

Lot 2- Impact evaluation of interventions  
ROP 2007-2013

KAI 3.4: “Rehabilitation, modernization, development and equipping of pre-university, university education and continuous vocational training infrastructure”

Final Report

JUNE 2019

**CIVITTA**



Authors

Position

Liliana LUCACIU

*Coordinator*

Monica ROMAN

*Evaluation expert*

Ștefana BUHĂESCU-CIUCĂ

*Evaluation expert*

Alina BOȘOI

*Evaluation expert*

Șerban TOTOESCU

*Evaluation expert*

Elena BOTEZATU

*Evaluation expert*

Contact person (from the Association):

**Alina David**

Project Director



## Contents

<b>1. EXECUTIVE SUMMARY .....</b>	<b>7</b>
<b>2. IMPLEMENTATION OF KAI 3.4 .....</b>	<b>12</b>
<b>3. STAGES OF THE STUDY .....</b>	<b>13</b>
3.1. Description of the methodology .....	13
3.2. Specialty literature .....	19
3.3. Quantitative and qualitative data collection .....	24
3.4. Methodological limitations and their solution .....	26
<b>4. ANALYSIS AND INTERPRETATION.....</b>	<b>27</b>
4.1. EI 1. What is the net effect of the intervention funds, taking into account the factors that caused this effect? .....	27
Evaluation hypothesis 1: Interventions through KAI 3.4 on schools improve students' study conditions .....	27
Evaluation hypothesis 2: Interventions through KAI 3.4 on school infrastructure lead to improved access to and participation in education. ....	32
Evaluation hypothesis 3: Interventions through KAI 3.4 dedicated to school endowment have a positive impact on the quality of education, in terms of the attractiveness of learning activities and student performance.....	34
Evaluation hypothesis 5: Interventions through KAI 3.4 on pre-university and university campuses contribute to improving access to education. ....	41
Evaluation hypothesis 6: Interventions through KAI 3.4 on pre-university campuses have effects on the correlation of the educational offer with the demands of the labour market	45
Evaluation hypothesis 7. Interventions through KAI 3.4 in the CPT Centers contribute to the increase of the qualification level among the target group. ....	47
4.2. EI 2. What type of intervention produces results, for whom, and under in what conditions?.....	50
Evaluation hypothesis 8. There are differences between the impact of investments between certain types of interventions .....	50
Evaluation hypothesis 9. There are differences between the impact of investments between certain types of beneficiary educational institutions .....	55
<b>5. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED .....</b>	<b>58</b>
Lessons learned .....	61

## ABBREVIATIONS LIST

ABBREVIATION	EXPLANATION
CA	Contracting Authority
RDA	Regional Development Agency
MA	Management Authority
NASOR	National Alliance of Student Organizations in Romania
RAQAPE	Romanian Agency for Quality Assurance in Pre-academic Education
RAQAHE	Romanian Agency for Quality Assurance in Higher Education
PEO	Permanent Evaluation Office
ECC	Evaluation Coordination Committee
RDC	Regional Development Councils
SDC	School Decided Curriculum
SEN	Special Educational Needs
CVTE	Campus for Vocational and Technical Education
MC	Monitoring Committee
NCTVETD	National Centre for Technical and Vocational Education and Training Development
PSC	Propensity score correlation
DD	Difference in Difference
KAI	Key Area of Intervention
CIE	Counterfactual impact evaluation
CPT	Continuing Professional Training
NIS	National Institute of Statistics
ISE	Institute of Educational Sciences
CSI	County School Inspectorate
MRDPA	Ministry of Regional Development and Public Administration
MNE	Ministry of National Education
MEF	Ministry of European funds
IB	Intermediate Body

ABBREVIATION	EXPLANATION
NGO	Non-Governmental Organization
TO	Technical Offer
OP	Operational Programme
ROP	Regional Operational Programme
SOPHRD	Sectoral Operational Program Human Resources Development
IISER	Integrated Information System of Education in Romania
ATU	Administrative-Territorial Unit
EU	European Union
EUFERDI	Executive Unit for the financing of higher education, research, development and innovation

This document is carried out as part of the assistance services provided to the Ministry of Regional Development and Public Administration (MDRAP) by the Association between S.C. Civitta Strategy & Consulting S.A. (LEADER)/S.C. Archidata S.R.L./S.C. NTSN Conect S.R.L./S.C. Development Advisory Group DCG S.R.L.) (hereinafter referred to as "the association"), with a view to assessing the impact of interventions supported by the Regional Operational Programme (POR) 2007-2013, major intervention areas (KAI) 1.1, 3.1, 3.2, 3.4, 4.3 and 5.1.<sup>12</sup>

The document is the Final report (RF) of the impact assessment of the *KAI 3.4: "Rehabilitation, modernization, development and equipping of pre-university, university education and continuous vocational training infrastructure"* and constitutes the second deliverable in the contract, related to the evaluation of interventions in this field.

---

<sup>1</sup> Service Contract No. 12 of 14.01.2019

<sup>2</sup> DMI 1.1- Integrated urban development plans, DMI 3.1- Rehabilitation/modernization/equipping of health services infrastructure, DMI 3.2- Rehabilitation/modernisation/development and equipping of social services infrastructure, DMI 3.4- Rehabilitation, modernization, development and equipping of pre-university, university education and continuous vocational training infrastructure, DMI 4.3 - Supporting the development of micro-enterprises, DMI 5.1- Restoring and sustainable exploitation of cultural heritage, as well as creating/ modernisation of related infrastructures

## 1. EXECUTIVE SUMMARY

501 projects with a total value of more than 2.8 billion RON were implemented through the Regional Operational Programme (ROP) 2007-2013 with the support of the European Regional Development Fund (ERDF) for "improving the quality of the compulsory education infrastructure, continuing vocational training centres and university campus infrastructure". The projects were funded under the Key Area of Intervention (KAI) 3.4 " Rehabilitation, modernization, development and equipping of pre-university, university education and continuous vocational training infrastructure ".

The purpose of this evaluation is to assess and provide details about the impact of the interventions financed through this KAI of ROP 2007-2013, dedicated to ensure the necessary conditions for education and training at European standards as well as increasing access to and participation in the educational process, as the program document indicates as an objective.

The evaluation was designed to provide answers to the following evaluation questions:

1. What was the net effect of the intervention and what were the factors that influenced the results?
2. What interventions have produced results, for whom, and under what conditions?

The responses were adapted to the KAI specificity, since it was a very complex area with three types of operations and several categories of beneficiaries:

1. Rehabilitation / modernization / equipping of the pre-university and university educational infrastructure (Beneficiaries: territorial administrative units (TAU) for pre-university education, respectively state higher education institutions);
2. Creation and development of pre-university campuses (Beneficiaries: TAU);
3. Rehabilitation / upgrading / equipping Continuing Vocational Training Centres (CVET) (Beneficiaries: Public Institutions providing CVET services).

KAI 3.4 consisted of successful interventions according to the number of submitted projects (1096), reflecting the size of the need for funding for this area in all development regions. The regional distribution of funding is not perfectly correlated with the demand (number of applications) or the number of education units, reflecting rather the capacity to write eligible projects and implement them.

The evaluation used a combination of quantitative methods, including counterfactual impact evaluation, and qualitative methods, adapted to the specificity of each operation and type of intervention and beneficiaries. Both counterfactual and qualitative evaluation methods show that the program had a net positive impact on study conditions in beneficiary schools. The counterfactual analysis indicates for the funded schools, compared to the non-financed school control group, more classrooms (by 2.2) and toilets (by 0.8), all representing elements of the basic infrastructure. Also, from the global perspective of the school's infrastructure there is a positive net impact, so that the schools funded have 17% more buildings totally or partially rehabilitated compared to unfinanced buildings.

A positive net effect is confirmed by the counterfactual analysis in terms of the number of IT laboratories, specialized laboratories, and specialized offices, respectively an increased level of energy efficiency of buildings. Thus, the beneficiary schools have an average of 0.68 more IT laboratories, 0.2 more specialized laboratories and 1 more specialized office than the schools that were not funded.

Investments have generated a high degree of satisfaction among final beneficiaries (students, teachers, parents) and a sense of pride, through a difference in comfort compared to the

situation prior to the investment, the improved appearance and appreciation of the partners. Approximately 8% of the country's education units benefited from infrastructure projects through KAI 3.4 and approximately 223 000 students study in these units with access to improved learning conditions. Although the quantitative analysis cannot support a net impact of funding on target groups' access to education and improving school performance, research has provided evidence of positive effects in some cases where infrastructure is included in a long-term performance-based approach. Activities with students, parents and the community, which could not have been implemented without modernized infrastructure, aimed at improving participation and school performance, are complementary to infrastructure investment and essential for producing the expected impacts. The expansion and modernization of some schools responded, in some cases, to the needs arising from building new neighbourhoods or reducing the clutter of attractive schools for pupils in the locality and surroundings.

Investments in pre-university campuses have addressed a wide range of needs, from teaching, accommodation and lunch, sports and leisure or extra-curricular activities. Some projects are impressive in funding size, but also proven by the statements collected during the research. These statements illustrate the visibility and positive way in which the results of investment in pre-university campuses are perceived.

Investments in pre-university and university campuses have helped to improve accommodation and study conditions, particularly regarding heating, cleanliness, security services and study facilities. Although some projects are characterized by better conditions of accommodation and study, the problem of agglomeration in the rooms remains to be resolved, taking into consideration the large number of pupils / students per room and reduced space per pupil or student, the high number of pupils / students per sanitary group, expanding access to food preparation facilities and modernizing the furniture.

Rehabilitated students' dorms have improved access by reducing the need for shuttle and offering the possibility of accommodation at affordable prices, an important feature especially for university centres, where rent prices as an alternative to accommodation are very high, inaccessible for students coming from of low-income families.

The effects of the investments were spread in the community mainly through the access of students from other schools to campus facilities, laboratories and sports grounds, through extracurricular activities involving parents and the community in general. More than 40 heritage buildings hosting the beneficiary schools have been renovated, with evidence of increased attractiveness of the school and even of the locality. Modernizing schools has created interest in investment projects and accessing European funds among schools that have not benefited from ROP funding, being a source of inspiration and action.

The CVET funding operation did not reach its objectives, having a low interest rate, with only six funding applications and a single funded project, compared to a targeted program of 35 supported training centres. The impact was limited to the area of influence of the funded project and the investment was essential for the centre to continue to train the workforce to the quality requirements of its business partners. Continuing vocational training has been affected by the decline in demand from the active population and employers, in terms of high labour mobility and a rigid regulatory framework for training, which is inadequate to the requirements of the business environment. A very good integration of the training provider into the business environment and previous experience are factors conducive to the continued use of investment results to help increase the skill level of the workforce.

From the perspective of the contribution to the improvement of the school performance are distinguished projects that have been oriented towards performance through the project concept aiming not only to eliminate the physical depreciation and to ensure the functionality corresponding to the authorization requirements, but also to create innovative learning teaching environment, including also architectural elements to modern schools.



The impact is also influenced by the quality of the infrastructure created or rehabilitated, by the complementarity with other actions funded either from own resources or through EU-funded projects supporting the modernization of educational processes using the potential of the created infrastructure.

The main differentiation of the impact is given by the residence environment of the beneficiary school and is reflected in differentiated impacts on the share of rehabilitated buildings and utilities. These differences confirm the specific needs of each residence environment. Significant differentiation between the two residence environments remains among school-funded pupils' participation in extracurricular activities and the use of specialize laboratories.

The evaluation leads to ten conclusions and recommendations presented below and detailed in Chapter 5.

Conclusion 1. The ROP 2007-2013 through the KAI 3.4 has achieved its objective of contributing to "improving the quality of infrastructure in compulsory education" through the 501 funded investment projects. The investments addressed priority issues of basic education infrastructure that persist in the education system, but there was no prioritization of investments guided by a strategic approach at national level.

Recommendation 1. Continue financing of investment in educational infrastructure in a strategic approach of prioritizing investment at national level.

Conclusion 2. More than 220,000 students learn in the schools that have benefited from the funded investments, having the opportunity to enjoy a comfortable and stimulating learning environment. However, the effects on participation and performance require a longer time and certain conditions to produce.

Recommendation 2. Infrastructure development projects should be better targeted to performance-related effects in addition to improved study conditions.

Conclusion 3. The complementarity of the ROP investments in the educational infrastructure with projects financed through SOP HRD 2007-2013 was difficult to achieve at the level of the beneficiary schools.

Recommendation 3. We recommend the development of a financing mechanism within the same project of both infrastructure investments and soft actions, which will create a stronger link between the intervention and the expected impacts relevant to the education sector such as access, participation and school performance.

Conclusion 4. The quality of project concepts and technical documentation influences how the use of infrastructure can lead to long-term effects.

Recommendation 4. It is recommended that the MA, in cooperation with MNE, prepare and make available guidance for the Authorities, Beneficiary Schools and Designers, Guidelines for designing modern learning environments beyond the minimum requirements for authorization.

Conclusion 5. Investing in university campuses has helped improve access to education by offering students the opportunity to benefit from good quality and affordable accommodation, but the agglomeration remains high and the need for funding persists.

Recommendation 5. The financing of future investments should aim both to increase the number of accommodation places, but also to provide optimal conditions regarding the surface and number of students per room.

Conclusion 6. The financing regulatory framework for the workforce and the providers of continuing vocational training is an essential condition for producing the results and impacts of infrastructure investments. KAI 3.4 did not have a significant impact on training centres due to

the financing of a single project, limited to a specific territory in the area of influence of the project.

**Recommendation 6.** The CVET infrastructure schemes need to be adapted to their institutional profile in order to facilitate easier access to finance. The regulatory framework must be tailored to the needs of the workforce and the providers that can stimulate the demand for good quality continuing training services and it must be ensured as a pre-condition for the launch of funding.

**Conclusion 7.** The ROP interventions have a high level of sustainability, but it remains a difficult task for the TAUs and the beneficiary education units to provide the financial, technical and human resources for the maintenance and good use of the created infrastructure.

**Recommendation 7.** The requirements for the quality of technical and economic documentation on the operation of infrastructures must be maintained at a high level to ensure the necessary resources. In parallel with this, it is recommended to initiate a dialogue with the MNE on solutions for adequate financing of ROP-funded infrastructures. Infrastructure investment in line with a national strategic approach to upgrading the education infrastructure will ensure sustainability in terms of real long-term real demand.

**Conclusion 8.** Differences in the impact of investment in rural vs. urban areas show that they have responded to their different needs. A difference is found in the use of infrastructure, namely in urban areas, where a significantly higher number of pupils are involved in extra-curricular activities, and several more hours take place in specialized laboratories and cabinets compared to rural schools.

**Recommendation 8.** Rural schools should be supported both in designing projects that include, besides basic infrastructure investments, facilities for a modern learning environment, as well as by implementing complementary measures for piloting new teaching methods, including the extension extracurricular activities.

**Conclusion 9.** The limited capacity of schools to design infrastructure investment projects is complemented by the TAU capacity, which has acquired a rich experience in the implementation of ROP-funded projects.

**Recommendation 9.** It is recommended to promote as examples of good practice successful experiences on the TAU collaboration with the educational units for the modernization of the educational infrastructure.

