industry and related services.

The aid intensity is determined on the basis of firm size and location of the project as follows:

Groups of beneficiaries for Measure 2.1	Non-repayable grant		
	Large enterprise	Medium enterprise	Small and micro enterprise
Private sector – Western Slovak Region	40%	45%	50%
Private sector – Central Slovak Region	50%	55%	60%
Private sector – Eastern Slovak Region	50%	55%	60%
An authorized recipient under the national project to support the provision of business loans will be selected in accordance with Article 44 of General Regulation	100%		

Schemes of the State aid and de minimis aid respectively, through which the Measure 2.1 is realised, are as follows:

- Aid scheme for improving energy efficiency in production and consumption and introducing advanced technologies in energy direct aid
- Scheme to promote sustainable development (de minimis aid scheme),
- Scheme to support instruments of repayable financial assistance.

Measure 2.2: Building and upgrading of public lighting for towns and villages and providing consultancy on energy (67 633 639 EUR)

The purpose of the measure is to support the public sector in building and upgrading of public lighting in towns and villages. Also, increasing awareness on energy efficiency and use of renewable energy sources - individual project SIEA. Under this measure it will be implemented the national project aimed at the implementation of energy audits of public buildings - individual project SIEA.

Groups of beneficiaries for Measure 2.2	Non-repayable grant
Public sector	95%
SIEA for implementation of individual projects	100%

Envisaged forms of aid:

- Direct support in the form of grant
- Individual SIEA (Slovak Innovation and Energy Agency) project for consultancy/advice on the effective use of energy,
- Individual SIEA (Slovak Innovation and Energy Agency) project for the implementation of energy audits

Under the measure 2.2, which is intended for the public sector, the State aid schemes are not applied.

Country	Italy
Operational Programme	ERDF Italian Multiregional OP "Research and competitiveness" 2007-2013 for the Convergence Regions (Calabria, Campania, Puglia, Sicilia)
Sector(s)	Research, Development and Innovation
Contact person(s)	Mr. Fabrizio Cobis Director General, Coordination and Research Development Department, Ministry of Education, Universities and Research
Description	<p>The NOP for R&C is co-funded by the European Regional Development Fund (ERDF) in the Regions of Calabria, Campania, Puglia and Sicily and finances projects for scientific research, technological development, industrial competitiveness and innovation for the 2007-2013 programming period. Specifically:</p> <ul style="list-style-type: none"> - Axis I - Support to structural changes and strengthening of the scientific-technological potential for the transition to knowledge-based economy: It includes structural interventions, the promotion of scientific and technological networks and incentives for business. The objective is to change specialised production in the Convergence regions by promoting the development and consolidation of sectors relating to science and technology. - Axis II - Strengthening of the innovative context for the development of competitiveness: it includes interventions that, on one hand, improve the focus on business innovation and development, and on the other, improve territorial appeal and competitiveness in order to increase the ability of local business to adapt their strategies to changes in the business context - Axis III - Technical assistance and accompanying measures. - The purpose of the Programme is to ensure that the potential production and implementation of levels of excellence in research and innovation are fully exploited in the four Convergence regions, thus guaranteeing lasting and sustainable development. <p>The NOP is characterized by a joint management of MIUR and the Ministry of Economic Development (MISE).</p>
Sector funding	The NOP for "R&C" originally had an overall budget of approximately EUR 6.2 billion, of which 50% was provided by ERDF and 50% was national funds. The whole amount was reduced in 2012 by EUR 1.78 billion, following Italy's choice to redesign the operational programmes to support the Cohesion Action Plan. Following the review of the Programme, the European financial contribution, which is provided by the European Union through the European Regional Development Fund (ERDF), remains unaltered (EUR3.1 billion). 57.8% of the total funds has been allocated towards interventions for structural changes (Action Line I of the Programme), 38.5% has been allocated towards the development of interventions of support for innovation (Action Line II of the Programme).
Revenue generating operations	<p>During the programming period 2007-2013 the projects financed by the NOP for R&C fell under the category "non-revenue-generating projects" or "projects subject to state aid" (for which a monitoring of the generating revenue is not requested). Therefore data relative to revenue generated by projects in the RDI sector are not available. Tenders prepared within the NOP for R&C have been designed in such a way as to remain within the projects funded as state aid in accordance with Legislative Decree 297, which states that the purpose of the projects funded shall be NOT marketable. Any revenue generated by the product/object of research is deducted from the contribution required by the project. However, the projects financed by PONREC are predominantly industrial researches, where the funding covers up to the realisation of the prototype (or the funding would not be compatible with state aid).</p> <p>Under the Priority Code 02 (<i>Infrastructure of R&D in centers of competence in a specific technology</i>) fall the operations NOT subject to state aid and aiming at the upgrading of laboratories/equipment of the public research sector (such as non-commercial entities just like universities) where the final beneficiary is the ministry itself (Ministry of Education). The operations financed are of a physical nature (structural reinforcement) not research activities. Just one call for tenders of such a kind was launched in the period 2007-2013. For projects financed within this call for tenders they do not have data about costs and revenues (the beneficiaries only were required to provide a use plan), besides, projects of this kind are still being structurally finalized and therefore none of these projects generates services yet.</p> <p>Within the Priority code 01 (<i>Research activity in research centers</i>) several calls for tenders were issued: PON1, PON2, PON4. Operations financed by the Ministry of Education in this category are characterized by a collaboration between public and private sectors (eg. expansion of the clusters). This differs from the operations financed by the MISE under the activity code 07 (<i>interventions in firms directly linked to research and innovation</i>), which instead is intended to facilitate companies.</p>

