Evaluation of results and impact of EU funded investments in the field of education and science during the programming period 2004-2006

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SUMMARY

The purpose of the ex-post evaluation was to study the impact of EU Structural funds' (further EU SF) intervences in education and science area and to provide sound recommendations on further EU Structural funds allocation to education and science&innovation development.

To fulfill the objective there were 34 education and research related EU SF activities selected in cooperation with the Ministry of Finance of the Republic of Latvia.

The assessment was based on the methodology covering effectiveness of EU SF investments within the 2004-2006 EU SF planning period and impact on national development objectives. A logic model of the assessment was developed to follow up the impact of EU SF investments on national development objectives and assessment questions. The logic model includes education and research related EU SF activities, their linkages with assessment questions and Latvia's education and research policy. Based on the analysis of the linkages a set of assessment hypothesises were defined. Fulfilment of the hypothesises was varified through analysis of EU SF output and outcome indicators, statistical analysis, surveys, expert panels, by-laws analysis, counterfactual analysis and analysis of financial data (national budget and EU SF).

The evaluation report includes six chapters and appendixes.

1.	**Evaluation approach and methodology**	Chapter 1 provides evaluation steps, explains consultants' approach and briefly tells major methodological issues faced during the evaluation (full methodology is provided in the appendixes).
2.	**Education and science developments trends in Latvia in 2004 - 2009**	Chaper 2 provides a brief insight in education and innovation politics implementation issues in 2004 – 2009, significant achievements and impact of external factors.
3.	**Evaluation of EU SF impact on education and science development**	Chapter 3 includes the evaluation results in terms of relevance, effectiveness, efficiency, utility and sustainability.
4.	**Practice of EU memberstates implementing EU SF intervences in education and science**	Chaper 4 analyzes practice of Estonia, Lithuania, Ireland (BMW and S&E regions) and Portugal (Algarve and Norte regions) implementing Objective 1 programme in education and science area, demonstrates best practices planning and implementing EU SF intervences, briefly summarizes the trends of major sector indicators. NUTS2 regions were selected based on the number of inhabitants, density, territory square, education and research characteristics.
5.	**Conclusions**	Chapter 5 outlines the conclusions about the impact of EU SF intervences in education and science within 2004-2006 planning period.
6.	**Recommendations**	Chapter 6 extracts consultants' recommendations on improvements needed when planning further intervences for the comming planning period. All the recommendations are related to EU SF management. Recommendations on education and science sector development are presented at the end of respective chapters.

After assessing EU SF investments in education and research sector in Latvia the major conclusion has been drawn that this EU SF support was vitally important. National funding of

education and research sector's development was moderate comparing it with EU SF investments. Thus, EU SF investment stimulated the sector to develop in difficult economical years.

EU SF investment in general education was oriented on educational system informatization, education quality improvement in nature sciences, mathematics and technology subjects, professional orientation system implementation, carrying out pedagogical correction programmes and social inclusion of youth with special needs.

Investing EU SF in informatization of general education did not result in significant changes. Mostly countryside schools benefited, having got the Internet connection and having increased the number of computers.

In the context of general education the most significant EU SF support in 2004-2006 planning period was provided to education quality improvement in nature sciences and technology subjects (54%, 8,026,741 lat). The intervence promotes knowledge-based economy development in a long-term perspective. Training of teachers in related subjects has allowed to provide continuous education opportunities to 20% of all Latvian teachers. Development of learning content and teachers' training in all Latvian regions has resulted less differences in education availability and notably improved the quality of education further delivered to pupils. Pupils of the schools which participated in the intervence has demontrated 11% better results in centralized exams in nature un engineering sciences subjects, thus evidencing education quality improvement in the subjects.

Implementation of educational programmes in places of confinement has promoted education availability and 43% more active participation in education among confined persons. Analyzing inclusion dynamics of young people with special needs into the general education system, a conclusion arrises that the results of implemented EU SF activities have not improved inclusion process so far. Comparing inclusion indicators in 2003 and 2010 those remained at the same level (15%-16%).