**Conclusion 10.** The data required for quantitative evaluations, especially those at the beneficiary level, are partly accessible from the SIIR database of MNE, which requires their collection directly from the educational units. The data format of final progress and sustainability reports is inappropriate for quantitative processing, requiring manual processing. These processes are time-consuming and resource-intensive, generating a burden on educational units and unjustified consumption of resources on the part of all stakeholders.

**Recommendation 10.** Establishing a cooperation protocol between MA ROP and MNE for the timely preparation of data necessary for impact assessment and avoidance of data collection directly from the beneficiaries of the educational units after a significant number of years from the implementation of the projects. Including in the final project implementation reports and in the sustainability reports several indicators that cannot be gathered from administrative data. Synthesis of achievements and results from beneficiaries' reports in quantifiable formats, including a deviation signalling system against targets. Data preparation for the impact assessment of the next programming periods should be made as early as possible, already using the data collection experience of this evaluation.

Among the many lessons learned from the ROP 2007-2013 implementation, we synthesize three lessons from the findings and conclusions already presented and relevant to the impact of the intervention:

1. The Impact Evaluation has demonstrated that funding through different programmes the modernization of the educational infrastructure, the development of human capital and research and innovation, failed to produce the expected complementarities at the beneficiaries' level.
2. The strategic vision and technical quality are factors influencing the impact and are found in the implementation of the programme and projects in many aspects.
3. Investment in educational infrastructure cannot produce the expected impacts in the context of isolation from policies in the field of education and continuing professional training. Consistency with educational and training policies provides a favorable and stable framework for capitalizing the infrastructure, as well as the cooperation of all stakeholders (TAUs, School inspectorates, MNE, MA and RIOs) in order to extend the concern about the effectiveness and impact of investment in education infrastructure.

## 2. IMPLEMENTATION OF KAI 3.4

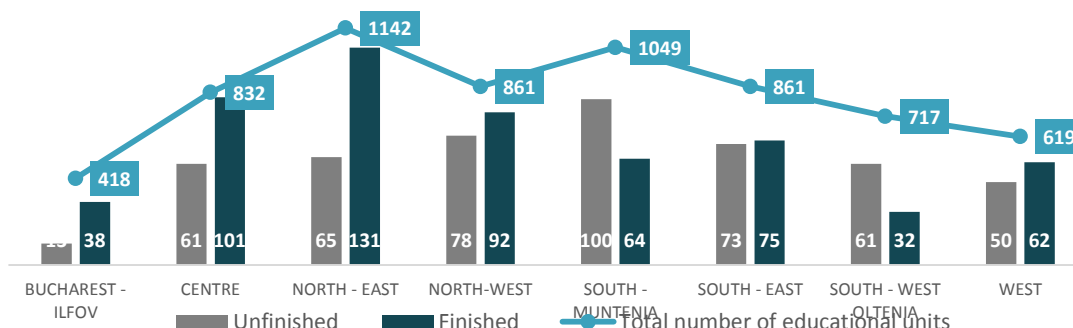
The key area of intervention (KAI) 3.4 is part of the Priority Axis (PA) 3 “Improvement of the social infrastructure” of the Operational Programme (ROP) 2007-2013 and has as objective according to the programme document<sup>3</sup> “improving the quality of the infrastructure in compulsory education, of the centers of continuing professional training and the infrastructure of university campuses”, through investments in rehabilitation, expansion, modernization and endowment, ensuring the necessary conditions for education and training to European standards, as well as increasing the access and participation in the educational process.

To achieve this objective, three types of operations were financed: (i) Rehabilitation/modernization/equipping of the pre-university and university educational infrastructure (Beneficiaries: administrative- territorial units (ATUs) for pre-university education, and state higher education institutions, respectively); (ii) Creation and development of pre-university campuses (Beneficiaries: ATU’s); (iii) Rehabilitation/modernization/equipping of Continuing Professional Training Centers (CPT) (Beneficiaries: Public Institutions providing CPT services).

The projects were selected for funding through *two calls*: the first launched in 2009 and the second in 2013, financed through funds reallocated from other operational programmes and aimed at investments in educational infrastructure started with funding from other sources of funding, but not finalized. The selection of the projects was made in the order of submission of the applications, subject to meeting a set of criteria related to compliance, eligibility and technical-economic ones.

This KAI has a very high demand, with 1096 projects submitted for funding. Over 2.8 billion lei was the total eligible value of the 501 projects implemented and finalized in the 8 development regions, the rest of 595, which we will refer to as “unfunded/unfinished projects”, were either rejected in the selection phase or remained in reserve after the allocation was exhausted, or were terminated during implementation.

FIGURE 1. TERRITORIAL DISTRIBUTION OF PROJECTS UNDER KAI 3.4



<sup>3</sup> [http://old.fonduri-ue.ro/res/filepicker\\_users/cd25a597fd-62/Doc\\_prog/prog\\_op/1\\_POR/POR.pdf](http://old.fonduri-ue.ro/res/filepicker_users/cd25a597fd-62/Doc_prog/prog_op/1_POR/POR.pdf), page 134

Source of data: MA ROP - SMIS processed by authors

The territorial distribution of the projects shows that most projects were implemented in the South-Muntenia Region, and the fewest in the Bucharest-Ilfov Region (which also has the fewest educational institutions). The North-East region, where the most educational institutions are found, is only on the 4th place as regards the number of completed projects, the third as regards their total value (RON 481,198,577) and the second as regards the average value (RON 7,888,501). The Bucharest-Ilfov region had the smallest total funding (of RON 155,868,726), but had the highest average value of the projects (RON 11,989,902). Thus, it is found that the distribution of funding does not correlate with the demand (the number of applications) or the number of educational institutions.

### 3. STAGES OF THE STUDY

#### 3.1. DESCRIPTION OF THE METHODOLOGY

The answers to the two evaluation questions are based on verifying the validity of the hypotheses formulated in the initial phase of conceptualization of the evaluation, based on the change theory of the KAI. For each evaluation hypothesis, the variables of the analysis, the measurement indicators, but also the appropriate methods and instruments were defined. The hypotheses were formulated according to the typology of the projects specific to the operations and beneficiaries, the impact that the interventions can have and the conditions in which it manifests.

TABLE 1. EVALUATION QUESTIONS AND HYPOTHESES

Evaluation Question	Evaluation hypothesis
What is the net effect of the intervention funds, taking into account the factors that caused this effect?	1. Interventions through KAI 3.4 on schools improve students' study conditions.
	2. Interventions through KAI 3.4 on school infrastructure lead to improved access to and participation in education.
	3. Interventions through KAI 3.4 dedicated to school endowment have a positive impact on the quality of education, in terms of the attractiveness of learning activities and student performance.
	4. Interventions through KAI 3.4 on pre-university and university campuses improve the residence and study conditions of the students.
	5. Interventions through KAI 3.4 on pre-university campuses contribute to improving access to education.
	6. Interventions through KAI 3.4 on pre-university campuses have effects on the correlation of the educational offer with the demands

	of the labour market.
	7. Interventions through KAI 3.4 on the CPT Centers contribute to the increase of the qualification level among the target group.
What type of intervention produces results, for whom, and under in what conditions?	8. There are differences between the impact of investments between certain types of interventions.
	9. There are differences between the impact of investments between certain types of beneficiary educational institutions.

For the standardization of the assessment regarding the validation by quantitative methods and by qualitative methods of the hypotheses formulated, the following classification was used:

- **Invalidated assumption:** The assumption is invalidated if the research does not provide arguments for validating the assumption or provides arguments that lead to the contradiction of the assumption statement.
- **Partially validated assumption:** the research provides arguments only for certain variables and not for all the variables considered. There are significant limitations of the target group for which the impact or effects are proven to occur only under certain conditions and situations.
- **Validated assumption:** the research provides arguments for all the impact variables, consisting of significant positive differences in the intervention group versus the control group in the case of all impact variables and/or information from the qualitative research (when it is the only applied method) provided multiple arguments for validating that hypothesis.

## THE METHODOLOGICAL APPROACH, THE ADEQUACY OF THE METHODS AND THEIR COMPLEMENTARITY.

The methodological approach - detailed in the initial phase of the evaluation is adapted to KAI 3.4. an intervention with three operations defined by the programme, diversity of beneficiaries addressing the entire pre-university system, but also the university one and the continuing professional training system, variety of investments in the whole educational and training infrastructure.

The evaluation combines quantitative and qualitative methods, applying the method of counterfactual impact evaluation (CIA) only for the operations for which the assessability analysis indicated that it is appropriate, namely investments in pre-university educational infrastructure. Other quantitative methods of data processing regarding the status and parameters of the infrastructure, of the educational institutions that have benefited from funding or not have been supplemented with qualitative methods for interpreting and triangulating the data. The methodology was designed taking into account the needs of collection and processing for each operation, respectively the causal chain of the results and the evaluation hypothesis, and was then optimized to limit the burden of involvement and provision of data on funding beneficiaries, end beneficiaries, other stakeholders.

The evaluation methods used are detailed in Annexes 2.1 - 2.5.



## DOCUMENTARY RESEARCH

The documentary research sought to obtain information related to the framework in which the ROP was implemented (programming documents, the applicant's guide and related documents, documents on public policies in the field of educational infrastructure, etc.); the results that it had as a whole (Annual Implementation Reports, Final Implementation Report, Previous Programme Impact Evaluation, etc.), as well as at project level (Funding Contracts, Monitoring and Sustainability Reports). This information was used both to understand the net effect of the OP, as well as potential influencing factors. The documentary research together with the analysis of the specialized literature were the basis for the development and refinement of the evaluation methodology. Documentary research also provided the initial list of funded projects.

## INTERVIEWS

The interviews regarding the available data aimed to deepen the knowledge regarding the impact, to identify the level of involvement of the main institutions in the field of education and training in infrastructure issues and to clarify the perception of the stakeholders regarding the effects and the factors that influenced them. The interviews were designed as semi-structured tools, covering aspects related to needs, impact and influence factors and were adapted for central stakeholders, such as the Management Authority (MA) ROP, the Ministry of National Education (MNE), The Romanian Agency for Quality Assurance in Pre-academic Education (RAQAPE) as well as at the level of each of the 8 regions, with directors and experts of the regional development agencies (RDA), involved in the implementation process, funding beneficiaries or applicants. Also, the interviews were data collection tools integrated into the case studies.

## USE OF CROSS SECTIONAL DATA, TIME SERIES, LONGITUDINAL DATA, SAMPLING

In order to identify the involved school units that applied for funding and completed or did not complete projects through the ROP, information from the databases of the ROP MA and the Ministry of European Funds (MEF) were correlated with the databases of the data extracted from the Integrated Information System of Education in Romania (IISER) and other MNE databases and data collected directly from educational institutions.

Each project was first analysed in order to identify the educational institutions. All information on the pre-university education institutions involved in the ROP were processed and compared with the information from the MNE database - IISER. Thus, a significant amount of information was obtained by requesting data from IISER and processing those resulting from this database, capturing the impact through counterfactual evaluation and statistical processing.

## INQUIRIES AND SURVEYS

The surveys were designed as essential methods for collecting quantitative and qualitative data that supported the counterfactual evaluation, other types of statistical processing and qualitative evaluation methods. The surveys had as target population the educational institutions, teachers and students in the case of investments in university campuses. Although the ATUs are the ones that access funding in pre-university education, the educational institutions are the beneficiaries of the investments, so they have the information on the generated effects. Questionnaires were sent to all the educational institutions identified in the MRDPA database, the sampling being of convenience. In turn, they sent questionnaires to the target group. The following surveys were designed:

1. The School Sheet implemented at the level of the funding beneficiaries in pre-university education with completed projects (school infrastructure). The questionnaire was designed in the simplest way possible to minimize the burden on respondents and included data that were not available in the accessible databases, regarding the perceived impact at different levels, the factors that influence the impact and the level of sustainability, the types of investments made in infrastructure (through ROP and other sources) and the impact indicators from the base year 2010, from 2014 and from 2018.
2. The School Sheet implemented at the level of ROP funding applicants that did not contract or finalize the projects in pre-university education (school infrastructure). The educational institutions that applied for funding and did not obtain it or signed contracts but did not complete the projects fall into the general category of units with unfunded projects. The questionnaire included information on the types of infrastructure investments they pursued through the ROP and those made through other attracted sources, the impact that the invested resources had and the reasons why the projects were not completed, information on impact variables from 2010, 2014 and 2018. This information was necessary to make comparisons between the treated and the control group and to determine the net effect of the ROP.
3. *Questionnaire among beneficiaries of funding in pre-university campuses.* The information in the questionnaire included the investments made and the impact perceived at qualitative level, quantitative data for the impact variables.
4. *Questionnaire among beneficiaries of funding on university campuses.* The questionnaire included information on the impact obtained, the types of investments made and the impact indicators on students.
5. *Questionnaire among teachers in pre-university education in educational institutions with completed projects.* As teacher satisfaction regarding pre-university school infrastructure is a moderating variable relevant to the effects on the quality of the educational act, a questionnaire sent with the help of educational institutions was applied, covering aspects related to the degree of satisfaction with its facilities, the extent to which they influence the educational process and student performance.
6. *Questionnaire among teachers in pre-university education in educational institutions with uncompleted projects.* In order to better understand the net effect of the ROP, data were collected on the educational infrastructure from the schools that did not have projects funded or completed under the ROP, but which may have attracted other funding sources for these aspects, the opinion of the teachers regarding the investments and their effects. The questionnaires were sent with the help of the schools, the sampling being of convenience.
7. *Questionnaire based survey among campus students.* The interventions in the case of the campuses were aimed at improving the conditions of study of the students, therefore the aim was to measure their satisfaction regarding the conditions of residence and study. It was decided to collect questionnaires through the universities, the sampling being of convenience. In the case of pre-university campuses, the fact that the end beneficiaries are minor students was a constraint, and it was not possible to question them without the



consent of the parents. Thus, the involvement of the students in the consultation process was compensated through the participation of their representatives in Focus Groups.

Although initially a questionnaire was provided for the funding beneficiaries in CPT, the analysis of the project portfolio revealed that only one project was funded. For this reason, the questionnaire was replaced with an interview and a thorough evaluation of the intervention.

## FOCUS GROUP

Focus groups organized in each region and nationally had the purpose of collecting value-added information from broad categories of stakeholders and validating findings from other sources. The target group for focus groups included representatives of RDAs, CSIs, educational institutions and the Student Council, and at national level, representatives of the MNE, the National Agency for Employment (ANOFM) and the Coalition for Education.

## STAKEHOLDERS' ANALYSIS

This analysis was mainly focused on identifying the influence of different actors or major factors in the field of education (at all relevant levels - pre-university, university, continuing professional training) and endowment with infrastructure, with an impact on access to education. This analysis was the basis of the identification of the stakeholders that may be involved in different stages of the data collection and consultation process.

## ANALYSIS OF PRIMARY AND SECONDARY DATA

The data analysis covered both the physical and financial progress of the projects, following the status of the projects and the territorial distribution, as well as the progress per type of impact indicators according to the types of interventions. A significant number of context variables and especially of impact were analysed at descriptive and inferential level.

The data were collected from MA ROP, MNE and through the applied questionnaires. All available resources have been capitalized and triangulated. The analysis of primary and secondary data was done through statistical processing and supplementing with information from qualitative methods.