Country	Italy
Operational Programme	ERDF - Regional Operational Programme for Sardegna "Regional competitiveness and employment" 2007-2013
Sector(s)	ICT and Research, Development and Innovation
Contact person(s)	Mr. Lodovico Conzimu Department of Planning, Budget, Credit and Spatial Territory - Regional Center of Programming
Description	<p>The ERDF Sardegna OP identifies the development strategy to increase the competitiveness and attractiveness of the production system, which relies on the diffusion of innovation, the exploitation of natural and cultural resources and the reduction of energy dependence on traditional sources. Specifically, The strategy is divided into six Priority Axes of intervention (plus Technical Assistance axis):</p> <p>Axis I – Society: This priority aims to improve the quality and accessibility of Information Society services by introducing and applying information and communication technologies (ICTs). This includes interventions in support of e-government and e-citizenship services, as well as the setup of broadband in areas affected by the digital divide.</p> <p>Axis II - Inclusion, Social Services, Education and Legality: This priority promotes services and infrastructure aimed at reducing the risk of social exclusion and improving integration and non-discrimination among the local population. It will contribute to providing services to counter school drop-outs and improve overall lawfulness and security</p> <p>Axis III – Energy: The aim here is to promote sustainable development by bringing about energy efficiency and the use of renewable energy sources.</p> <p>Axis IV - Environment, natural attractiveness and cultural tourism: it focuses on efficient and sustainable use of environmental resources and development of natural and cultural resources. The final aims are to make the region more attractive and to support sustainable tourism.</p> <p>Axis V - Urban development: it is focused on promoting the attractiveness and competitiveness of the region by tackling internal development disparities and improving living standards and the quality of life in urban and disadvantaged areas.</p> <p>Priority VI – Competitiveness: the objective is to boost competitiveness by supporting research and innovation among enterprises and by promoting cooperation between universities, research centres and businesses.</p> <p>Generally speaking, the OP address the lack of suitable infrastructure and services in terms of water, waste, health, broadband, business and tourism. The Programme is therefore geared towards enhancing business competitiveness and the region's attractiveness by spreading innovation, promoting the potential of local identity and traditions and preserving natural resources. Climate change is also a major focus: over 11% of the resources were planned to be invested in renewable energy sources and energy efficiency; and 24% of the resources were planned to support research and innovation infrastructure and services, with a special focus on increasing the percentage of private research.</p>
Sector funding	<p>The program benefits from 1,361,343.530 euro, of which 680,671,765 euro from the ERDF. The breakdown of funds is:</p> <p>Axis I – Society: approximately 10.0% of total funding</p> <p>Axis II - Inclusion, Social Services, Education and Legality: approximately 9.5% of total funding</p> <p>Axis III – Energy: approximately 11.0% of total funding</p> <p>Axis IV - Environment, natural attractiveness and cultural tourism: approximately 22.5% of total funding</p> <p>Axis V - Urban development: approximately 18.0% of total funding</p> <p>Priority VI – Competitiveness: approximately 27.0% of total funding</p>
Revenue generating operations	<p>During the programming period 2007-2013 the projects financed by the ROP fell under the category "non-revenue-generating projects" or "projects subject to state aid" (for which a monitoring of the generating revenue is not requested). Therefore data relative to revenue generated by projects in the ICT and RDI sectors are not available.</p> <p>Tenders prepared within the ROP have been designed in such a way as to remain within the projects funded as state aid in accordance with Legislative Decree 297, which states that the purpose of the projects funded shall be not marketable. Similarly, a number of beneficiaries of the programme are research organisations and other entities meeting the conditions of the Community Framework for State Aid for Research, Development and Innovation. Since the OP supports research organisations involved in non-economic activities the project revenues, which usually consist in contract and collaborative research, never exceed the operating costs. Otherwise, the project would infringe the State Aid Framework.</p>