Planning intervences for the next EU SF planning period, the objectives of the intervences should be logically linked to recent national education system political objectives. Interlinkage of the objectives should be defined for all EU SF intervences, applying, for example, the concept mapping approach and validating the intervence planning logics. Measurable indicators should be defined for general education politics objectives in order to plan EU SF intervence impact on the national politics and, furthermore, to assess the effect of implementation of the politics. ICT will promote education quality improvement when ICT means are available generously in schools, so that schools are able to organize educational process applying ICT. There are no baselines and/or desired ICT level defined, as well as no requirements and/or recommendations on ICT use when teaching any subject.

General education was funded by 14.8 Mio lats within 2004-2006 EU SF planning period. Each EU SF lat which was invested in the development of general education system has produced the return of 2.75 lats. The impact of EU SF intervences in general education on Latvian GDP has comprised 22.8 Mio lats, taking into consideration only intervence directly affected pupils.

In terms of vocational education, more than a half of EU SF support turned to educational programme and quality improvement intervences. 27% of the funding addressed schools' premises and training equipment modernization activities. Other 19% supported internship, professional orientation activities and social inclusion of young people into Latvian vocational education system.

Investment in the modernization of vocational institutions has resulted in aditional 31% education programmes which meet market requirements. Through adapting infrastructure to the needs of persons with functional problems, the number of such persons gaining education in vocational institutions has increased by 50%. Although the total number of

students in vocational education has been falling, the number of students in schools, where the premises and training equipment were modernized, has not descreased almost.

Assessing intervences of educational programme improvement, it was concluded that 7% of developed educational programmes are not beeing taught. So the effect of the intervence is weaker than it was expected when planning the outcomes. The planned outputs has been gained, i.e. the number of successful programme leavers has been reached within one course. However, this indicator will not be reached in future, so evidencing lack of sustainability.

The intervence providing subsidized internships has not promoted growth of youth employment – unemployment rate has grown twice. Planned outputs „number of students in vocational and higher education institutions who undertook an internship" has been completed by 21% (completion 4,560, plan 22,000). These results indicate lacking planning approach.

EU SF investment in improvement of vocational education programmes in places of confinement has increased the number of people participating in vocational education processes. In 2006 seven places of confinement started up 9 vocational education programmes, including 232 confined persons. In 2007/2008 school year 475 confined persons engaged in education programmes, 354 persons finished the process and 272 of them received vocational education documents.

Most of EU SF intervences' results are sustainable. In 2004-2006 planning period the first steps in the development of vocational education in Latvia were undertaken. In 2007-2013 planning period the vocational education system is being optimized and aligned with Latvian labour market requirements. In the upcomming ES SF planning period vocational education exporting opportunities as well as opportunities to prepare specialists corresponding European labour market requirements should be assessed. It is important to promote cooperation between business companies and educational institutions, because namely business sector defines the demand on qualified labour.

EU SF supported higher education in four aspects. 40% turned to research potential growth, i.e. grants for doctorate study and post-doctorate research. Almost 10 Mio lats were addressed to improve education programmes in universities according to labour market requirements. 5.8 Mio lats (20% of total EU SF support to higher education) supported modernization of training facilities. 5% of EU SF investment in higher education provided internship opportunities for students.

The return on investments in training infrastructure development in higher education can be evaluated in further perspective and its recent effect can not be measured objectively. Assessing infrastructure improving intervences, it is concluded that utility of such intervences and impact on education quality is difficault to evaluate. Higher education infrastructure had been out of date. Its renovation was necessary to continue daily routine, not to promote development.

Doctorate study support has had a positive effect. The results of intervence are notable – number of doctoral students keeps growing every year, whereas the number of doctorate study graduates grew more than twice in 2003-2009. Analyzing participance of doctoral students in further research activities, it is concluded that total number of research personnel in Latvia has grown by 29%. Sectoral breakdown demonstrates increase in number of research personnel in public sector by 42%, private sector increased research personnel only by 0.07%. Although the above mentioned indicators were reached, the number of doctors remains insufficient comparing it to other EU memberstates and the average level within EU countries.

Although there were significant investments improving study programmes in nature and technology covering sciences, the number of students in these sciences has not changed

essentially. Also, modernized programmes has not promoted competitive ability of Latvian higher education in the international market – the number of foreign students has not risen. However, the support to technology and engineering related studies was strategically correct and it correnspond with recent labour market forecasts of the Ministry of Economics. Analyzing the effectiveness of EU SF investment in provided internships for students, the conclusion arrises that youth employment indicators have not improved visibly.