## PEST ANALYSIS

The purpose of the PEST analysis was to describe the factors of influence at macro-environmental level that have acted on the interventions under KAI 3.4. The exogenous influence factors identified by the PEST analysis will be used as resources in the SWOT analysis. The results of the PEST analysis will be an important contribution in the process of reconstruction of the Change Theory for this KAI, especially regarding the contextual factors.

## SWOT ANALYSIS

This analysis supports the identification of the specific aspects regarding KAI 3.4 interventions that have influenced their implementation. It is an aggregator of factors adapted per intervention categories, with information from the PEST analysis and the quantitative and qualitative information collected through surveys, interviews, focus groups and case studies, focusing on the formulation of lessons learned for the next programming period.

## CHANGE THEORY (CT)

The Change Theory is the foundation of the methodological approach and has been carried out on each type of operation, following the causal chain of production of results and impacts. This

includes information on the needs underlying the interventions, the factors of influence and the impact obtained.

## REPRESENTATION/TERRITORIAL ANALYSIS OF THE RESULTS

This type of analysis allows to visualize the results recorded after the implementation of the KAI 3.4 projects. The projects implemented per types of operations are presented at the level of the ATU in a comprehensive country map, which highlights the situation in each county and region.

## DEVELOPMENT OF THE VISUAL DIAGRAM

The visual diagram supports the synthesis of information on identified needs, objectives and strategy defined at KAI level, and - on the other hand - on the situation of the implemented projects, contributing to the understanding of the Change Theory.

## LOGICAL MODEL

This tool was designed to analyse the extent to which the implemented projects have contributed to the achievement of the KAI objectives and the satisfaction of the identified needs. The analysis is applied on each indicative operation. The logic model is used to validate the Change Theory and to create the visual diagram.

## CASE STUDIES

The case studies were designed as complementary methods of data collection and analysis, having the potential to contribute to the understanding of the mechanism of producing effects, of the differences between the types of interventions, the types of beneficiaries and the way in which these differences as well as other external factors influence the causal chain, focusing on value added issues. Last but not least, case studies have the role of viewing the effects analysed through quantitative means in order for the impact evaluation to be explanatory, to provide beneficiaries and all stakeholders not only with figures and statistics, but real world images, where the long-term effects are produced.

The case studies were multiple, in order to be usable in the comparative analysis (each case study having a research area of several projects), aiming to present the results in a clear and efficient way. The educational institutions included in the case studies have a balanced coverage for each region of the country, for each of the four categories of interventions.

Case studies are directly related to the answer to the evaluation question 2 “What kind of intervention provides results for whom and under what conditions”, but it also contributes to the evaluation question 1, clarifying the method and the extent of the effects according to the implementation conditions, illustrating the diversity of the generated effects. (Details in Appendix 3.A4.5)

## COUNTERFACTUAL ANALYSIS

The counterfactual analysis involves a quasi-experimental quantitative approach, based on the comparison between the group of beneficiary units of the intervention (the treated group) and a group of similar non-beneficiary units (the control group). It is considered the most objective technique for measuring impact, as it allows to isolate the impact attributed strictly to the intervention (Khandker et al., 2009). In the context of KAI 3.4, the aim is to measure the net impact at the level of the funded educational institutions.

The educational institutions were selected from the database on contracted projects (SMYS) and are school units that benefited from the ROP 2007-2013 interventions, KAI 3.4. The control group was set up from rejected funding applicants. This selection strategy reduces selection error and improves the previous evaluation carried out in 2015, through a greater accuracy of the results. The validity conditions for the control group (non-beneficiaries) were ensured by selecting them on the basis of characteristics similar to those of the beneficiary group, the difference being given by the absence of financial support during the analysed period, to delimit the impact of the policy/ programme interventions in relation to the contribution of external factors. This balance (calculated on the basis of a score defined on the basis of several variables - dependent and contextual) is ensured by correlating the propensity score (PSM) which implies the application of the following steps:

- Selection of a set of covariates, based on some theoretical arguments and the available data
- Estimation of the propensity score through probit or logit regression models
- Applying the matching procedure, through at least 3 methods, which will give more accuracy to the results and update the KAI 3.4 evaluation - 2015<sup>4</sup>
- Quality checks of the matching through econometric techniques.

The net impact evaluation of the interventions can be done by using (depending on the feasibility of their application) some techniques for measuring the impact such as: Difference in Difference (DD), Discontinuous regression (DR) or techniques based on instrumental variables. In the case of the last two methods (which were not applied in the KAI 3.4 evaluation - 2015), the lack of adequate data, such as those related to the scores obtained by the funded or rejected projects, makes it impossible to apply these methods in the current evaluation.

As complementary methods of analysis, the univariate, bivariate analysis or linear regression were applied.

The list of impact variables, developed in accordance with the evaluation assumptions, includes variables such as: School infrastructure, Degree of access to utilities of school units, Degree of access to educational services of children from vulnerable groups, School dropout rate, Share of students with an average over 5 at the capacity exam, Baccalaureate promotion rate. (Details in Appendix 3.A.1)

### 3.2. SPECIALTY LITERATURE

The analysis of the specialized literature and of the strategic documents supported the reconstruction of the Change Theory and the understanding of the type of impact that manifest. It focuses on establishing the most relevant effects of the investments in educational infrastructure (from the perspective of the needs of the evaluation beneficiaries, including central, regional and local decision makers, beneficiaries, and other relevant factors) and determining how they can be evaluated through quantitative and qualitative methods. At the

---

• <sup>4</sup> The impact evaluation 2015 had the possibility to apply a single method of matching, i.e. the nearest neighbor without replacement.

same time, these were used to substantiate the evaluation hypotheses and interpret the evidence during the evaluation

### Effects of the investments in educational infrastructure

The effects of these types of investments are quite varied, with mixed results and highly dependent on the influence of a number of factors. The evaluation team synthesized the main effects in a framework that corresponds to the main objectives of the *Early Education Strategy<sup>5</sup> (EE) (as part of the Convergent Early Child Development Strategy) 2012, the Strategy for reducing early school leaving in Romania<sup>6</sup>, the Education and vocational training strategy in Romania<sup>7</sup> and the National strategy for tertiary education<sup>8</sup>.*

Thus, the types of effects are integrated into four broad categories.

#### Study conditions

Investments in educational infrastructure have as first effect the increase in the quality of the environment in which students learn<sup>9</sup> and the covering of an important part of the budget needs of schools. The types of interventions financed under the ROP 2007 - 2013 cover both the rehabilitation and the provision of the conditions necessary for the proper functioning of buildings (low seismic risk, sewerage, power supply, heating, etc.)<sup>10</sup>, as well as the expansion and modernization of the facilities provided by them, through investments in laboratories, classrooms, gyms and event halls, IT equipment and more. Thus, the provided opportunity was to reduce the significant gap between rural and urban schools regarding the quality of school infrastructure.<sup>11</sup>. The present evaluation follows the degree to which these aspects have been achieved, but also the extent to which the investments have been capitalized and sustainable.

#### Access and participation in education

The conditions of the educational act contribute to attracting students, especially those with low socio-economic status, increasing their level of access and participation in education<sup>12</sup>. The decrease in the number of out-of-school children, the dropout rate and absenteeism rate are facilitated by these investments, but they are highly dependent on other factors, as pointed out by the previous evaluation of KAI 3.4. Thus, the evaluation includes the contribution of

5

[https://isj.sv.edu.ro/images/Docs/Discipline/invatamnat\\_preprimar/2017/Documentatii\\_curriculare\\_si\\_metodice/Strategia\\_nationala\\_privind\\_educatia\\_timpurie.pdf](https://isj.sv.edu.ro/images/Docs/Discipline/invatamnat_preprimar/2017/Documentatii_curriculare_si_metodice/Strategia_nationala_privind_educatia_timpurie.pdf)

6 <https://edu.ro/strategia-privind-reducerea-p%C4%83r%C4%83sirii-timpurii-%C8%99colii-%C3%AEn-rom%C3%A2nia>

7

[https://www.edu.ro/sites/default/files/\\_fi%C8%99iere/Minister/2016/strategii/Strategia\\_VET%2027%2004%202016.pdf](https://www.edu.ro/sites/default/files/_fi%C8%99iere/Minister/2016/strategii/Strategia_VET%2027%2004%202016.pdf)

8 [https://www.edu.ro/sites/default/files/fisiere%20articole/Strategie\\_inv\\_tertiar\\_2015\\_2020.pdf](https://www.edu.ro/sites/default/files/fisiere%20articole/Strategie_inv_tertiar_2015_2020.pdf)

<sup>9</sup> Uline, C., & Tschannen-Moran, M. (2008). The walls speak: The interplay of quality facilities, school climate, and student achievement. *Journal of Educational Administration*, 46(1), 55-73.t

<sup>10</sup> Baltas, E. (2005). „Evaluation of School Building Indices Quality System” in Greece: A Tool For Decision Makers, *Evaluating Quality in Educational Facilities*, OECD/)

<sup>11</sup> Fartușnic C. (coord.) (2013). Funding of the pre-university education system based on cost standards: a current evaluation from the perspective of equity

<sup>12</sup> Newman, J., Pradhan, M., Rawlings, L. B., Ridder, G., Coa, R., & Evia, J. L. (2002). An impact evaluation of education, health, and water supply investments by the Bolivian Social Investment Fund. *The World Bank Economic Review*, 16(2), 241-274.

investments to the level of access and participation based on several projects and more time since their implementation, taking into account the existence of the correlation of these investments with extremely important measures, mentioned in the section Factors of influence. Particular emphasis is placed on the access of vulnerable groups to education, especially Roma children<sup>13</sup> and students with SEN<sup>14</sup>. Thus, the evaluation includes the analysis of the contributions of the funded projects to increasing their access and participation but also to increasing the level of access of children from rural areas to education.

### Quality of the educational act

The framework in which teachers and students carry out the educational act contributes to the increasing of its quality, reflected in an increase in their level of satisfaction and in student performance<sup>15</sup>. More specifically, investments that increase the level of comfort in the classrooms can help students to focus better, pay more attention in class<sup>16</sup> and may lead to better results<sup>17</sup>, the impact of the investments being reflected indirectly in the students' performance. At the same time, investments in laboratories and special rooms for sports or other activities facilitate their access to quality study materials. In particular, IT equipment is essential for the development of digital literacy in children, but also their access to study materials available online, which is why the effects on the quality of education will also be followed in terms of the satisfaction of the students and teachers involved in more attractive educational activities. It is also important to follow the extent to which these investments increase the participation of students in extra-curricular activities. However, the effects on student performance are not so obvious. An analysis performed on data at NUTS3 level, which uses among others the dropout rate and the baccalaureate promotion rate, shows an uneven distribution on counties for the efficiency score of investments in school infrastructure in Romania<sup>18</sup>. These findings are integrated in the evaluation through the evaluation indicators, the degree of endowment and the interpretation of the causal links between endowments and school performance but also the influence of factors such as investment in measures dedicated to human capital, for example those financed under SOPHRD.

The strategy for the modernization of the educational infrastructure 2018-2023<sup>19</sup> elaborated to guide decision makers in the prioritization of investments in education, highlights the maintenance of the infrastructure investment needs but also the substantiation of the decisions based on concrete data and fundamental values of the education system. The investments according to the strategy should be aimed at both ensuring access to educational services and the

---

<sup>13</sup> G. Duminiță, A. Ivasiuc. (2011). A school for everyone? Access of Roma children to quality education. Buzău: Alpha MDN.

<sup>14</sup> Horga, I (2015). Education for all and for everyone: access and participation in education of children with disabilities and/or SEN from the schools participating in the UNICEF Campaign Come to school!.

<sup>15</sup> UNESCO (2005). EFA Global Monitoring Report. Chapter 1. Understanding Education Quality

<sup>16</sup> McGowen, R. S. (2007). The impact of school facilities on student achievement, attendance, behavior, completion rate and teacher turnover rate in selected Texas high schools. Texas A&M University.

<sup>17</sup> Research on the Impact of School Facilities on Students and Teachers A Summary of Studies Published Since 2000

<sup>18</sup> Roman, Monica and Gotiu (Lucaciu), Liliana (2017): *Non-parametric methods applied in the efficiency analysis of European structural funding in Romania*. Published in: Journal of Applied Quantitative Methods , Vol. 18, No. 2 (30 June 2017)

<sup>19</sup> <https://www.edu.ro/sites/default/files/Strategie%20SMIE%2023.04.2018.pdf>

quality and safety conditions in the functioning of learning spaces, as well as improving the quality of learning environments, including innovative learning spaces that allow new approaches to teaching and learning, including with the help of modern technologies.

### Correlation with the labour market

The education system aims to prepare pupils and students to adapt to the labour market and to contribute to the development of communities<sup>20</sup>. In order to anticipate the evolution of this aspect, it is relevant to analyse the extent to which the economic actors have developed partnerships with the ATUs or the institutions involved in the implementation of the projects and their sustainability in the case of the projects related to pre-university campuses. At the same time, it is necessary to analyse the impact of the projects dedicated to Vocational Training Centers, in order to observe how they contribute to the preparation of the target group for the labour market.

The report on the state of the pre-university system published in July 2017<sup>21</sup> shows that the participation of adults in continuing training has had a dramatic decrease in the last years starting with 2013 when it had the best level after 2005. Romania ranked last in the EU in 2015 with only 1.3% participation compared to 10.7%, the EU28 average, and the declining trend continues. The Vocational and technical education system (VTE) is facing many problems. According to the World Bank report quoted in the Strategy for the modernization of the educational infrastructure 2018-2023, employers have a critical attitude towards the relevance of the education system for their needs.

Regarding the influencing factors, they were divided into several categories: demographic, economic, regulatory, technical capacity, and complementarity related.

The demographic decline, also reflected in the decrease of the school population, represents an influencing factor that was insufficiently taken into account during the project development stage (in which a demographic increase was expected), and which prevents the identification of the access to education, because the number of students in some schools drops independently of the infrastructure.

Factors of an economic/ financial nature have influenced both the elaboration and implementation of the projects, as well as their results. According to the previous impact assessment, significant challenges were faced in relation to school budgets and the capacity to ensure the cash flow needed to carry out the project, financial corrections and the recession of 2008.

Managerial capacity and competence is an essential condition for the implementation and sustainability of projects. Unfortunately, the lack of solid knowledge regarding the writing and implementation of such projects has had significant consequences on the quality of the technical

---

<sup>20</sup> The effects were established in relation to Assumption 9 from the impact evaluation of KAI 3.4 conducted in 2015, partially validated. Although there is not much evidence in this regard, it is relevant to analyze whether this hypothesis can be confirmed in the context of the implementation of several projects, especially among high schools with a technical profile.

<sup>21</sup> [https://www.edu.ro/sites/default/files/\\_fi%C8%99iere/Minister/2017/transparenta/Stare%20preuniv%202016.pdf](https://www.edu.ro/sites/default/files/_fi%C8%99iere/Minister/2017/transparenta/Stare%20preuniv%202016.pdf)



proposals, on the proper development of the projects and on achieving the expected results (e.g.: setting inadequate indicators for the activities carried out, the lack of indicators or setting unrealistic values for the proposed targets). On the other hand, the creation of partnerships with NGOs and economic players, but also the active involvement of the parents, in order to access the funds and implement projects, significantly supports their correlation with the needs of the community and capitalizing on their results.