Country	Lithuania																							
Operational Programme	ERDF 2007-2013																							
Sector(s)	Research and Development																							
Contact person(s)	Ms Dovile Rupsyte - D.Rupsyte@finmin.lt Lithuanian Ministry of Finance, Managing Authority of all three Operational Programmes in the 2007-2013																							
Description	The research focused on the Economic Growth Operational Programme which is one of three OPs in Lithuania in the 2007-2013 period. There was considerable support for research and innovation through the Lithuania the Economic Growth OP.																							
Sector funding	N/A																							
Revenue generating operations	<p>The Lithuanian Ministry of Finance carried out an assessment to identify data available on revenue-generating projects in the Structural Funds Management Information System (SFMS2007). Such projects were quite rare in Lithuania in the previous programming period. Only two net revenue generating operations were identified. These were both in the field of R&D (priority theme code 05).</p> <p>Through SFMS2007 project information can be tracked only in instances where there is positive net revenue. Therefore, data was only provided by the Lithuanian Managing Authority on projects with positive net revenue. The reason why there are such a small number of operations generating net revenue was that there are a high number of operations within the fields of ICT, R&D and energy efficiency that are exempt from the rules on revenue generating projects set out in Article 55 of the ERDF Regulation. The reasons why the majority of ERDF projects in these fields are exempt is either that the operations concerned are subject to the State aid rules, secondly, projects are not revenue generating or thirdly, the total costs do not exceed 1 MEUR.</p> <p>SFMS2007 can identify projects where state aid is applicable. However, at the time this country report was prepared, there were technical problems so data cannot be provided of summary statistics for the Economical Growth OP for each of the priority themes indicated. The following information was available on the two projects where revenue-generating projects were supported.</p> <p>Project 1: Panevėžys industrial park. This project aimed to create industrial park infrastructure in Panevėžys, which is the 5th largest town / city in Lithuania. The priority investment codes was 5. The decision date was 07/10/2009 and the completion data is expected to be 2015.07.15. The Investment cost in Euro before discounting was EUR7,318,984.75. Further information about the project based on the key parameters provided by the MA is summarised in the following table:</p> <table border="1"> <thead> <tr> <th>Discount rate</th> <th>Reference period</th> <th>Funding gap rate</th> <th>Cumulated net revenue generated</th> <th>No. years considered</th> </tr> </thead> <tbody> <tr> <td>5%</td> <td>20</td> <td>90.21%</td> <td>EUR673,348.88</td> <td>5</td> </tr> </tbody> </table> <p>Project 2: Kaunas Free Economic Zone. The purpose of this project was to incorporate about 116 acres of FEZ territory. This also includes the design and installation of transport communications, engineering networks, etc. The priority investment codes was 5. The decision date was 23/09/2010. The completion date is expected to be 01/06/2015. The investment cost in Euro before discounting was EUR9,211,277.80.</p> <p>Further information about the project based on the key parameters provided by the MA is provided in the following table:</p> <table border="1"> <thead> <tr> <th>Discount rate</th> <th>Reference period</th> <th>Funding gap rate</th> <th>Cumulated net revenue generated</th> <th>No. years considered</th> </tr> </thead> <tbody> <tr> <td>5%</td> <td>20</td> <td>98.84%</td> <td>EUR175,730.22</td> <td>5</td> </tr> </tbody> </table> <p>It can be noted that in both cases, the discount rate applied was 5%.</p> <p>The reference period for many R&D projects is 20 years. Therefore, the expected revenue generated in net present value terms can be calculated by multiplying the number of years over which cumulated net revenue has been generated to date over the number of years concerned. The projected revenue generated over the total reference period can then be calculated. In both cases, revenue generated is over a 5 year period. Therefore when multiplied by 4 the total anticipated revenue over the operation lifetime of the reference period can be calculated. The figures are EUR2693396 and EUR702921 for the project in Panevėžys and the Kaunas Free Economic Zone projects respectively.</p> <p>A comparison can then be made between the net revenue generated as a percentage of the total project cost. The figures are 36.8% of total project costs for the Panevėžys industrial park project and 7.6% for the Kaunas special economic zone, where a higher funding gap rate was identified. This shows that for RTD projects there are quite differing levels of revenue generated depending on a number of factors including the type of project, and in the case of research infrastructure, how early in the infrastructure development phase the RTD investment is, the prospects for generating revenue from activities location within the country, among others).</p>				Discount rate	Reference period	Funding gap rate	Cumulated net revenue generated	No. years considered	5%	20	90.21%	EUR673,348.88	5	Discount rate	Reference period	Funding gap rate	Cumulated net revenue generated	No. years considered	5%	20	98.84%	EUR175,730.22	5
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	<p>Whereas the first project relates to the development and enhancement of industrial park infrastructure based on an existing site and the associated revenue generated from businesses located in the park, the second project is at a much earlier stage of development with a focus on improving site infrastructure through engineering works, communications, improving transport connections, etc. Clearly, promoting the development of research infrastructure at an earlier stage means that there are likely to be much lower levels of net revenue generated.</p> <p>Nevertheless, reflecting the difficult in predicting future revenue streams, a similar discount rate of 5% was applied on the intervention rate which would normally be applicable if Article 55 did not apply.</p>
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Country	UK
Operational Programme	ERDF North East 2007-2013
Sector(s)	RDI
Contact person(s)	Mr. Iain Derrick Department for Communities and Local Government
Description	<p>RDI is incorporated within Priority One – Enhancing and Exploiting Innovation – of the Competitiveness and Employment ERDF Operational Programme.</p> <p>The strategy for Priority One comprises three types of Action. These, together with their indicative financial weighting within the Priority, are:</p> <ol style="list-style-type: none"> 1. Investment in Innovation Connectors (40%-55%). 2. Support for innovation and technology-led sectors (40%-55%). 3. Exploitation of the science base (5%-10%). <p>This strategy will provide for both capital and revenue actions that are primarily directed at the technology-based sectors identified as part of the UK North East Regional Economic Strategy and which are i) energy and the environment, ii) healthcare and health sciences, iii) process industries.</p>
Sector funding	402 M EUR (53.5% of the programme total)
Revenue generating operations	<p>All the RDI project types (as listed in this assignment's inception report) have been supported. However, only two types of projects are revenue-generating and fall under Article 55, namely i) Developing human potential in the field of research and innovation, in particular through post-graduate studies and ii) Other measures to stimulate research and innovation and entrepreneurship in SMEs.</p> <p>Further descriptions are provided for five individual initiatives. Complete data on these projects can be found in separate project fiche:</p> <p>Sunderland Software City - Education & Innovation Activity (<i>RDI 01 Developing human potential in the field of research and innovation, in particular through post-graduate studies...</i>) The project will support the development of high level skills through a holistic educational framework targeted at meeting the skills needs of Regional Software Companies. This will include HE programmes designed, and where possible delivered, with support from the software industry to ensure that they provide the highest level of skills development in areas of identified need for the software industry. Total Eligible Expenditure EUR2,657,433.</p> <p>PETEC Displays & Photonics Technologies Facility (PDPTF) (<i>RDI 06 Assistance to SMEs for the promotion of environmentally-friendly products and production processes</i>) The project is for the benefit of regional SMEs in this technology area. Specifically it will</p> <ul style="list-style-type: none"> • Provide a new facility, circa 800m², to house specialised equipment for printable electronics technology; and • Purchase the specialised equipment to be housed within this facility. <p>SMEs will have use of the capital facilities and access to the PETEC team for specialist business support. Total Eligible Expenditure EUR20,339,214.</p> <p>DigitalCity Business 2010-12 Revenue (<i>RDI 74 Developing human potential in the field of research and innovation, in particular through post-graduate studies ...</i>) This forms a new project for DigitalCity Business (DCB), the 'business end' of the DigitalCity Innovation Connector bid. DCB concentrates on taking those businesses (and others coming into the system from elsewhere) and developing them as quickly and as effectively as possible. This is done by creating the right business ecosystem in which companies can thrive, through:</p> <ul style="list-style-type: none"> • Delivering high quality, appropriate specialist support for SMEs at whatever stage (pre-start, start-up, pre-acceleration, acceleration) and of whatever growth signature; • Building the networking and collaboration capability of the cluster; • Developing national and international business opportunities for the cluster; and • Working to bring inward investment to the cluster. <p>DCB's overarching objective is to create and manage a range of services, initiatives and activities that will continue to foster, support and stimulate the creation a self-sustaining, vibrant and successful digital media, digital technology and the creative sector in the Tees Valley. Total Eligible Expenditure EUR 1,965,184.</p> <p>NaREC Marine Testing Facility (<i>RDI 42 Renewable energy: hydroelectric, geothermal and other</i>) The NaREC Marine Testing Facility Programme is made up of 3 elements:</p> <ul style="list-style-type: none"> • Marine Test Stand; • Marine Measurement System; • Marine Simulation Modelling. <p>A Marine Testing Facility will be developed which will build on and utilise existing infrastructure at the NaREC Centre to provide a testing infrastructure for marine drive systems (the mechanical and electronic systems within a wave energy converter or tidal turbine used to convert wave or tidal energy into electricity) and other critical wave and tidal energy device components. A purpose-built structure, which would accommodate the needs of the Test</p>