To assess further investments in higher education, a systematic approach where all intervences correnspond and follow not only EU priorities but also Latvian state development objectives. So, EU SF support can promote faster achievement of national objectives. Funding improvement of specific study fields, it is important to define quality criteria to assess the programmes. It would assist in assessing the quality change before and after the intervence has been implemented. Further planning of study programme funding should be conducted in the context of future employment forecasts. In general, planning further investment in higher education requires pre-assessment of its sustainability, possibility to provide it diversifying funding among industries, defining priorities for the industries and, nevertheless, continuing funding of other industries, so the do not remain undeveloped.

Assessment of EU SF investment in life-long learning has resulted in conclusion that EU funding supported life-long learning strategy development, which had not been done before. The funding has promoted participance of people in life-long learning activities and approaching EU average indicator at the level of 8%. However, discontinuing funding of life-long learning in 2009 the participance indicator fell down till the critical level. EU SF implemented activities in life-long learning for employed and unemployed persons allowed to increase their competitive strength in the labour market, also in the period of economic decline. Almost 60% of the trained unemployed persons have been able to include in the labour market after the EU SF funded training. Evaluating the internship providing acvtivities, the results have been not that successful. Due to complicated and time consuming application and administration process (according to companies' assessment), the activity of companies was very low. That is why, the initially planned objectives to improve employment level have not been reached, because the internship opportunities were provided to a small group of people.

Life-long learning received 47.6 Mio lats from EU SF. The investment resulted in the return of 5.4 lats from each invested lat. EU SF intervences have raised the competitive performance of Latvian inhabitants – their added value comprises 163 Mio lats of Latvian GDP. Anually it makes 0.4% of Latvian GDP in actual prices. Such results mean that EU SF investment in life-long learning has been effective for Latvian national economy.

Future life-long learning activities should be assessed carefully and planned based on national development objectives. It is important to follow the forecasts about qualified labour needs and organize project applications in accordance with these priorities.

The analysis of EU SF investment in research field has shown that the smallest part of EU SF funds were turned to development of innovative products (7% or 3,140,702 lats). Research infrastructure (both in private and public sector) gained comparatively insignificant funding, although it comprised 65% (30,916,685 lats) of total EU SF research funding. Remaining 13,567,269 lats supported applied research activities. 2/3 of the funding took social research activities. Research activity has a great impact on state development in long-term perspective. The most significant role here plays funding continuity. Provided funding has been miserable in the context of needs an comparing it with EU memberstates. Also state budget funding for research activities is the lowest among EU countries.

The investments in know-hows and prototyping in private sector in 2004-2008 grew up by 6.7 Mio lats. The number of applied and received patents increased significanty, although it still remains the lowest among EU countries. Information of European Patent Office evidences that in 2009 there were 49 patent applications from Latvia. The biggest part, 39 patent applications, refer to organic chemistry. Research activities provided for SMEs' needs in terms of applied science have not influenced research field. 283 implemented projects were oriented on market research and development of technical projects for construction purposes. Activities for acquiring and securing production licenses and patents were not addressed (no applications submitted). During last years the number of scientific publications grew up. Also, the number of young doctors in nature and engineering sciences has increased by 57%.

Planning further activities in research field, it is important to forecast the number of required research personnel and the period. It is vital to assess what opportunities can be provided in public and private sectors to employ researchers in further 10-15 years. Doctorate students and young doctors are to have an opportunity and conditions to continue research activity within universities and research institutions. Also, the opportunities for cooperation of researchers and businesses in terms of development of innovative products and further comercialization should be assessed.

EU SF investment in all education fields has been effective. Activities has demonstrated the following considerably high cost-efficiency analysis results:

	Investment	**Benefits/Costs**	**Net Present Value**
General education	14,804,217	2.75	22,834,086
Vocational education	10,699,474	3.79	24,234,026
Higher education	28,502,169	2.69	45,735,921
Life-long learning	47,624,656	5.41	163,016,130

Each EU SF invested lat has resulted in average return of 3.66 lats. Significant net present value of EU SF generated benefits demonstrates added value of 255.8 Mio lats to Latvian GDP.