The regulatory framework (legislation, strategies, methodologies) are important in determining the expected impact, and their dynamics creates risks regarding the relationship between inputs and outputs. A classic example concerns the law on public procurement and certain unclear provisions in it, which cause delays. Also, incomplete regulation regarding certain categories of expenditures allowed for public institutions limited the effects of some investments. In addition, it is important to consider whether there have been significant changes in vision regarding education that affected the projects. At the same time, the fact that there were no criteria based on which to prioritize the projects according to the development needs of the communities created the risk of affecting the maximization of the potential of the Operational Programme.

Technological factors can have an impact on several levels, being analysed through the PEST method. They will be related, first of all, to the level of IT endowment of schools, as a factor that can stimulate the students' access to more high quality educational materials. In order to facilitate the access of students to education, but also to increase the quality of education, investments in educational infrastructure are necessary, but insufficient conditions. It is essential to monitor the extent to which complementary investments have taken place, funded from SOPHRD or other sources of funding at national, regional or local level, as well as the existence of conditions that can facilitate the generation of results. We have integrated these factors into the following sub categories: (i) Human resources: investments in teacher training and the existence of qualified staff for children with special situations (e.g. school counsellors or mediators); (ii) Financial resources for children and families: e.g., scholarships, settlement of transportation to school; (iii) Material resources: accessibility and quality of educational materials, libraries and number of volumes; (iv) Activities after classes: after-school facilities and extra-curricular activities, parent counselling; (v) For campuses: the prices of the rooms and the existence of appropriate furniture.

### 3.3. QUANTITATIVE AND QUALITATIVE DATA COLLECTION

#### Quantitative data

The process of data collection for the evaluation began by analysing the project portfolio based on data obtained from three sources MA ROP, RDAs and MEF. The information was triangulated to finalize the list of projects and classify them as completed and unfunded. Thus, 501 completed and 595 unfunded projects have resulted.

A stakeholder analysis supported both the identification of stakeholders for public consultations and of those that can provide data - of which MNE was the most important source through IISER and other own administrative databases.

The data for each project were analysed so that the applicable educational institutions can be identified, as well as their IISER code. In the case of investments in school infrastructure, which have the most projects, 996 schools were identified from the details of the projects obtained from SMIS, 479 being from completed projects. By eliminating duplicates, identifying schools that have changed their name since applying for funding and comparing them with information from IISER, the result was a total of 923 school units for which data could be requested from the MNE, of which 465 with completed projects. For pre-university campuses, data were requested for 89 educational institutions, 41 having completed projects.

From IISER, data were obtained regarding the school infrastructure (available from the date when they were introduced into the system) and the number of students (available starting with the 2014-2015 school year). Data from this database were subsequently supplemented with data on school performance at national exams (starting with 2013-2014). Last but not least, data were obtained regarding the number of teachers in schools with legal personality in EduSal, available from the 2014-2015 school year and integrated into the database according to the SIRUES code. All data subsequently went through primary processing for analysis. The data obtained from the MNE were particularly important to substantiate the results and were supplemented with data obtained from questionnaires. The list of all variables is attached in Annex 3.A.1.

The questionnaire-based surveys applied among pre-university and university education institutions were the main instrument for completing the necessary information regarding the institutions' budget, access and participation in education, capitalization of infrastructure and extra-curricular activities. It was a great effort to mobilize resources, realized with the help of the CSIs which supported the contacting of pre-university educational institutions. Much of the data were no longer available, and staff fluctuation caused principals to no longer know how to access information or be unable to respond because they did not know what happened on the projects.

Essentially, quantitative data were obtained as follows:

- Educational infrastructure: (i) indicators related to school infrastructure, number of students, human resources and school performance for projects related to educational infrastructure: 923 school units, of which 465 with completed projects and 458 with unfinished projects. (ii) indicators related to the institutions' budget, access and participation in education, capitalization of the infrastructure and extracurricular activities: 241 educational institutions, of which 158 for completed projects and 83 for unfinished projects, with a balanced distribution per counties and regions.



- Pre-university campuses: (i) indicators related to available infrastructure, number of students, human resources and school performance for projects related to educational infrastructure: **89** educational institutions, **41** having completed projects and **48**, unfinished projects. (ii) indicators related to the institutions' budget, access and participation in education, capitalization of the infrastructure and extracurricular activities: **22** educational institutions.
- University campuses: data were obtained related to the budget of the institutions, the number of students and the access to campuses for **4** out of 8 funded campuses.

The data used for the counterfactual evaluation were those integrated from IISER and the online surveys on educational infrastructure, available for 241 educational institutions. The rest of the data were processed through descriptive analyses or differences between environments, as the case may be.

### Qualitative data

The school units involved in the ROP that answered the questionnaires also provided information on the types of investments made in infrastructure (241 educational institutions), the factors of influence and their perception on the impact of the ROP, this information being processed through descriptive statistics and the test t for independent samples. They also supported the collection of information from teachers, especially regarding the satisfaction on the school infrastructure, the factors that influence the educational process and the level of knowledge on European funds.

The questionnaires included qualitative data with a few exceptions in the school sheet where quantitative data were requested. Although these data are processed quantitatively, they were listed in this category because they mainly targeted the respondents' opinions. The questionnaire respondents were: **1018** teachers from the school units that benefited from projects completed through the ROP 2007-2013 and **279** teachers from the school units that did not benefit from projects funded through the ROP 2007-2013.

Also, qualitative data on investments and the perceived impact were also obtained from the beneficiaries that answered questionnaires on pre-university and university campuses. The universities also supported the process of collecting the opinions of students from the campuses that benefited from funding. **103** students answered these questionnaires.

The consultation process was completed with interviews and focus groups. Representatives of all the relevant institutions were invited in this process, but the degree of knowledge on the infrastructure issues means that not all of them have a sufficiently comprehensive perspective to form an opinion.

At a central level, information on the importance of investments, implementation and impact of the ROP from MRDPA, MNE, ANOFM and the Coalition for Education were obtained through interviews and focus groups. In the territory, interviews were carried out with representatives of the RDAs from each region, attended by persons with responsibilities in different phases of the project cycle. Interviews and visits in the territory were also conducted within the case studies. In this context, there were 26 interviews with funding beneficiaries, applicants or stakeholders relevant to KAI projects.

In the regional focus groups, there was a diversified participation of the categories of stakeholders, cumulating as follows: **5** representatives of the RDAs, **8** of the ATUs funding beneficiaries, **11** beneficiary educational institutions, **16** representatives of the CSIs, **4** from the civil society - representatives of students and **2** from the AJOFMs.

There were 4 multiple case studies detailing the generated impact, how it was produced and analysing comparatively these various types of projects from different regions, different investments, residence environment, type of investments (details are presented in Annex 3.A.5).

### 3.4. METHODOLOGICAL LIMITATIONS AND THEIR SOLUTION

The methodological limitations were due to the factors identified in the initial period as risks. These risks determined the initial design of the methods and instruments, but also the adapted implementation methods, in order to reduce the possible effects in terms of delays, gaps or qualitative deficiencies, as detailed below.

The limited availability and accessibility of the administrative data regarding school infrastructure and performance was manifested through the following constraints: the data were available in different databases, not correlated with the codes of the educational institutions, the data in RIIES are only available after 2013 this year being in the middle of the implementation period, some indicators such as school dropout rate, school performance indicators are not available in the MNE databases, the collection from the educational institutions being necessary.

The quality of the data was limited, having gaps in the established data sets, which led to a reduction in the number of units under analysis.

The responsiveness of the relevant players was very low. This was manifested through the unavailability or delay in participating in focus groups, interviews, in providing documents, in completing questionnaires, invoking in all situations either the long duration from the implementation of the intervention or the overloading with tasks. Difficulties in completing the questionnaires, saving the data, understanding the purpose of the evaluation and the content of the questionnaire were invoked.

In order to diminish the effects of these factors, the evaluation team focused from the beginning on the collaboration with the School Network and Human Resources Directorate of the MNE responsible for the Integrated Information System of Education in Romania, through which the options for data collection, retrieval and processing in stages were explored, aiming at avoiding their collection from the level of educational institutions. We appreciate the efforts of the MNE to support the evaluation given that the data were not available in the format and with the characteristics necessary for the evaluation, requiring an effort from the MNE as well.

The evaluation team allocated additional resources for additional manual processing of data to allow the matching of data from different sources, quality assurance, additional unanticipated manual processing, for the aggregation of the extracted data subsets. All these have also led to an extension of the data collection period compared to the planned one.

Due to the unavailability of the necessary data in the MNE databases, the questionnaires sent to schools also included quantitative data, which increased the effort of the schools (completing a questionnaire at school level took about 44 minutes on average). Due to the very low response rate, the request emails were retransmitted and the support of the CSIs was requested, for which

customized letters were prepared with the projects, beneficiaries and links to the questionnaires. We also set up a Helpdesk service through which the school principals were contacted by telephone, they were assisted in completion. The questionnaires were also taken over in Word file format and uploaded on the online platform by the members of the evaluation team.

Despite the constraints, the collected data were sufficient and of a quality corresponding to the applied methods. However, the “before-after” (before the investment - after the investment) analysis was limited to the projects in call 2 for which there were data prior to the implementation. In the case of investments in PTC, university and pre-university campuses, the small number of projects did not allow the application of quantitative counterfactual methods for statistical processing and generalization of the conclusions, the evaluation being limited to the area of influence of the funded project.

#### 4. ANALYSIS AND INTERPRETATION

##### 4.1. EI 1. WHAT IS THE NET EFFECT OF THE INTERVENTION FUNDS, TAKING INTO ACCOUNT THE FACTORS THAT CAUSED THIS EFFECT?

<b>EVALUATION HYPOTHESIS 1: Interventions through KAI 3.4 on schools improve students’ study conditions</b>	
Quantitative and qualitative methods used	Counterfactual analysis, Documentary analysis, online survey, interviews, focus groups, case studies
Validated assumption	

##### a) Collected data

The CIA analysis was based on 2 sets of data collected through 2 distinct methods: Set 1 contains administrative data, extracted from the RIIES, regarding the number of students, teaching positions, infrastructure, school performance. The data are extracted for the 1016 funding applications, resulting in a set of 925 schools that have applied for funding for school infrastructure.

Set 2 complements the information in Set 1 with variables related to: financial aspects of the school (Budget, share of local administration funding out of total budget revenues), specific accessibility indicators. The data come from the online survey on school units, presented in section 3.3 and the annexes. Finally, data Set 3 resulted from the integration of the data in Set 1 and Set 2, and contains 120 variables and 241 comments.

**TABLE 2. VOLUME OF SAMPLES PROCESSED STATISTICALLY**

	FUNDED (TREATED)	UNFUNDED (CONTROL)	TOTAL	NUMBER OF VARIABLES	APPLIED METHODS
Set 1	459	466	925	90	PSM
Set 2	158	83	241	30	Descriptive statistic
Set 3	158	83	241	120	PSM, DID

The analysis involved the application of econometric models of CIA on both sets of data, in a phased process.

Econometric models involve the application of the Propensity Score Matching (PSM), as the main method of impact assessment, but also of the Double difference, for the validation and completion of results. The discontinuous regression method was not applied due to the lack of conclusive information on the scores awarded following the project selection procedure. For econometric processing, STATA 13 was used.

Complementary, the analysis used data collected through online questionnaires including dropout rate, number of commuters and distance travelled, share of students with failed classes and repeated grades, dropout rate, number of students with social scholarships, budget, teacher satisfaction in relation to infrastructure. A detailed list is found in Annex 3.A.1. Qualitative data were collected from beneficiaries and stakeholders to support the interpretation of the data, these being reflected in the instruments in Annex 3.A.2.

## b) Data analysis

The analysis of the net impact on the study conditions of students involves the selection of certain impact variables that would adequately capture the development of the school infrastructure. These variables target three types of impact variables:

- Basic infrastructure elements, i.e. the number of classrooms, the number of rehabilitated buildings within the school unit or the number of gyms.
- Elements of software infrastructure such as specialized laboratories, computer laboratories and specialized offices, with a direct effect on the teaching process and increasing student performance.
- Access to utilities, such as gas, toilets inside the building, water, district heating, sewerage, internet,

The matching model (described in Annex 2 A.10) allowed the creation of a control group as similar as possible to the treated group, especially since the control group includes the school units that applied for funding through the ROP KAI. 3.4 and did not benefit from it.

The matching, realized through “nearest neighbour” type, kernel and radial methods, allowed the obtaining of statistically significant and convergent results, in terms of level of the net impact.

The qualitative data collected through documentary analysis, questionnaires, interviews, focus groups and case studies allowed the completion of the quantitative analysis and triangulation. The PEST and SWOT analysis allowed the contextualization of data interpretation.

### c) Results from the analysis (findings)

The net impact of the KAI 3.4 investments on the size and quality of the investments is positive and is demonstrated first and foremost through the **number of classrooms higher by 2.2 in the case of beneficiaries versus non-beneficiaries:**

TABLE 3. NET IMPACT OF INVESTMENTS

TYPE OF MATCHING	SAMPLE TYPE	AVERAGE GROUP OF BENEFICIARIES	AVERAGE GROUP OF NON-BENEFICIARIES	DIFFERENCE	STANDARD ERROR	STATISTIC T
	Unmatched	16.35011	13.98448	2.36563	0.786152	3.01
Nearest neighbour (1)	Matched	16.28947	14.07237	2.217105	1.159778	1.91
Kernel	Matched	16.2894737	15.1222435	1.16723014	.877000562	1.63

In the case of **gyms**, the net effect is also positive, i.e. funding beneficiaries have 0.3 rooms more than non-beneficiaries. Positive effects were also recorded for the **number of toilets** (0.8 more for beneficiaries). Therefore, a positive net effect of the programme on the **basic infrastructure elements** is confirmed, which contributes significantly to the improvement of the students' study conditions.

Also, there was a positive net impact found on the **school endowments with specialized infrastructure**, respectively 0.20 units higher in the case of **computer labs**, 0.68 units for specialized laboratories, and 1 unit in the case of specialized offices<sup>22</sup>. These types of infrastructure are significant for the proper training of students, especially in disciplines related to IT (Informatics or Information and Communication Technology) and have been the subject of a high number of projects. Therefore, the mentioned variables are suitable for measuring the net impact. It turned out to be positive.

The analysis is completed with the impact evaluation from a global perspective on the infrastructure of the school unit, for which the indicator "percentage of buildings rehabilitated or partially rehabilitated", determined based on the data reported at RIIES building level was considered. This indicator reflects in a direct and integrating manner the state of the school

<sup>22</sup> These effects were identified through matching with the nearest neighbor method (with 3 neighbors), without replacement and are statistically significantly different from zero. Details can be found in Annex 2.A.10.

units. Through the propensity score matching method, it was found that the funded schools have 17% more buildings totally or partially rehabilitated compared to the unfunded ones (see Annex 2 A.10 for details).