	<p>Stand, will also be built, utilising the docks at the NaREC site thereby enabling more accurate marine conditions to be produced, enabling the facility to test a wider range of devices. The project will allow marine energy developers to test and prove designs and components onshore, improving their efficiency and reliability before committing to high risk and costly testing at sea. Total Eligible Expenditure EUR 15,111,631.</p> <p>NeST 2 (RDI 09 Other measures to stimulate research and innovation and entrepreneurship in SMEs)</p> <p>NeST 2 will provide bookable high specification meeting and event space in a refurbished Event Hall and new build workspace that will accommodate up to 170 people with digital projection, video conferencing and translation facilities. The wider Project comprises four main areas:</p> <ul style="list-style-type: none"> (i) The Witham Testimonial Hall, a Victorian building which will be refurbished to provide a Digital Workhub and WiFi workspace on the first floor. The Hub will provide hot-desking, co-working and networking areas, and bookable meeting space with superfast next generation broadband (up to 100 mbps) with affordable business broadband and printing facilities. (ii) The Event Hall, originally built as a Music Hall, will be fitted out as a high technology meeting and networking space. (iii) Hall Street, a terrace of properties, will be refurbished to provide 178 sq metres of studio space for 11 artists. (iv) The link building between the Testimonial Hall and the Music Hall will be demolished and replaced with a new building. The new building will provide lift access to the Witham, new meeting space on the ground and first floor and new accessible facilities for building users. The facilities will also have community use. Total Eligible Expenditure EUR2,574,340.
<p>Guidance for the ex-ante assessment of the net revenues and calculation of EU grants</p>	<p>In England there were changes during the 2007-13 programming period to the management and implementation structures with the abolition of the Regional Development Agencies (RDAs) in 2010-2011. The MA role was taken over by the Government Department for Communities and Local Government.</p> <p>As a consequence of this change the approach to the development of guidance in respect of Article 55 revenue-generating projects has evolved. Whereas in the first half of the programming period, guidance was lacking at national level and was developed at the regional level, in the second half of the programming period, national guidance was produced by the Government Department which was standardised. In practice, the end result in terms of carrying out calculations of costs and revenue to assess the FG and the intervention rate was broadly similar. Only the formatting and presentation of the data was different.</p> <p>The funding gap method has been incorporated into DCLG guidance. Monitoring activities of Article 55 projects are also closely related to audit requirements.</p>
<p>Monitoring of projects</p>	<p>There is a monitoring system that tracks the projects that generate net revenues. There are circa 20-30 revenue-generating projects for the North East Operating Programme as a whole. An annual report is provided by projects supported that fall under Article 55 for audit purposes. The MA has mechanisms in place for monitoring revenue generation and for clawing back funding in case of divergence >10%. There is however only one example of a project that generated significantly more money than expected so overpayment is considered by the MA to be an exception rather than the rule.</p> <p>The monitoring data is collected in the IT system of the MA (see separate excel sheet for the variables collected). A limitation in the data is that RDI project often have a 15 or a 20-year reference period and therefore there is no complete data for revenue generating projects outside the reference period.</p>
<p>2014-2020 Programme</p>	<p>There will be a continued focus on innovation and RTDI in 2014-2020 in the North East of England region, with the MA expecting to support similar types of projects. From an English perspective, applying flat rates for a national ERDF OP might be more beneficial than under a regional OP structure as only national ones will reach sufficient critical mass and scale of the market. The 2014-2020 period might be more favourable to flat rates as the scope (SMEs and supply chains) is bigger compared with 2007-13.</p>

Country	Lithuania
Operational Programme	ERDF 2007-2013 - 'Promotion of Cohesion'
Sector(s)	EE
Contact person(s)	Ms Dovile Rupsyte - D.Rupsyte@finmin.lt Lithuanian Ministry of Finance, Managing Authority of all three Operational Programmes in the 2007-2013
Description	<p>Operations financed in the past programming period within EE sector are related to the:</p> <ul style="list-style-type: none"> • increase of energy production efficiency; • use of renewable energy sources for energy production; • renovation of public buildings on national level; • renovation of public buildings on regional level; • renovation of multi-apartment buildings and student dormitories (JESSICA); • development of electricity grid and natural gas distribution; • development of energy efficiency, co-generation and energy management systems. <p>These interventions have been financed through priority axis 3 "Environment and sustainable development" with the objective to "improve the environment, with a focus on improving energy efficiency". The financial allocation is more than EUR1.33 billions over the period 2007-2013.</p>
Sector funding	N/A
Revenue generating operations	According to the data of the Structural Funds Management Information System (SFMS2007), only two net revenue generating operations were co-funded by the OP. None of them were related to EE. This is explained by the fact that EE operations are subject to State Aid rules, projects are not revenue generating, or total costs do not exceed EUR1 million.
Monitoring system	SFMS2007 can identify projects where state aid is applicable.
2014-2020 Programme	<p>In the next programming period EE interventions will include:</p> <ul style="list-style-type: none"> • Promoting energy efficiency and renewable energy use in enterprises; • Supporting energy efficiency, smart energy management and RES use in public infrastructures, including in public buildings, and in the housing sector; • Developing and implementing smart distribution systems at low and medium voltage levels; • Promoting low-carbon strategies for all types of territories, in particular urban areas, including the promotion of sustainable multimodal urban mobility and mitigation-relevant adaptation measures.

Country	France
Operational Programme	ERDF 2007-2013 - Operational Programme 'Basse-Normandie'
Sector(s)	EE
Contact person(s)	Carine Pierder-Souverian , directrice Europe du Conseil régional de Picardie mpierdetsouverain@cr-picardie.fr Carine Helart , chargé de mission Europe / CPER auprès du Préfet de région Picardie SGAR carine.helart@picardie.pref.gouv.fr
Description	EE projects financed by the OP in the past programming period are related to: <ul style="list-style-type: none"> • District heating • Co-generation • Social housing (efficiency in buildings) <p>Beneficiaries are mainly public bodies ("Collectivités locales"), with few enterprises. Operations have been financed through priority axis 4 "Boosting the appeal of the region with a view to sustainable development" within the objective to "encourage energy efficiency and the development of renewable energy source ". The financial allocation to axis 4 is around EUR100 million over the period 2007-2013.</p>
Sector funding	N/A
Revenue generating operations	The OP Measure related to energy efficiency has been managed by the Conseil Régional of Picardy as a global grant. All interventions have been co-financed under State Aid rules with the support of ERDF, ADEM and the Region Picardy. No EE project fall in the scope of article 55. Information provided by beneficiary and entered in the monitoring system does not address project profitability or revenue generation.
Monitoring system	Information related to projects under priority theme 43 has been uploaded in Presage, the French monitoring system for SF 2007-2013.
2014-2020 Programme	EE interventions will be related in the next programming period to: <ul style="list-style-type: none"> • renewable energy (EUR13 M ERDF); • increase of energy efficiency (EUR5 M ERDF); • improvement of energy performance in buildings (EUR30 M ERDF).

Annex IV. Financial statements analysis at firm level

Methodology

A financial statement analysis at the firm level has been carried out for benchmarking purposes by accessing the balance-sheet data reported to national registries and statistical offices by European companies of 257,726 firms.

Financial and economic information of firms operating in the European ICT, RDI and EE sectors have been selected. The NACE classification scheme has been used to select only those firms operating in sectors that are comparable to the investment projects considered. A selection of standard performance ratios, as summarized in Table IV.1 below, has been considered and analysed for firms in the abovementioned sectors, and used as the basis for calculating an average, sector-specific range of values for profitability and performance.

Table IV.1 Indicators of firms performance

Indicator		Definition
ROA	Return on Assets	The Return on Assets (ROA) measure summarizes a firm's profitability relative to its total assets. Computed as net income over total assets. Range: (-100:100)
ROS	Return on Sales	Returns on sales (ROS) summarizes a firm's operating profits (or losses), by sales. Also known as "operating profit margin". Computed as operating profit-losses over turnover. Range: (-100:100)
ROCE	Return on Capital Employed	The Return on Capital Employed (ROCE) measures profitability by computing how much of net income is returned as a percentage of shareholders' equity and debt liabilities. Computed as earnings before interest and tax over capital employed. Range: (-1000:1000)
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortization	The EBITDA measures of the overall profitability. Computed as earnings before interest, tax, depreciation and amortization. Range: (-100:100)

For the three sectors, and their respective sub-sectors, under consideration, two different average values for the financial ratios and indicators have been estimated.

First, the unconditional average, based on firm-level data, is computed for each sector and year, and for the 2007-2012 period as a whole. To provide a clearer picture of the variations in the European Union, additional descriptive statistics for the 2007-2012 period as a whole are provided at the country level for each sector considered for ROA, the indicator for which data is available in most countries. A visual representation of the unconditional period average for ROA at the sub-sector level is also provided to highlight inter-sector differences.

Second, the 2007-2012 conditional average has been computed for each sector, based on the fitted (or predicted) values⁴² from regressions of the form, estimated by least squares:

⁴² Fitted (or predicted values) are obtained by using the estimated coefficients of the independent variables and their mean values to obtain the dependent variable as predicted by the regression model.

Performance indicator=f(firm specific variables, sector, country, year, error term)

For each of the selected performance indicators, a specific model is estimated. While all the indicators presented in Table 9 reflect profitability and performance of the firm, they are computed using different accounting measures and as such, may have slightly different firm-level determinants. To take these differences into account, firm-level variables in each regression model vary according to the dependent variable used. The purpose of this exercise is to provide average values of the financial indicators indicated in Table 2, after having accounted for firm-specific characteristics, while also controlling for sector, year and country fixed effects. This leads to the computation of **conditional averages**, net of the effect idiosyncratic firm characteristics, country-specific features, sector regularities and common time varying elements, such as the crisis. More specifically, the conditional average, obtained by computing the fitted values from pooled least square estimation of equations 1-4,⁴³ are presented.