Special attention was paid to measuring the impact on improving access to public utilities (gas, water, sewerage, district heating, internet, but also toilets inside buildings or video surveillance), which was partially or totally realized in different buildings or wings of the school units. A database with data retrieved from RIIES was used, containing information on the infrastructure of 3336 buildings and 39335 rooms in the 925 schools that are the subject of this research. The buildings and rooms were assigned according to the IISER code of the school units to which they belong, which allowed the precise identification and analysis of access to utilities, by means of a continuous type variable, respectively the share of the buildings of the school unit that is connected to utilities. Therefore, specific indicators have been created that measure the degree to which the school is connected to these utilities. These indicators, measured on a scale from 0 to 1 (0 meaning total absence, and 1 meaning that all the buildings of the unit have the respective characteristic), were aggregated in an Index of access to utilities, calculated for each school as an arithmetic mean, and described below.

TABLE 4. ANALYSED EDUCATIONAL INFRASTRUCTURE INDICATORS

Indicator	TREATED GROUP		CONTROL GROUP	
	Average	Standard deviation	Average	Standard deviation
1. Audio/ video surveillance	0.566334	0.396664	0.504105	0.422859
2. Centralized sewerage network	0.578882	0.459711	0.513894	0.460672
3. Gas connection	0.394693	0.455178	0.396546	0.46573
4. Internet connection	0.735432	0.30977	0.730392	0.327234
5. District heating connection	0.351214	0.430931	0.320237	0.431825
6. Water connection	0.880493	0.272166	0.808011	0.343955
7. Bathroom inside the building	0.794339	0.341784	0.674529	0.404834
Index	0.591354	0.215232	0.55161	0.231851

Before applying the matching methods, there is a difference of about 3.9% between the two groups. Following the application of the propensity score matching methods, this difference proved to be 4.3%<sup>23</sup>. Therefore, the investments have also met the basic needs of the school unit, which still requires efforts until they are fully satisfied.

<sup>23</sup> These effects were identified through matching with the nearest neighbor method (with 3 neighbors), without replacement and are statistically significantly different from zero. Details can be found in Annex 2.A.10.



The results of the online questionnaires collected both the views of the management of the funded and non-funded schools, as well as those of the teachers regarding the investment in infrastructure and their effects on the degree of endowment and the state of the infrastructure. The teachers from the non-funded schools perceive a greater proportion of infrastructure related constraints compared to the teachers from schools funded under ROP. Although schools not funded through the ROP have benefited from funds from other sources, (such as PNDL, the local budget), the investments have been dedicated in a greater share to endowments, heating and sanitation systems, Internet access. This was confirmed in interviews and focus groups, where it was noted that the ROP projects were larger and allowed for rehabilitation of buildings, extensions, larger gyms. Moreover, projects of this kind that were funded from other sources and even the ROP were submitted in call 2, confirming the essential role of the ROP in solving the educational infrastructure problems.

Focus groups and interviews indicated that funding, for many educational institutions was, at the time of implementation of the programme, the solution to solve pressing problems of infrastructure depreciation that did not allow operating permitting. Beyond these basic needs, schools were no longer attractive to students and parents, and those who had the opportunity chose better-equipped schools with better performance.

The case study illustrates the impact on the study conditions. Investments are first and foremost impressive due to the difference in comfort compared to the situation prior to the project implementation, all of which are highly appreciated by students and parents. Interviews captured a high degree of satisfaction regarding the study conditions. “I am proud when our partners from abroad visit us and tell me that we are better equipped than they are”, said the principal of a beneficiary school. In the rural area such an investment can have a strong impact on the community “The school is the pride of the commune,” said the principal of one of the rural schools.

This set of evidence from several sources confirms the existence of a net positive impact of the ROP through KAI 3.4 on the study conditions of the students, impact identified globally at the level of the school unit, but also specifically on some very relevant infrastructure elements such as the number of laboratories, number of gyms, number of schools offices.

From interviews, it resulted that **energy efficiency** benefits are considered important by school managements, because they are reflected in lower costs. This is confirmed by the counterfactual quantitative analysis which indicates for the funded schools a share of buildings with energy class A significantly higher than for the non-funded schools, but also from the analysis of the data in the online questionnaire, which reveals a significantly better impact on energy efficiency (statistically significant test  $p < .05$ ). The schools that invested in the rehabilitation and the connection to the centralized district heating network managed to reduce their heating costs.

The investments have also produced other effects, such as improving the image of the schools in their communities, increasing the attractiveness for parents and students, increasing the motivation of the staff and, last but not least, the rehabilitation of heritage buildings hosting a significant number of educational institutions. This indicator has not been monitored and for this reason the available data do not allow an accurate calculation. An estimate based on the lists of

historical architectural monuments, recorded on the National Heritage Institute’s website<sup>24</sup>, indicates at least 40 buildings, although the number could be higher, as the names in the list of monuments are mostly generic and cannot be exactly matched to the list of funded schools. Under the requirements applicable to the rehabilitation of heritage buildings, their rehabilitation has high costs and, for this reason, the ROP appears as an essential resource for solving these problems. For example, at the “Roman Vodă” National College, a building wing was saved, that was in an advanced state of degradation, of which only about one third could be used before the funding. As a result of the funding, the study space allocated to the students could be significantly increased.

The assumption is validated through the counterfactual quantitative analysis for all the analysed variables, (classrooms, gyms, endowment of the school with specialized infrastructure, the share of buildings rehabilitated or partially rehabilitated, access to utilities) and supported by qualitative data.

**EVALUATION HYPOTHESIS 2: Interventions through KAI 3.4 on school infrastructure lead to improved access to and participation in education.**

Quantitative and qualitative methods used	Counterfactual analysis, Documentary analysis, online survey, interviews, focus groups
---	--

Partially validated assumption

**a) Collected data**

The following impact variables were used to validate this hypothesis: total number of students, number of students per levels of training, number of students with SEN, number of Roma students, variables that capture the students’ access to the school infrastructure.

The impact indicators are available in the data Set 1, which was used in these processing operations.

Also, a set of impact indicators is used to measure participation, which includes the number of re-enrolments in the school unit and the dropout rate. The indicators are not available in the MNE statistics, but are included in the survey carried out among the school units, being accessible in Set 2 and Set 3.

Complementary data collected through the online questionnaires including data on access and participation were used in the analysis and can be found in Annex 3.1. Qualitative data were collected from beneficiaries and stakeholders to support the interpretation of the data, these being reflected in the instruments in Annex 2.1.

<sup>24</sup> Available by accessing the following link <https://patrimoni.ro/monumente-istorice/lista-monumentelor-istorice>



## b) Data analysis;

The analysis involved the application of PSM with different matching techniques, for the statistical validation of the results. The “common support” option was selected, which involves selecting the units whose propensity score is included in the same range in the analysis. In addition, the data from the questionnaires were analysed.

The qualitative data collected through documentary analysis, questionnaires, interviews, focus groups and case studies allowed the completion of the quantitative analysis and triangulation. The PEST and SWOT analysis allowed the contextualization of data interpretation.

## c) Results from the analysis (findings)

Investments through ROP KAI 3.4 show an **exposure to a higher number of students**: the average number of students in the secondary education cycle is higher by 18 in funded schools compared to unfunded ones. Thus, there is a confirmation in relation to a guiding of the funding rather towards schools that attracted or attract more students after funding, which amplifies the potential impact through a greater number of end beneficiaries of the investments. The same effect is also observed for students in the primary cycle, although this is not statistically significant.

The analysis of the **access of students with special educational needs (SEN)** shows a positive difference between the two groups, of 1 person, which is not statistically significant. It is worth noting that 33 **special educational institutions** applied for funding, of which 25 benefited from ROP funding. The access of disadvantaged groups, such as that of **Roma students**, seems to be more restricted in funded school units. All the econometric methods applied confirm a number of approx. 4 **Roma students** less in the beneficiary schools, which raises problems related to the accessibility of the newly created school infrastructure, which must be viewed in the context of a combination of external factors, such as higher school dropout rates among the Roma population.

Data set 3 allowed the analysis of the impact on the number of re-enrolled students, which was higher by one student in the funded schools; although the value is not statistically significant, it shows an increase in the participation in education and a reintegration into the education system of the students in the funded schools. The school dropout rate is not associated with ROP interventions, which have a mixed, statistically insignificant effect on this matter.

Accessibility is directly related to the distance and mode of transport to and from school, an effect that was captured by analysing the impact on the **number of commuter students**. This is significantly lower in the case of funded schools (by approx. 30 students) compared to the control group. There are multiple explanations for this difference, two of which may be more plausible: either the funded schools attract less commuting students, or the attractiveness of the schools closer to the students increased, causing them to give up the commuting. An essential factor in this context is the provision of transportation for students, a fundamental condition for access to education.

Although statistically the effect is modest regarding the impact on access to education, the interviews and focus groups provided evidence of a positive effect. First of all, we should mention the extension of the impact of the ROP on the access of students to a quality educational infrastructure, namely the approximately 223,000 students from the schools that benefited from funding, even though they represent only 8% of the total number of schools (according to the data analysed at the level of the 2015-2016 school year. Particular aspects regarding the effects of the

investments on access were provided in focus groups, interviews or are captured in the case study. Without being able to make estimates on the extent of the indicated effects, they illustrate ways in which the investments have contributed to the improvement of the access to education.

A prime example is that of schools with a large or growing number of students, either in cities in central areas or in outskirts areas where new neighbourhoods were developed, or in areas with high birth rates or growth due to the reorganization of the school network. Interviews showed that this was not a criterion for prioritizing investments, in fact no prioritization was made. Moreover, during the implementation of the program there have been modifications of the school network, some funded schools being involved without affecting the contractual terms.

Infrastructure investments can indirectly have an effect on reducing dropout rates. This fact is illustrated in the case study in a school with 27% Roma students and 12% students with SEN. The school management indicates that the actual number of Roma students is higher than the declared one, but it does not have any importance because “we don’t make any differences between students, the fact that a student is Roma is irrelevant. We work on goals, and everything that has happened in the school in recent years has motivated the teachers. “We work a lot with parents, and so far we have been able to extend the participation of Roma girls, who have been dropping out since the sixth grade”.

Interviews showed that as an effect of the investments, the attractiveness of the school increased and the migration of students towards urban schools or schools with better performances was reduced. This is not generally valid, and urban and high-performance schools have a growing demand. The focus group discussions showed that the attractiveness of the schools is not limited to “what the buildings look like”, but that what is actually achieved in the schools in terms of education is important. Activities and performance improvement can make a school more attractive, investing in infrastructure is only a first step.

The analysis leads to a partial validation of the hypothesis, because the research provides arguments only for certain variables (access of students with SEN, but not statistically significant) and not for all the considered ones (access of Roma students, school dropout rate). There are significant limitations of the target group for which the impact or effects are proven to occur only under certain conditions and situations, namely complementary activities that increase the attractiveness of the school, the involvement of the teachers, the territorial positioning of the school.

**EVALUATION HYPOTHESIS 3: Interventions through KAI 3.4 dedicated to school endowment have a positive impact on the quality of education, in terms of the attractiveness of learning activities and student performance.**

Quantitative and qualitative methods used	Documentary analysis, online survey, interviews, focus groups, case studies
---	---

Partially validated assumption

#### a) Collected data

In order to validate this hypothesis, based on the data available in RIIES, the promotion rate at the national evaluation exam and at the baccaureate were calculated as indicators of school performance. The used database was Set 1, which has the advantage of a sample size of over 1000 school units, and therefore creates the premises for conclusive results.

Also, the conclusions of the evaluation were refined by analysing the impact on certain indicators, such as the number of repeating students and the number of students with failed classes, available in data Set 2.

Complementarily, in the analysis, data collected through the online questionnaires were used, including data on the share of students with failed classes and repeating students, the number of students enrolled in extracurricular activities; the detailed list can be found in Annex 3.1. Qualitative data were collected from beneficiaries and stakeholders to support the interpretation of the data, these being reflected in the instruments in Annex 2.

#### b) Data analysis

The applied methods are, as in the previous cases, the Propensity score matching through different methods, such as the nearest neighbour (the cases with 1 neighbour and 3 different neighbours were taken) and the Kernel method, and the t test for independent samples and descriptive analyses, respectively.

The qualitative data collected through documentary analysis, questionnaires, interviews, focus groups and case studies allowed the completion of the quantitative analysis and triangulation. The PEST and SWOT analysis allowed the contextualization of data interpretation.

#### c) Results from the analysis (findings)

The level of teacher satisfaction in relation to the infrastructure is an essential moderator between the quality of the infrastructure and its impact on the students. Teachers responding to surveys from ROP-funded schools have a significantly higher level of satisfaction in relation to the educational **infrastructure they have available** (statistically significant test,  $p < .05$ ). However, not all of their needs are covered. 50% consider that the educational infrastructure they have is insufficient, compared to 71% of those in schools without projects completed through the ROP. The most important aspects on which the ROP has had an impact, from the perspective of the teachers from the schools with completed projects, are the training space and the general aspect of the school premises (92%), the heating system (91%), the conditions in the building and the safety in the school (90%), respectively the development of opportunities for extracurricular activities and the participation of students in them (91%). By comparison, teachers in schools that did not have projects completed through the ROP are slightly less satisfied with these aspects of basic infrastructure, on average by 10%. The endowments do not have the same perceived impact, but there are more pronounced differences with respect to the level of satisfaction of the teachers in the schools not finalized through the ROP (62% versus 41% regarding the equipment of laboratories, 74% versus 55% regarding the availability of modern teaching equipment, 74% versus 59% regarding the condition of teaching materials and 73% versus 58% regarding the number of

computers). From the perspective of the representatives of the school units, 95% of the school units with completed projects that answered the questionnaire consider that the investments in infrastructure had a positive impact on the teachers, compared to 61% of the schools with unfinished projects that tried to attract funding from other sources.

Significantly, several ROP-funded schools believe that investments in infrastructure have a positive impact on student performance (statistically significant,  $p < .05$ ) and the quality of the educational act (statistically significant,  $p < .05$ ) compared to those with unfinished projects. The CIA analysis was carried out in three distinct cases: on the sub-sample of schools (738 schools) that held the national evaluation exam, on the sub-sample of high schools (242 high schools) that had students enrolled in the baccalaureate exam in 2018 and on the cumulative sample of the school units that participated in one of the two forms evaluation. The differences between the group of funded units and the non-funded units are statistically insignificant. In the case of schools, there is actually a negative effect of a very low intensity, which can be associated with other effects that had an influence on the education system in Romania: the frequent reforms that have changed the forms of the evaluation exams, the lack of interest and support for the teaching staff, the inconsistency of the professional evaluations. These elements are not subject to this evaluation, but are mentioned in the qualitative analysis, being also constantly present on the MNE agenda.

Regarding the identification of **student performance** through the share of students with failed classes or repeating students, the same lack of effect of the programme is observed: although the funded schools have significantly fewer students with failed classes or repeating students, these differences are statistically insignificant and cannot be attributed to the programme. These findings confirm the evidences from the qualitative analysis, the opinions expressed by the participants in the regional and national focus groups, the interviews with the representatives of the regional development agencies. They explain the need for a longer period of time until the impact on school performance is manifested. Moreover, school performance is decisively influenced by a number of factors external to the school, individual, psychological factors, which are not identified in this assessment.

To give robustness to this conclusion, the Difference in Difference (DID) was applied as a complementary method of the CIA, which required pre-intervention data. Set 3 provides information on the number of students re-enrolled in the school unit or the number of failed classes in the 2010-2011 school year. The results suggest a positive but modest effect on school performance: the number of re-enrolled students increased by 1.1, the share of the students with failed classes decreased by 2% (see Annex 2.A.10).