$$\text{Eq. 1: } ROA_{i,t} = \beta_0 + \beta_1 \text{Turnover}_{i,t} + \beta_2 \text{Employees}_{i,t} + \beta_3 \text{CurrentLiabilities}_{i,t} + \tau + C + \text{Nace} + \varepsilon_{i,t}$$

$$\text{Eq. 2: } ROS_{i,t} = \beta_0 + \beta_1 \text{TotalAssets}_{i,t} + \beta_2 \text{Employees}_{i,t} + \beta_3 \text{MaterialCosts}_{i,t} + \tau + C + \text{Nace} + \varepsilon_{i,t}$$

$$\text{Eq. 3: } ROCE_{i,t} = \beta_0 + \beta_1 \text{Turnover}_{i,t} + \beta_2 \text{Employees}_{i,t} + \beta_3 \text{TotalAssets}_{i,t} + \tau + C + \text{Nace} + \varepsilon_{i,t}$$

$$\text{Eq. 4: } EBITDA_{i,t} = \beta_0 + \beta_1 \text{Turnover}_{i,t} + \beta_2 \text{Employees}_{i,t} + \beta_3 \text{TotalAssets}_{i,t} + \tau + C + \text{Nace} + \varepsilon_{i,t}$$

For each performance indicator three firm level variables have been selected, to account for the specificities of each dependent variable. Firm specific variables include a measure of size (Employees), common to all specifications, and other variables which might affect each performance indicator. For the ROA dependent variable, Turnover and Current Liabilities are included, while for ROS additional determinants include Total Assets and Material Costs. Given their similarity, ROCE and EBITDA margin share the same model, which includes, as additional firm-level explanatory variables, Turnover and Total Assets. All regressions include, beside the above-described firm level variables, country (C), time (τ) and sector (Nace) (Nace Rev. 2, two-digit) fixed effects and are estimated with heteroskedastic standard errors. The inclusion of the fixed effects should account for the effects related to belonging to a same country or sector and should account for the common time varying shocks, such as the crisis, affecting all firms. Firms in the sample have been selected by excluding those with less than five employees, to avoid distortions related to including micro-firms and to exclude firms that have gone bankrupt over the analysed period.

Results

The sector-specific performance indicators calculated at firm level have been used as "point of reference" to verify that the flat revenues percentage estimates calculated on the basis of project data are in line with the trend and expectations of the sectors. It is also worth noting that these financial performance indicators at the firm level should be used to compare firms, or provide an aggregate picture, within the same sector, as idiosyncratic differences across sectors make inter-sector comparisons meaningless.

⁴³ In all four regressions, carried out separately in each of the 3 macro sectors (EE, ICT, RDI), the base sector of "Growing of non-perennial crops", Nace Rev.2 11, is added to allow comparability of results.

These indices are also particularly useful to detect trends over time, and as such, average figures for the period 2007-2012 for each of the selected indicators will be presented.

While the key findings of the analysis are presented in the main text, in the following, the full set of tables with results for each of the selected performance indicator is reported.

Research, Development and Innovation

Table IV.4 ROA

Sector	Unconditional average							Conditional average	
	2007	2008	2009	2010	2011	2012	2013	2007-2012	2007-2012
Activities of head offices; management consultancy activities	12.1	10.4	7.9	8.1	7.8	6.2	8.7	8.5	9.0
Scientific research and development	2.3	1.4	-0.5	0.2	-0.8	-0.6	-1.4	0.2	0.7
Other professional, scientific and technical activities	11.0	8.9	6.8	6.6	6.4	5.6	10.1	7.3	7.8
Office administrative, office support and other business support activities	8.2	7.5	3.6	4.7	4.6	3.9	5.0	5.2	5.7
RDI	10.3	8.8	6.3	6.5	6.2	5.1	7.5	7.0	7.2

Notes: own elaboration on Balance Sheet data.

Table IV.5 ROS

Sector	2007	2008	2009	Unconditional average				Conditional average	
				2010	2011	2012	2013	2007-2012	2007-2012
Activities of head offices; management consultancy activities	8.4	7.6	5.4	5.3	5.1	4.0	4.7	5.8	6.0
Scientific research and development	3.0	2.7	1.8	1.8	0.6	0.7	0.3	1.6	1.8
Other professional, scientific and technical activities	8.4	7.4	5.6	5.3	4.8	3.9	7.3	5.7	6.1
Office administrative, office support and other business support activities	4.3	3.9	1.9	2.6	1.8	0.9	0.1	2.5	2.1
RDI	7.5	6.7	4.8	4.7	4.2	3.3	4.3	5.0	5.0

Notes: own elaboration on Balance Sheet data.

Table IV.6 ROCE

Sector	2007	2008	2009	Unconditional average				Conditional average	
				2010	2011	2012	2013	2007-2012	2007-2012
Activities of head offices; management consultancy activities	32.7	27.8	18.5	19.4	20.2	15.9	22.1	21.9	22.6
Scientific research and development	-0.2	-4.0	-4.9	-5.7	-7.1	-7.5	-9.5	-5.2	-4.0
Other professional, scientific and technical activities	29.9	25.8	19.0	15.4	13.7	12.5	18.1	18.6	19.6
Office administrative, office support and other business support activities	33.7	28.0	13.7	11.8	12.2	8.7	13.9	17.2	16.0
RDI	27.9	23.2	15.3	14.7	14.6	11.6	17.0	17.3	17.6

Notes: own elaboration on Balance Sheet data.

Table IV.7 EBITDA margin

Sector	2007	2008	2009	Unconditional average				Conditional average	
				2010	2011	2012	2013	2007-2012	2007-2012
Activities of head offices; management consultancy activities	11.7	10.8	8.7	8.7	8.4	7.5	8.2	9.1	9.2
Scientific research and development	8.3	8.5	7.9	7.5	6.8	6.9	5.5	7.6	7.5
Other professional, scientific and technical activities	12.0	11.2	9.2	9.1	8.6	7.9	11.5	9.5	9.8
Office administrative, office support and other business support activities	7.8	7.3	5.8	6.5	5.6	4.9	4.0	6.3	6.1
RDI	11.1	10.4	8.5	8.5	8.1	7.3	8.2	8.8	8.9

Notes: own elaboration on Balance Sheet data.