The students involved in **extracurricular activities** in the schools completed under the ROP are not significantly higher in number (statistically significant,  $p < .05$ ). Teachers from both categories of schools involved in the survey consider that the infrastructure they have available helps them to carry out extracurricular activities, without distinguishing a difference between the two categories (93% of teachers in non-funded schools compared to 91% of teachers in schools with completed projects). On average, 107 children from ROP-funded schools are involved in extracurricular activities, compared to 94 from schools not completed through ROP. The biggest difference is seen in the involvement in literature clubs and sports activities, where 8 children are on average more involved in ROP-funded schools.

Several other interesting effects emerged from the questionnaires applied at the level of school units and teachers. Although they do not specifically aim to increase community partnerships, investments through the ROP in the educational infrastructure of schools lead to a significantly better perceived impact on partnerships with local organizations (statistically significant,  $p < .05$ ) and a better, but insignificant one, with local employers (statistically significant,  $p < .05$ ), which may correlate with a higher number of students involved in extracurricular activities.

In addition to the higher level of satisfaction, teachers in schools with projects completed through the ROP mention that they also have a significantly higher level of **knowledge on the programs funded through European funds** (statistically significant,  $p < .05$ ). Therefore, the strategy for communicating the results of the programme has a positive impact in this regard.

The interviews and focus groups highlighted the fact that the programme was designed to meet the basic needs of the infrastructure, with very high funding needs. No direct effect on student performance was expected, but the programme aimed to achieve a complementarity with the SOPHRD program. However, qualitative data indicate a widely shared view that investments in educational infrastructure can have positive effects on performance, but only under certain conditions. This opinion confirms the results of the quantitative analyses. In other words, investing in educational infrastructure is a necessary, but not sufficient condition for school performance.

The case studies highlighted the fact that the investments allowed the organization and conduct of certain value-added activities that would not have been possible otherwise: organizing exams, Olympics and competitions due to the appropriate endowments, developing a culture for sports activities, allowing free participation or the participation at low prices in different sports including swimming (through gyms, swimming pool, sports fields), organizing new and permanent extracurricular activities (clubs, dance classes, theatre groups, etc.), individual access to computers during classes, and for students from disadvantaged groups, conditions for study after classes, specialized practice rooms for students with SEN, organization of after-school activities, etc. This effect is primarily dependent on the concept of the project, namely the extent to which it has included investments to create a modern, innovative learning environment and the capacity of the school, including the teachers' ability to use the infrastructure. The examples provided indicate a vision for the performance of such schools in everything they do, including extracurricular activities and the use of IT equipment.

For students in special schools, the quality of the endowments is a factor influencing the results more obviously than in other schools. The funding has shown what can be done additionally for these students when they have the appropriate endowments. In the project implemented in the Balș school, the music therapy office was equipped with a station with 12 computers connected to a central device, the children having the possibility to work simultaneously. The physiotherapy room was fully equipped with furniture and special devices so that each child could benefit from recovery.

The analysis leads to a partial validation of the hypothesis, because the effects occur only under certain conditions and situations where the infrastructure is used in an approach for long-term performance.



Evaluation hypothesis 4: Interventions through KAI 3.4 on pre-university and university campuses improve the residence and study conditions of the students

Quantitative and qualitative methods used	Documentary analysis, online surveys, interviews, focus groups, case studies
---	--

Partially validated assumption

#### a) Collected data

In order to validate this hypothesis, the following data were collected and analysed:

- **Data on the current accommodation and study conditions in the funding beneficiary campuses. These data include** the number of students/students per room, the perception on campus conditions, access to bathrooms and food preparation offices, the perception of students and campus management regarding the accommodation and study conditions.
- Data on the beneficiary educational establishments and the applicant educational establishments that were not funded. These include the evolution of the number of students, teachers, school results, endowments.
- **Data on the results of the projects and their sustainability.** These data have been collected exhaustively for all projects funded based on the project documents (funding application, final implementation report, sustainability report).
- **Data on the factors that influenced** the generation, sustainability of results and the impacts and their intensity.
- Data on the target group and the end beneficiaries of the investments.

The data were collected and analysed separately for the projects that financed the pre-university campuses and those that financed the university campuses, having funding beneficiaries and end beneficiaries from different categories.

The data collected through IISER were for all 89 educational institutions that applied for funding. The data collected through the online survey come from 22 respondents. The number of observations is insufficient to be able to make generalizations, thus limiting us to conclusions at the level of the analysed educational institutions.

Qualitative data were collected through interviews and documentary research, which provided information for the case study

#### b) Data analysis

The data on the impact of the investments were analysed in order to identify the existence of significant differences between the two groups, test t was applied for independent samples, per institutions with finished versus unfinished projects. The data were triangulated with the information obtained from the qualitative methods.

### c) Results from the analysis (findings)

#### *Impact of the investments in pre-university campuses*

The data collected through the survey (details in annex 3.A.2) indicate a positive perception of the teachers and campus management regarding the improvement of the residence and study conditions. Thus, 95% of the respondents assessed that the investment financed under the ROP had a high and very high impact on the conditions of residence and study.

The investigation reveals a differentiation of the extent to which the conditions of residence and study have improved. Improvements were perceived by more than 90% of the respondents regarding the heating system, access to running water, the distribution of the number of toilets/number of students and their condition. A very high degree of satisfaction (over 80%) is also recorded in terms of access to heating, security and security services or the study conditions.

The investments had a limited impact on certain conditions, which affect the overall satisfaction of the target group targeted by the project such as: medical/counselling offices, conference rooms, as well as those needed to improve Internet access. These needs turn out to be unmet.

Specifically, the evolution of the accommodation conditions is only assessed as positive in terms of the size of the rooms (number of sqm / student) and not so much considering the average number of students/room or the average number of students/bathroom.

The results of the analyses carried out (surveys among funding beneficiaries) regarding the types of facilities that students benefit from (e.g. canteen, reading rooms, workshops, furniture in residence rooms) indicate their availability above average at the level of the campuses (shares between 64% and 82%), but improvements are still needed.

The survey and interviews indicated a **positive impact on the energy efficiency level of the buildings** subject to the investment. The impact of the ROP on energy efficiency was mentioned by 91% of the survey respondents. From the documents of the studied projects it turned out that most of them had as objective the improvement of energy efficiency, this type of actions having a positive impact both from an economic point of view and on the environment.

The results of the analyses carried out indicate that ROP investments contributed to the improvement of the residence and study conditions of the students in the educational institutions and the supported campuses, but differentiated per types of investments. The impact was limited in terms of improving medical/counselling offices, conference rooms or even some key development enhancing elements, such as internet access.

The case study carried out cross-sectionally on five projects shows that investments are perceived as impressive both in the rural and urban areas. For example, the campus in Cumpăna, Constanța county covers almost two hectares and has 24 new classrooms, six laboratories, 120 places in boarding schools and a canteen, library and sports base

Campus investments are complex investment projects that address a wide range of needs, from the teaching process, to accommodation and meals, sports and leisure, extracurricular activities.

The value of the project budgets ranged from 9.9 million lei to 35.3 million lei, the average of all the projects of this operation being 20 million lei, mainly due to the large extension of the works on the infrastructure objects of the campuses. The statements captured at the completion of the

projects refer to the high standards: “This is how all schools should look like in the third millennium”, “Our students go out into the world, but they come back and say we have a campus that in many respects competes with those in England”.

The results of the analyses indicate that the ROP investments contributed to the improvement of the residence and study conditions of the students in the educational establishments and the supported campuses. However, the impact was limited in terms of improving medical/counselling offices, conference rooms or even some key development enhancing elements, such as internet access.

### *University campuses*

Regardless of the type of investments supported, the data resulting from the analysis of the documents, as well as from the interviews and surveys carried out, indicate the improvement of the conditions of residence and study for students, for all the funded projects. We are talking about the refunctionalization of the spaces and the equipping of the rooms with own bathroom and new furniture, as well as the restoration of the water and sewerage, electrical and thermal installations at the campus level, together with specific investments in spaces such as the canteen, the library or the sports fields.

Thus, according to the surveys, **74% of the students declare themselves satisfied to a large or very large extent with the conditions on the campuses.** However, the level of satisfaction is differentiated both by types of investments, but also by type of respondents (university representatives, as direct beneficiaries of funding or students). Thus, specifically on the categories of objectives within the campuses, a degree of satisfaction of over 80% is registered regarding the heating, sewage and water supply system, the level of cleaning or safety and security on campus, as well as the canteen. At the opposite pole we find the soundproofing and provision of computers. Overall, 68.25% of students would recommend the services on campus to other students.

Overcrowding remains a problem on campuses, with over 76% of students being accommodated in rooms with at least 3 people. The space per student remains modest in these conditions. Toilets remain distributed per several rooms (in 52% of cases), while the offices for food preparation are available on each floor only in 67% of cases, and in 29% of cases they are not functional.

A specific situation is found in the campus of the UMF “Iuliu Hațieganu” from Cluj-Napoca, for which the conditions in the dormitories that benefited from interventions through the ROP are assessed as very good by over 90% of the students. In these cases, the bathrooms are distributed in each room (the investments taking this desiderate into account), the study spaces, including the library are considered very good. At the same time, the representatives of the university claim they are very satisfied with the result of the investments.

Another positive example is that of the Dunărea de Jos University of Galați, where the university representatives consider that there has been a significant improvement in the study conditions, upon the setting up and equipping of the laboratories and pilot stations, investments that allowed the active involvement of the university in research activities at national and international level and increasing the prestige of the institution.



As not all variables have improved, and for some variables the improvement was limited and perceived as insufficient, the assumption “Interventions through KAI 3.4 on pre-university and university campuses improve the residence and study conditions of the students” is partially validated.

**EVALUATION HYPOTHESIS 5: Interventions through KAI 3.4 on pre-university and university campuses contribute to improving access to education.**

Quantitative and qualitative methods used	Documentary analysis, online survey, interviews, focus groups, case studies
---	---

Partially validated assumption

a) Collected data

In order to validate this hypothesis, the following data were collected and analysed:

- Data regarding the opinion of the campus management and the students regarding the residence conditions and facilitating access to education, the number of students enrolled in the school units (rural/urban differentiation), number of pupils and students on campuses and number of campus beneficiaries (details for Roma/SEN as well).
- Data on the beneficiary educational establishments and the applicant educational establishments that were not funded. These include the evolution of the number of students, teachers, school results, endowments.
- **Data on the results of the projects and their sustainability.** These data have been collected exhaustively for all projects funded based on the project documents (funding application, final implementation report, sustainability report).
- **Data on the factors that influenced** the generation, sustainability of results and the impacts and their intensity.
- Data on the target group and the end beneficiaries of the investments.

The data were collected and analysed separately for the projects that financed the pre-university campuses and those that financed the university campuses, having funding beneficiaries and end beneficiaries from different categories.

The data were collected for 41 educational institutions receiving funding out of a total of 89 that applied for funding. The data collected through the online survey come from 22 respondents. The number of observations is insufficient to be able to make generalizations, thus limiting us to judgments and conclusions at the level of the analysed educational institutions.

b) Data analysis

The data on the impact of the investments were analysed in order to identify the existence of significant differences between the two groups, test t was applied for independent samples, per institutions with finished versus unfinished projects. The data were triangulated with the information obtained from the qualitative methods.

The obtained results were triangulated with the information obtained through the qualitative methods.

### c) Results from the analysis (findings)

#### *Pre-university campuses*

The results obtained regarding the access and participation in the pre-university education are influenced by both the ROP interventions and other factors, outside the program, but which can positively or negatively affect the implementation and the effects at the target group/domain level. Thus, the general tendency of a declining participation in education, including in the context of the significant external migration in the last years<sup>25</sup>, together with the difficulties faced by disadvantaged groups and the evolutions at local/regional level, significantly influence the obtained results.

On a more specific level, the cost of accommodation constitutes an insignificant barrier in terms of the influence on the effects, being set by law at an accessible level. On the other hand, the quality of accommodation and the conditions of study influence the perception of students, parents and teachers and implicitly their decisions regarding the participation in the educational act. The role of the ROP and of the investments made is perceived as very important in this regard. Two aspects can be highlighted as important in this context:

- **High and very high degree of satisfaction regarding the investments made through the ROP 2007-2013** (over 70% for 11 out of 14 analysis levels/types of investments pursued, according to the survey data at the level of the beneficiaries of investments)
- 95% of respondents to the survey assessed the impact of the ROP on access to education as high and very high.

In quantitative terms, based on data processing from the conducted analyses and surveys, the average number of students directly benefiting from the ROP investment results per supported entity is 898 students. The average for students belonging to disadvantaged groups (coming from rural areas or vulnerable social environments, such as low income families, Roma people, people with disabilities), although lower (261 students/supported entity), remains significant. On average, 59 teachers are added to the direct beneficiaries of ROP investments in the field of rehabilitation/modernization and endowment of pre-university campuses, at the level of each beneficiary entity.

The impact is differentiated at the level of the supported projects. Thus, we observe projects for which the number of students increased as a result of the investments made, but also projects for which, even if we speak of a decrease in absolute terms with respect to the situation before the implementation of the project, the values maintained during the sustainability period are above the values assumed in the CF. The decrease compared to the situation prior to the

---

<sup>25</sup> More details on the evolution of the socio-economic context or the phenomenon of migration abroad can be found in the World Bank analysis *From Uneven Growth to Inclusive Development : Romania's Path to Shared Prosperity. Systematic Country Diagnostic, 2018*, available online at:

<https://openknowledge.worldbank.org/handle/10986/29864>

implementation of the project is mainly influenced by factors external to the program (e.g. demographic developments, socio-economic conditions, etc.).

At the same time, there are projects for which the effects go beyond increasing/maintaining the number of students, as they have positive effects on reducing school dropout rates, reducing absenteeism, as well as on the results obtained after the studies. However, the approach is not a generalized one, and the data regarding the evolution of these impact variables can only be highlighted at project level. An example in this regard is the project *Rehabilitation and expansion of the buildings of the National Agricultural College "Carol I" in Slatina (SMIS 12232)*, for which at the end of the sustainability period a reduction of the school dropout rate by 5% was reported, together with an increase in the number of students obtaining a qualification by 20%, respectively an increase in the insertion degree in the field of work of the high school graduates by 20%.

The results of the analyses carried out indicate that ROP investments have contributed to increasing the access of students to education, but the impact is different at the level of projects and types of investments. Thus, the net effects obtained were significantly influenced by a number of contextual elements, such as socio-economic conditions, external population migration (i.e. leaving of all family members) or local context (in terms of economic development, economic activities, investments made, etc.).

Beyond solving the basic needs of the infrastructure, the state of the buildings and installations, the projects also focused on investments and endowments that can add value to the educational process. These investment elements vary from one project to another, depending on the profile, but also depending on the profile and the actual project concept.

While national colleges with a theoretical profile targeted endowments aimed at supporting their performance, the investments from the schools with a vocational profile are aimed at the insertion of graduates in the labour market.

### *University campuses*

All funded projects have achieved at least 98% of the targets assumed in terms of the number of accommodation places, respectively the number of students benefiting from the new infrastructure. The difference up to 100% appears in the context of the low demand (e.g. students with disabilities) or technical needs (e.g. in the case of the Gheorghe Asachi University project in Iași, a number of rooms have been transformed so as to allow the operation of a thermal point, according to the cogeneration requirements).

The number of students benefiting from the rehabilitated/modernized infrastructure, although there are significant variations in the level of the funded projects, is significant. As a result of the investments made, more than 13,800 students at national level benefit from improved residence and/or study conditions. The number of beneficiaries represents approx. 3.4% of the number of students at national level, respectively approx. 11.4% of the number of students from the supported university centers. As it turned out from the applied questionnaires, the degree of satisfaction regarding the investments made is differentiated by types of investments, the highest level being indicated for the heating system, access to running water, safety and security, canteen (more details can be found in Annex 3.A.2).

As highlighted in the interviews, the precarious conditions in the student dormitories, as well as the high cost of rents, as an alternative to the accommodation offer in the dormitories, may represent important barriers to participation in tertiary education, especially for certain categories of the population (people from rural areas, people with disabilities or Roma people). The monthly accommodation rate, although approx. 80% higher in the rehabilitated/modernized units, remains quite accessible (approx. Lei 120-225/student). About 58% of students say they have the resources to pay for the dormitory, and 80% would recommend the dormitory to other students.

It is concluded from the questionnaires applied that the importance given by the students to the role of accommodation in making a decision on the educational institution varies significantly, covering the entire range of influence, from “very low” to “high” and “very high”, in line with the needs identified at the population level and the limitations regarding the access among persons belonging to disadvantaged groups (including persons from rural areas). At the same time, the surveys and interviews conducted have highlighted the perception of the beneficiary institutions, as well as of other actors (such as teachers, parents of students, other institutions in the community) regarding the importance of the investments made. Thus, they are considered to have had a significant impact on both the accommodation and study conditions - with positive effects on the access and participation in tertiary education - as well as on their performances and the overall quality of the educational act. The related investments (e.g. equipping of laboratories, pilot research stations, improving internet access, library, canteen, recreation spaces, sports field, access roads, etc.), as part of an integrated approach, contribute to the positive effects on the improvement of residence and study conditions.

A particular case is represented by the project of the Dunărea de Jos University of Galați, where the rehabilitation of the spaces for the pilot production stations and a research laboratory was considered. A total of 74 new equipment units are now used in the 3 pilot stations for beer, dairy and meat production and the research laboratory. Although the link between the results of the project and the results of the academic performance of the students and teachers is stronger in the case of an investment in laboratories and pilot stations than in the case of an investment in dormitories, where several factors intervene, no evidence has been identified regarding the improvement of access to education, but rather to a high quality educational process.

In line with the provisions of the applicant’s guide for this type of interventions, all projects considered investments to facilitate access to education for people with disabilities. The degree of use of residential spaces for this category of people varies significantly between projects, and in some cases there is no demand in this regard. However, the improvement of the accessibility of campus and study spaces is beneficial not only to persons with disabilities accommodated on campus, but also to those who visit the more general area of the university. In this regard, we can talk about a potential positive impact of such interventions on access to education for people with disabilities.

The surveys and interviews conducted highlighted that although there are positive effects of ROP interventions on access and participation in education, the impact is differentiated at the level of projects and by types of supported interventions. Complementarity with other projects implemented by the beneficiary institutions (in the field of research, equipping with endowments, etc.) is a key element for ensuring an integrated approach, which would facilitate the production of effects. At the same time, a number of external factors (e.g. socio-economic

conditions and the specific context for certain categories of students) influence the obtained impact.

Given that the analysis can provide evidence of improvements only for a part of the impact variables, some projects and certain types of investments, it can be concluded that the assumption “Interventions through KAI 3.4 on pre-university and university campuses contribute to improving access to education” is partially validated.

**EVALUATION HYPOTHESIS 6: Interventions through KAI 3.4 on pre-university campuses have effects on the correlation of the educational offer with the demands of the labour market**

Quantitative and qualitative methods used	Documentary analysis, online survey, interviews, focus groups, case studies
---	---

Partially validated assumption

*a) Collected data*

In order to validate this hypothesis, data were collected and analysed on the partnerships established by the educational institution with employers, the areas in which there is demand and the accreditation of the required trades, the degree of satisfaction regarding the level of qualification and the employability of graduates, factors that affect the production of the expected impacts.

*b) Data analysis*

Data from questionnaires

Interviews and focus groups

The data on the impact of the investments were analysed in order to identify the existence of significant differences between the two groups, test t was applied for independent samples, per institutions with finished versus unfinished projects.

The data were triangulated with the information obtained from the qualitative methods.

*c) Results from the analysis (findings)*

Through their nature, the projects in this field have a direct correspondence with the labour market, being well anchored in the local specificity and the needs (of potential employers) at this level. Thus, all the funded projects include a detailed context analysis, in which - in addition to the issues that are strictly related to demographic developments and the general state of the school infrastructure - key data are presented regarding the economic situation in the area, the potential for development at local/regional level, as well as data on the main investors (from the point of view of the economic fields in which they operate), highlighting the main qualification needs.

The financed projects are therefore adapted to the local specifics, mainly through the provision of an adequate response to the needs of the labour market. Maintaining the results recorded during the sustainability period, even if there are significant variations at the level of individual projects, is an important clue regarding the adaptation of the interventions to the local specifics

and to the needs of the labour market. At the level of the implemented projects, this correlation was realized on several levels as follows:

- Orientation of the curriculum so as to integrate areas of interest/qualifications required for employers in the area or with the potential to attract new investments
- The integration at the level of projects of certain objectives regarding the increase of the level of qualification of the students, respectively the increase of the number of students who obtain a qualification or the increase of the degree of insertion in the labour market of the graduates
- Modernizing the study conditions, respectively equipping the workshops and laboratories, so as to allow the practical exercises to be carried out under optimal conditions, thus supporting an easier adaptation/transition on the labour market
- To conclude partnerships with the actors on the labour market and with the local community, either for conducting student internships or for supporting their insertion in the labour market. The development of practical activities in partnership (educational institution - companies) is another way of collaboration, which helps to ensure a better correlation of the educational act with the needs, but also with the expectations of the employers, as well

At the same time, the orientation of the ROP interventions in this area on increasing the participation in education of people from disadvantaged groups and obtaining a qualification also ensures an adequate response to the needs of the labour market. The qualification of these persons and the creation of the premises for their activation on the labour market respond to the increasing need of labour force, due to the high rate of inactivity at national level and the significant external migration (especially of the skilled workers).

The case study indicates at project level the ways in which investments have contributed to correlating the supply with the demand on the labour market. Thus, the offer for the current school year of the Cumpăna Vocational School included qualification courses (relevant for the funded investment) based on partnerships with employers, ensuring professional scholarships, but also guaranteeing employment. The offer concerns the tourism and food trades for which the funded projects provided for the equipping of the workshops and laboratories. The Arieșeni Technological High School and the Hunedoara Economics College offer specialties in tourism and food service, both locations being areas with important tourist flows.

However, the approach is not unitary at the level of the funded projects, the emphasis being in some cases on facilitating access to education, including for the disadvantaged groups, while - in other cases - the orientation towards the labour market is more obvious, having defined objectives and monitored results in this sense.

Because not all the defined impact variables have improved (either they were not set as objectives at project level or they were not monitored), and only some projects have set indicators that strictly relate to the labour market correlation and have been able to highlight progress in this regard, the hypothesis **“Interventions through KAI 3.4 on pre-university campuses have effects on the correlation of the educational supply with the demands of the labour market”**



**EVALUATION HYPOTHESIS 7. INTERVENTIONS THROUGH KAI 3.4 IN THE CPT CENTERS CONTRIBUTE TO THE INCREASE OF THE QUALIFICATION LEVEL AMONG THE TARGET GROUP.**

Qualitative methods used

Documentary analysis, interviews, focus groups

PARTIALLY VALIDATED ASSUMPTION

*a) Collected data*

The operation “Rehabilitation, modernization, equipping of CPT Centers” aimed at creating and developing the infrastructure necessary to increase the qualification level of the workforce according to the needs and demands of the employers. The reconstructed logical intervention (illustrated in Annex 7) highlights the need to create modern infrastructures that allow CPT providers to provide vocational training programs that correspond to the demands of the labour market and thus to increase the qualification of the labour force. According to the causal links that underlie the intervention of the modernization of vocational training spaces, the endowments with modern equipment lead to long-term effects, the impact of increasing the level of qualification among the target group, both quantitatively and in terms of the number of people participating in the CPT as well as qualitative in terms of the correlation of qualifications with the demands of the labour market.

The collected data consisted of quantitative and qualitative data on the submitted projects and the funded project, the intervention elements (context, actions, results and impact) and the factors that influenced the production of results and impacts.

For the operationalization of the evaluation, data were collected for the following variables:

- Number of CPT courses held within the center after the completion of the investment
- Number of beneficiaries, participants in CPT within the center after the completion of the investment
- Number of employers with whom the CPT center has collaboration relationships, partnerships
- Number of beneficiaries using the infrastructure in order to increase the qualification level

*b) Data analysis*

As this is a single funded project, the analysis was limited to the data related to the project and the data of an unfinished project among the submitted ones, the closest in terms of type of beneficiaries, namely a technical college.

*c) Results from the analysis (findings)*

The data regarding the implementation of the KAI indicate the low importance of this type of interventions in the funding framework of KAI 3.4, with a single project funded, out of a number of six funding applications submitted, by technical colleges (2), adult training centers (2) or ATUs (2). Of the unfinished projects two were rejected, one was terminated and two remained in reserve, according to the SMIS database.

The discussions within the focus groups showed that although the need is high, the eligibility conditions did not allow the Continuing Training Centers near the AJOFMs to apply, mainly due to the ownership requirement related to the buildings object of the investment.

The program documents, the final implementation report for the ROP 2007-2013 and the SMIS database of the program indicate that a single project was implemented within this operation, namely the Project “Training Center - Câmpulung Technical College” SMIS code 11519, South Muntenia Region. The project was implemented in the period 2010-2014 and had a total value of the incurred eligible expenses of 3 055 258.16 lei compared to the contracted value of 3 990 624.17 lei.

The target group consisted of individuals representing the active population, employed, unemployed or free persons and employers in the Muscel - Argeş region. The area is centered around Câmpulung Municipality, it also includes 14 communes at a distance of up to 50 km from Câmpulung and a population of around 60 000 inhabitants (according to the 2011 census data).

The investments consisted of works for the creation of course and conference rooms in one of the college buildings (the boarding house wing on the 3rd floor), the rehabilitation of the college canteen spaces for practice rooms in the field of services (tourism and food services), the endowment of the classrooms and practice rooms in the canteen (interactive presentation systems, video projectors, copiers, printers, multifunctional devices, video cameras, specific endowments for tourism and food service workshops).

During the project implementation period, the following results were obtained:

- 3 new training courses were accredited during the implementation period of the project
- 160 people participated and were qualified in the rehabilitated center
- 20 temporary jobs were created for trainers with fixed-term employment contracts)
- 5 permanent jobs - financial administrator, stoker, security guard, janitor, worker, of which at the end of the sustainability period (June 2017) 2.5 jobs were occupied, the main external factor being the blocking of these jobs; as they had already been created, they remained vacant until they were unlocked
- Reduction of energy consumption by 30% in the rehabilitated wings, compared to the energy consumption before rehabilitation, fulfilling 100% the target proposed by the project.

After the end of the project’s sustainability period, the CPT courses in particular were dramatically affected by the low solvable demand on the market. From the interviews with the representatives of the center it turned out that, although it is recognized as a representative center in the region, having a long experience, it has an extensive network of partners, proven both by the annual survey carried out by the college and by the long-term collaborations, the demand for paid training courses is very low. The participants are not willing to pay the cost of the course, and the employers, on the one hand, have no incentive for training expenses, and on the other hand, they consider that the format of the courses accredited by the National Qualifications Authority is no longer appropriate to the dynamism and mobility of the economic environment. The main shortcomings are related to the very long duration of the training courses (equivalent to 3, 6 and 9 months of daily participation, respectively). This was also confirmed in the case study by the representatives of the training center that did not receive funding. One of

the traditional partners of the interviewed center exemplified the situation of one of its long-term partners: it preferred to train its staff in France in a more flexible modular system, which allowed it to integrate the staff into production faster. Employers prefer collaborations for the initial training of young people to the detriment of adult education where demand is sporadic and the risk of non-completion or instability at the workplace is high. Thus, the Câmpulung Technical College has accredited specializations at the post-secondary school and vocational school level to meet the demands of the partner employers, thus using the infrastructure created through the project to increase the qualification level of the workforce in the Muscel area.

From the data provided by the college management, it was concluded that after the end of the sustainability period, four CPT courses were organized with 36 qualified graduates, plus post-secondary and vocational school graduates who enjoyed the benefits of the investments in the training center.

The correlation with the labour market is ensured by maintaining the collaboration with the local employers, who participate in an annual survey carried out by the college.

Other factors that limit the correlation with the labour market were mentioned in the interviews. The large number of students in the practice groups (for which one trainer is standard) is not suited to the needs of companies that prefer smaller groups that are easier to manage.

The comparative case study between the situation of the funding beneficiary and of an unfunded applicant shows that, although both are affected by the decrease in demand on the market, the unfunded center has given up continuing vocational training, having no other options to equip the practice workshop for the job of operator of centers with numerical command, for which the demand was and continues to be high.

Both centers showed that the projects were designed in complementarity with projects financed by SOPHRD, through which they obtained the accreditations for the qualification courses, but practically the complementarity cannot be realized due to the lack of funding conditions, the different calendars, the differences between the processes of requesting funding.

Thus, the Câmpulung Technical College has accredited specializations at the post-secondary school and vocational school level to meet the demands of the partner employers, thus using the infrastructure created through the project to increase the qualification level of the workforce in the Muscel area. 212 people attended the post-secondary school courses, using the facilities of the training center in the period 2015-2018 for the trades of technician operator of machines with numerical command, organizer of conferences, congresses, fairs and exhibitions, assistant manager.

At the level of the funded project, there is good cooperation with the economic agents and the capacity of the training center to adapt to a market with a declining demand.

The capacity is based on a solid position of the center in the Muscel area, where it is recognized as the main provider of initial and continuing vocational training. An important factor is the ability to access funds starting with PHARE programs, highlighted in the case study in both analysed centers. However, the complementarity between the infrastructure measures and the soft measures is almost very difficult to achieve from two different programs (ROP and SOPHRD in this studied case).

Given the limitation of this operation to a single project, the fact that the program did not reach the targets of the program indicators, but also the decline of the vocational training market in the country, the assumption is partially validated.

#### 4.2. EI 2. WHAT TYPE OF INTERVENTION PRODUCES RESULTS, FOR WHOM, AND UNDER IN WHAT CONDITIONS?

##### EVALUATION HYPOTHESIS 8. THERE ARE DIFFERENCES BETWEEN THE IMPACT OF INVESTMENTS BETWEEN CERTAIN TYPES OF INTERVENTIONS

Qualitative methods used	Documentary analysis, interviews, focus groups, case studies
--------------------------	--

Validated ASSUMPTION

##### a) Collected data

- data on the type of funded investments, the result indicators (planned/realized/maintained values)
- information from the funding beneficiaries, based on questionnaires, including from the target group
- **information from the funding beneficiaries through qualitative methods** (contextual elements, type of investments made, investment beneficiaries, facilities available on campus, support factors, barriers encountered, etc.)
- **qualitative data from interviews and focus groups** on the extent to which investments are part of a development strategy (at local, institution level), benefits for the organization, support factors or problems encountered and good practices, etc.