Information and Communication Technology

Table IV.8 ROA

Sector	Unconditional average							Conditional average	
	2007	2008	2009	2010	2011	2012	2013	2007-2012	2007-2012
Manufacture of electrical equipment	6.2	-0.9	1.0	4.2	7.2	8.0	10.0	4.3	3.5
Telecommunications	8.4	7.0	5.1	5.9	5.7	5.1	6.7	6.1	6.4
Computer programming, consultancy and related activities	11.0	10.1	7.7	8.0	8.3	7.4	10.8	8.6	9.4
Information service activities	10.0	9.0	7.7	7.2	7.0	6.3	9.0	7.7	8.6
ICT	10.6	9.6	7.4	7.7	7.8	7.0	10.1	8.2	9.0

Notes: own elaboration on Balance Sheet data.

Table IV.9 ROS

Sector	Unconditional average							Conditional average	
	2007	2008	2009	2010	2011	2012	2013	2007-2012	2007-2012
Manufacture of electrical equipment	7.8	2.1	0.9	1.3	5.9	5.4	6.3	3.7	4.2
Telecommunications	5.5	5.0	3.7	4.2	4.1	3.9	4.9	4.3	4.9
Computer programming, consultancy and related activities	6.8	6.3	4.8	5.0	5.0	4.5	6.0	5.3	5.8
Information service activities	8.8	8.0	6.8	6.3	6.1	5.3	6.5	6.8	7.3
ICT	7.0	6.4	5.0	5.1	5.1	4.6	5.9	5.4	6.0

Notes: own elaboration on Balance Sheet data.

Table IV.10 ROCE

Sector	Unconditional average							Conditional average	
	2007	2008	2009	2010	2011	2012	2013	2007-2012	2007-2012
Manufacture of electrical equipment	12.6	0.3	7.5	0.3	13.9	13.4	26.8	7.8	6.6
Telecommunications	23.2	18.8	15.2	18.0	16.5	15.2	18.7	17.6	18.2
Computer programming, consultancy and related activities	11.0	10.1	7.7	8.0	8.3	7.4	10.8	21.0	21.7
Information service activities	25.9	21.6	18.2	15.1	16.1	13.1	17.6	18.0	18.2
ICT	28.8	23.7	17.9	18.2	18.8	15.4	19.9	20.1	20.8

Notes: own elaboration on Balance Sheet data.

Table IV.11 EBITDA margin

Sector	2007	2008	2009	Unconditional average				Conditional average	
				2010	2011	2012	2013	2007-2012	2007-2012
Manufacture of electrical equipment	10.9	2.5	6.0	6.6	10.2	9.4	10.4	7.5	7.8
Telecommunications	11.3	11.2	10.1	10.4	10.4	10.3	11.3	10.6	10.8
Computer programming, consultancy and related activities	10.4	9.8	8.4	8.6	8.7	8.4	9.5	9.0	9.1
Information service activities	13.1	12.2	11.3	10.7	10.5	9.8	11.0	11.1	11.3
ICT	10.9	10.3	9.1	9.1	9.1	8.8	10.0	9.5	9.7

Notes: own elaboration on Balance Sheet data.

Energy Efficiency

Table IV.12 ROA

Sector	2007	2008	2009	Unconditional average				Conditional average	
				2010	2011	2012	2013	2007-2012	2007-2012
Repair and installation of machinery and equipment	13.0	12.3	7.6	9.0	8.9	6.6	9.1	9.4	9.5
Construction of buildings	8.6	6.5	4.1	3.0	2.7	1.7	5.0	4.2	4.3
Specialised construction activities	11.0	9.9	7.0	5.7	5.3	4.5	7.5	7.0	7.3
Steam and air conditioning supply	3.3	1.8	3.3	3.5	2.5	2.7	2.4	2.8	2.8
EE	9.7	8.1	5.5	4.3	3.9	3.0	6.1	5.5	5.8

Notes: own elaboration on Balance Sheet data.

Table IV.13 ROS

Sector	2007	2008	2009	Unconditional average				Conditional average	
				2010	2011	2012	2013	2007-2012	2007-2012
Repair and installation of machinery and equipment	7.9	8.1	5.8	6.1	5.9	4.7	5.9	6.4	6.3
Construction of buildings	6.8	5.6	3.8	2.9	1.9	1.1	2.3	3.5	3.2
Specialised construction activities	6.7	6.3	4.7	3.8	3.3	2.6	4.1	4.4	4.2
Steam and air conditioning supply	4.1	3.4	4.3	5.0	3.9	4.2	4.2	4.2	4.2
EE	6.7	5.9	4.3	3.4	2.6	1.8	3.3	3.9	3.7

Notes: own elaboration on Balance Sheet data.

Table IV.14 ROCE

Sector	2007	2008	Unconditional average					Conditional average	
			2009	2010	2011	2012	2013	2007-2012	2007-2012
Repair and installation of machinery and equipment	32.0	28.4	18.8	16.2	20.9	14.9	14.9	21.5	21.0
Construction of buildings	29.8	24.0	16.9	13.0	12.1	8.5	15.2	16.9	16.0
Specialised construction activities	32.5	29.8	20.8	17.6	15.9	13.2	18.8	21.1	21.1
Steam and air conditioning supply	7.7	4.7	5.7	8.9	7.9	5.6	3.4	6.8	
EE	30.84	26.5	18.6	15.2	13.9	10.7	16.7	18.8	18.5

Notes: own elaboration on Balance Sheet data.

Table IV.15 EBITDA margin

Sector	2007	2008	Unconditional average					Conditional average	
			2009	2010	2011	2012	2013	2007-2012	2007-2012
Repair and installation of machinery and equipment	10.3	10.4	8.4	8.5	8.3	7.3	8.3	8.8	9.3
Construction of buildings	9.5	8.4	7.1	6.2	5.1	4.2	5.7	6.6	6.4
Specialised construction activities	8.8	8.4	7.1	6.2	5.6	4.9	6.3	6.7	6.6
Steam and air conditioning supply	12.3	11.3	12.0	12.4	11.9	12.1	12.5	12.0	12.4
EE	9.2	8.4	7.2	6.3	5.4	4.6	6.2	6.7	6.6

Notes: own elaboration on Balance Sheet data

Annex V. EU normative framework for Telecom

Framework Directive – (2002/21/EC)

The Framework Directive is the basis of the regulatory framework. Its main objective is the creation of a harmonized framework for the regulation of electronic communications services and communications networks (Art. 1; Holznagel et al. 2008, p. 228). It provides the general principles, the scope, and central definitions of the framework and sets the major obligations and tasks of the NRAs, including the cooperation with the Commission and BEREC (EUR-Lex 2010a). According to the Framework Directive, market analysis is seen as the key tool for the determination of the scope and scale of the sector-specific ex-ante regulation (Art. 14-16; Holznagel et al. 2008, p. 228).

Authorization Directive – (2002/20/EC)

The intention behind the Authorization Directive is the creation of a harmonized market for electronic communications services and networks, based on a simplification of authorization rules for public and non-public electronic communication networks and by limiting the regulatory process to the minimum (Art. 1; EUR-Lex 2010b). As a consequence, general authorizations are favored over individual authorizations (Holznagel et al. 2008, p. 229).

Access Directive – (2002/19/EC)

This directive aims at harmonizing the regulation processes regarding the access to, and the interconnection of electronic communication services and networks (Wernick 2007, p. 25; EUR-Lex 2010c). It establishes the framework for regulating the relations between network operators and telecommunications service providers, including their obligations and rights. Again, a sustainable competition, the interoperability of electronic communications services, and the interests of consumers have to be ensured. In addition, the Access Directive also regulates the methodology of market analysis and the identification of operators with significant market power (SMPs). This analysis is the starting point for the imposition of obligations on operators with SMP in accordance with Art. 9-13a (Picot/Wernick 2005, p. 224; Holznagel et al. 2008, p. 228). The commitments include, inter alia, the obligation of transparency (Art. 9), the obligation of non-discrimination (Art. 10), the obligation of accounting separation (Art. 11), the obligation of mandatory access to networks and services (Art. 12), and the obligation of price control and cost accounting (Art. 13).

Competition Directive – (2002/77/EC)

The main objective of the Competition Directive is the elimination of remaining exclusive rights within the telecommunications sector and the replacement of old liberalization directives (Holznagel et al. 2008, p. 229). Under this directive, neither exclusive, nor special rights in connection with the construction or provision of electronic communications networks and in the provision of certain electronic communications services may be granted (Kleist/Lamprecht-Weißenborn 2007, p. 14). The central regulations of this directive refer to, inter alia, the adaptation of definitions in the guidelines on the latest technological developments (Art. 1), the prohibition of granting exclusive and special rights for electronic communications networks and services (Art. 2), and to a non-discrimination regarding vertically integrated public companies (Art. 3) (Holznagel et al. 2008, p. 229).

Universal Service Directive – (2002/22/EC)

According to this directive, Universal Service is defined as “minimum set of services of specified quality to which all end-users have access, at an affordable price in the light of specific national conditions, without distorting competition” (Art. 3). Here, EU member states must ensure that all users in their territory have access to such services at a specified quality level, offered at an affordable price – regardless of the geographical conditions or position (EUR-Lex 2010d; Kleist/Lamprecht-Weißenborn 2007, p. 12; Holznagel et al. 2008, p. 229). The “provision of access at a fixed location and provision of telephone services” represents one typical example for Universal Service (Art. 4). In contrast, mobile communications has not fulfilled the conditions to be regarded as Universal Service. The reason behind this assessment refers to the fact that in recent years, the access to this type of service has become more and more affordable as a consequence of the relatively high degree of competition. In a similar manner, also broadband Internet access is not acknowledged as Universal Service because of an inherent vivid competition between parallel existing infrastructures (COM 2008; EUR-Lex 2010d).

Directive on Privacy and Electronic Communications – (2002/58/EC)

The rules provisioned in this directive aim at protecting the privacy rights of users and, at the same time, contain provisions for safeguarding the free movement of personal data in the electronic communications sector (Art. 1; Holznagel et al. 2008, p. 229). Among others, the directive provides regulations regarding the unsolicited forwarding of messages (i.e. “spamming”), the applications of “cookies” and the “opt-in” principle. The latter means that users of electronic communications services must have agreed before such messages are addressed to them (Kleist/Lamprecht-Weißenborn 2007, p. 12; EUR-Lex 2010e).

The Body of European Regulators for Electronic Communications (BEREC) – (Regulation (EC) No. 1211/2009)

The main objective of BEREC, that can be regarded as the successor organization of the European Regulators Group “(...) is to enhance cooperation among national regulatory authorities (NRAs) and to strengthen the internal market in electronic communications networks” (EUR-Lex 2010f). BEREC aims at developing and disseminating among NRAs regulatory best practice (e.g. common approaches, methodologies or guidelines on the implementation of the EU regulatory framework); assisting the NRAs in regulation; delivering opinions on draft decisions, recommendations, and guidelines; providing advice, and deliver opinions on any matter regarding the electronic communications sector; assisting the European Parliament, the Council and the Commission as well as NRAs in the dissemination of best practices to third parties (Art. 2; see also BNetzA 2014).

Citizens' Rights Directive – (2009/136/EC) & Better Law-Making Directive– (2009/140/EC)

The directive 2009/140/EC was adopted in order to achieve a higher level of efficiency in the frequency management, to make the regulation process easier and more efficient, and to ensure a uniform application of the legal provisions across all EU member states (Kühling et al. 2014, p. 17). On the other side, the provisions in the

directive 2009/136/EC aim at strengthening the consumer protection and user rights. At the same time, privacy and personal data should also be protected. (Kühling et al. 2014, p. 18).

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doi:10.2776/09277