##### b) Data analysis

The data from the applied questionnaires on the impact of the investments were analysed in order to identify the existence of significant differences between the two groups, test t was applied for independent samples, per institutions with finished versus unfinished projects. The data were triangulated with the information obtained from the qualitative methods.

Case studies were designed as multiple studies to provide information precisely to identify the differences between projects, beneficiaries, impacts and mechanisms for producing results and impacts.

##### c) Results from the analysis (findings)

The results of the analysis are presented structured on the three types of investments: school infrastructure, university campuses and pre-university campuses. Given that we have only one funded project for investments in PTC, it is not possible to talk about types of projects, and this is not the subject of this analysis.

*Pre-university school infrastructure*

The types of projects implemented are analysed first and foremost by the **investment elements they have realized**. Although the projects were, through their nature, integrated projects, combining the construction or rehabilitation of buildings and other spaces and utilities systems with endowments for the didactic process, the share of the investment elements shows a predominant orientation towards the first category, perfectly justified by the extension of the needs of this kind. From the online questionnaire addressed to the funding beneficiaries (educational institutions that have completed the projects financed under the ROP, details in Annex 3.A.2), it can be seen that the highest share in completed projects is held by: rehabilitation of buildings (80%), heating system (62%), setting up/equipping a computer lab (54%), purchasing of fax, copier (Xerox), multimedia equipment (video projector) (50%), construction of toilets (47%) and expansion of buildings (46%). In the case of unfunded projects, the main investments pursued were also in rehabilitation (63%), followed by the construction of toilets (40%) and the heating system (38%), as well as investments in educational materials for classes and laboratories (34%) and educational software (30%).

Infrastructure funding from sources other than the ROP, both in schools that had completed projects and those with unfinished projects, aimed in particular at providing access to the Internet, video security system, photo-video equipment. The survey also shows that each category (funded and unfunded) tried to attract funds to cover their remaining needs, namely rehabilitation needs (52% unfunded beneficiaries versus 33% funded beneficiaries) and heating system (47% versus 30%), while several schools completed through the ROP tried to complete the laboratory endowment part (48% versus 33%).

These data are confirmed by the opinions expressed in interviews and focus groups. Thus, the projects were mainly focused on basic needs, namely the rehabilitation of buildings, heating and sanitation systems, extensions either with new wings or attic conversion for existing ones, the construction of gyms. These needs were due to the poor state of the infrastructure and the impossibility of authorizing the operation. All stakeholders confirmed that the program was designed to address these pressing issues.

These problems were also faced by schools located in heritage buildings, imposing but damaged. Therefore, the rehabilitation did not have as purpose the value of the heritage building, but the functionality of the building for the educational process. The investment also has indirect effects on urban development, conservation and capitalization of heritage objectives, including increasing tourist attractiveness.

All the projects also included endowments, this being a requirement of the program, but their extent differs. Thus, we have projects focused on the rehabilitation of the infrastructure, constructions and installations with minimal endowments, and we have projects in which the endowments represented an important component. The case study exemplifies some projects that included the purchasing of over 200 computers with monitors, equipping all rooms with internet, interactive boards, creation of practice rooms and specialized laboratories. These projects fall into the category of projects with higher budgets, as opposed to those that focused on pressing issues related to the status and functionality of buildings, utility systems.

The survey does not indicate differences between the two groups (beneficiaries and non-beneficiaries of ROP funding) in terms of attracting funds for projects complementary to the ROP project. In the case of schools with projects completed under the ROP, the implementation of projects was mentioned, targeting the infrastructure in 13% of schools, many related to



endowments, but also the rehabilitation of other buildings in their composition, the majority being done through private or European funds, such as SOPHRD, which allowed investment expenses within 10% of the budget. 14% of schools with unfinished projects have tried to attract funding for infrastructure, covering this need through PNDL, European funds or private funds. Therefore, the endowments are more targeted by funds obtained from large companies, especially with regard to the technology component.

Most of the complementary projects concern the component of personnel training, practice and extra-curricular activities (in 26% of schools with completed projects and 30% of schools with uncompleted projects through the ROP, the most important sources of funding being Erasmus+, SOPHRD/ HCOP and the World Bank. European funds dedicated to mobility are used in 18% of schools with completed projects and 17% of schools with uncompleted projects through the ROP.

There is no evidence to prove a good correlation, taking into account the limitations related to the fact that principals have not kept records in relation to these for the last 10 years. The experience of the ROP 2007-2013 attests to the need to identify mechanisms through which the funding in basic infrastructure and endowments, as well as in aspects related to human resources and competitiveness, will be at a higher level of complementarity.

Case studies have shown that, despite the fact that a strong causal relationship between the investment in education infrastructure and school performance cannot be established, some projects have been **designed for performance**, which can facilitate innovative activities with added value to the educational process. Thus, there were endowments that allowed the organization of the Cambridge exams, the Olympics and specialized competitions, equipping all classrooms with IT technology, extra-curricular activities, virtual libraries, documentation and information centers, sports bases to allow students to train for competitions, endowments in specialized state-of-the-art workshops.

Another element of differentiation is the **quality of the infrastructure**. According to information from focus groups, a problem is the lack of designers specialized in educational infrastructure, guides to guide the design of modern learning environments beyond the minimum requirements for authorization. This was shared by the principal of a beneficiary school, who was advised by a creative architect how the school should look like according to European standards, and the school looks different from the vast majority of schools. A similar example of an innovative learning environment is the Ion Agârbiceanu High School in Cluj Napoca, widely publicized in the press due to the attractiveness it created through the modernization of the educational processes, which would not have been possible without investment. The impact production is also influenced by the **institutional capacity** of the school, the ability to use the created infrastructure. Interviews showed that there is resistance from the teachers to the new methods and equipment that they are not familiar with, the lack of educational software, and the pressure on reducing costs that creates a constraint for extracurricular activities. SOPHRD and Erasmus+ projects can greatly facilitate the coverage of these needs, but ensuring the complementarity of projects from different programs is not easy to achieve. In this case, the complementarity of SOPHRD-ROP was difficult due to the major temporal, thematic and methodological differences.

The survey indicates a higher degree of sustainability in the case of ROP-funded interventions compared to investments financed from other sources. This aspect can be explained through the fact that the works are high quality ones and the resources of the schools for maintenance are limited.



### *Pre-university campuses*

The investments that were the object of the funding in the projects for pre-university campuses closely followed the guidelines established at the OP, DCI and GS level, regarding the type of funded activities. The interventions had an integrated character, targeting both educational and social objectives as well as material objectives (i.e. the rehabilitation/modernization of campuses and their endowment). Specific actions have also been implemented in order to make buildings accessible for people with disabilities, for their increased access and participation in education.

The case studies show that there are differences between projects, between the types of assets built, rehabilitated or purchased, the technical solutions or the usage method in educational processes. These differences are given by the specializations and profile of the educational institution but also by the concept of the projects and the quality of the technical documentation. Deficiencies in the documentation and procurement procedures, in the case of the projects in call 2, which were started through other sources of funding and could not be finalized through them, had negative effects on the implementation period and the ineligible costs incurred by the beneficiary. However, the case studies showed full satisfaction with the results and long-term effects of the projects.

From the point of view of the type of investments, the quantitative data do not indicate significant differences in the level of the funded projects. In most cases, before the implementation of the projects, the educational process was carried out under precarious conditions and with a minimum of teaching material, the conditions of residence and study in the existing spaces being unsatisfactory. The investments mainly aimed at improving the conditions in the classrooms (91% of the investments), the improvement of the residence conditions (82% of the projects), the construction of toilets, bathrooms, etc. The support was less oriented towards equipping the classrooms and laboratories with educational materials (32% of the projects) or the purchase of support equipment (fax, video projector, etc. - present in only 36% of the projects), these being mainly funded through the complementary projects funded from sources other than the ROP 2007-2013.

However, the case study provides examples where the funding of pre-university campuses allowed for innovative activities that would not have been possible without these investments. The versatile multipurpose hall of the Liviu Rebreanu National College allows the organization of sports competitions at a high level, the sports field with running tracks is useful not only for students, but it is also attractive for the participation of other athletes in the municipality, the documentation and information center attracts more than 100 students every day, stimulated by their teachers with new actions, such as “art classes” and “silence classes”, extracurricular activities in laboratories, all highly appreciated by both students and parents.

Among the challenges that have affected the implementation of the projects and implicitly the success of the interventions in the pre-university field, we note, with the highest share, the recession of 2008 (64% of the respondents - funding beneficiaries in the operation regarding the funding of pre-university campuses - considering that they were affected). The legislation in the field of public procurement (32%), difficulties in ensuring the cash flow needed to carry out the project (including in the context of financial corrections) - 36%, changes in the different strategies in education (23%) are also noted among the main identified factors.

On the other hand, the positive factors that supported the implementation of the project include in particular the support received from the local community (95%) and the availability of financial resources (91%). The degree of project preparation and the ability to design and implement projects, together with the existence of a planned investment strategy, taking into account the main funding sources, are factors with positive effects on the implementation of the projects and on the obtained results.

### University campuses

The investments in university campuses were complex projects that integrated several types of activities, i.e. the rehabilitation/modernization of the buildings, the expansion of the buildings, gyms and sports fields, the premises, dormitories and canteens, libraries and information and documentation centers, as well as the accessibility of the buildings for people with disabilities.

On the other hand, there are differences in the type of supported investments, these aiming - in some cases - to meet exclusively the needs for infrastructure modernization/improvement. We can generally speak of a predominantly present profiling of investments, rather than one in the future, according to the identified needs and the problems faced by the beneficiary entities.

**TABLE 5. TYPES OF INVESTMENTS SUPPORTED THROUGH THE REHABILITATION/MODERNIZATION/EXPANSION PROJECTS FOR UNIVERSITY CAMPUSES**

TYPE OF INVESTMENT/S MIS CODE	STUDENT DORMITORY	RELATED SPACES (CAFETERIA)	LIBRARY	SPORTS FIELD	INSTALLATIONS/ACCESS ROUTES	IT EQUIPMENT	LABORATORIES/PILOT STATIONS	TEACHING SPACES	COGENERATION PLANT
2172	x	x		x					x
3179	x	x		x					
11245	x				x	x			
11348	x			x	x				
11377					x		x		
11616	x		x		x	x			
13613	x			x		x	x	x	
6934	x	x							

The data collected from interviews and surveys indicate that the needs were not fully covered, and investments are still needed both in terms of residential infrastructure and in relation to the one strictly related to the research and innovation activity. As it results from interviews, the investments are made on the basis of a strategy, an investment plan at university level and takes into account multiple sources of funding, including own funds.

Part of the projects regarding the rehabilitation/modernization of university campuses included investment elements that aim to improve the educational act, as part of a strategic vision of development. In this regard, we notice the investments that are related to setting up a virtual library (in the case of UMF “Iuliu Hațieganu”, but also those made by the “Dunărea de Jos” University in Galați for the development and equipping of laboratories and pilot stations in support of research and capitalizing on the results of research). The integration within the project of a cogeneration plant, as an alternative way to the supply of electricity and thermal energy (as in the case of the Gheorghe Asachi University project) contributes on the one hand to the increase of the energy efficiency in the use of the infrastructure, and on the other hand it allows the obtaining of additional income for the university, from the sale of surplus energy, thus contributing to the sustainability of the project over time. Table 1 briefly indicates the type of investments supported at the level of each project.

**For all operations, the effects are wider** in the case of projects aimed at complementing the rehabilitation and modernization of buildings, extensions for capacity increase, gyms and sports fields and endowments, laboratories, pilot stations that allow the teaching activities to be carried out in an innovative and stimulating environment, research and extracurricular activities that contribute to increasing the attractiveness of the school for students and their personal development.

The impact is also influenced by the **quality of the infrastructure created or rehabilitated**, the extent to which it creates the learning environment appropriate to the current and future needs of the students, beyond the minimum authorization requirements. Last but not least, the **institutional capacity** of the educational institution influences the impact generation by implementing actions that capitalize on the potential created through the investment, financed either from own resources or through complementary projects with EU funding.

The assumption is validated by the differences found between the types of projects in terms of the generated impact.

EVALUATION HYPOTHESIS 9. THERE ARE DIFFERENCES BETWEEN THE IMPACT OF INVESTMENTS BETWEEN CERTAIN TYPES OF BENEFICIARY EDUCATIONAL INSTITUTIONS	
Qualitative methods used	Documentary analysis, interviews, focus groups, case studies, counterfactual analysis
Validated ASSUMPTION	

a) Collected data

- data on the type of funded investments, the output and result indicators (planned/realized/maintained values)
- information from the funding beneficiaries, based on questionnaires, including from the target group
- **information from the funding beneficiaries through qualitative methods** (contextual elements, type of investments made, investment beneficiaries, facilities available on campus, support factors, barriers encountered, etc.)

- **qualitative data from interviews and focus groups** on the extent to which investments are part of a development strategy (at local, institution level), benefits for the organization, support factors or problems encountered and good practices, etc.
- The data used in the CIE are those of Set 1, due to the definite advantage of a large sample volume of over 900 school units, suitable for a heterogeneity analysis.

#### b) Data analysis

The data from the surveys were analysed using descriptive statistics, the test t for independent samples, and the counterfactual analysis, respectively. The obtained results were triangulated with the information obtained through the qualitative methods.

#### c) Results from the analysis (findings)

This evaluation question is addressed from the perspective of the regional differences, the differences specific to the residence environment (rural or urban) and the characteristics of the funding beneficiaries and end beneficiaries, respectively.

Of the 501 completed projects, 451 were dedicated to investments in school infrastructure. The distribution by regions - detailed in Annex 1 was relatively balanced, although it is not well correlated with the needs in terms of the number of educational institutions. This is due to the fact that there was no prioritization mechanism and the access to funding was largely dependent on the capacity of the ATUs. Only ATUs could prioritize investments at local level, financing the projects according to the ability to access the funds.

The **environment of residence** is a heterogeneity factor of the impact of investments in educational infrastructure, as the counterfactual analysis shows. The impact variables that had an effect at aggregate level, respectively the percentage of rehabilitated buildings and the Index of access to utilities were considered.

The impact is clearly different at the level of the school units, depending on the **environment of residence**: in urban areas, the percentage of buildings totally or partially rehabilitated through school infrastructure projects is 17% higher, and in the rural area the impact on the same indicator is 20%.

The net impact on the degree of access to utilities is stronger in the case of the urban environment, where there is also greater coverage with such utilities: the access index is 3% higher for the funded rural schools and 5.6% higher in the urban area, both values being statistically significant.

These results can be explained by the differences in needs, in the rural area dominating the access to water and sewage, while in the urban area the schools are larger and have more buildings.

From surveys, it appears that, however, there are no significant differences in the *perceived* impact of the interventions finalized under the ROP between the rural and urban environment on the access to education, performance, study conditions and the quality of the educational act. On the other hand, significantly more urban schools consider that investments have had a positive

impact on partnerships with employers (statistically significant,  $p < .05$ ) and with local organizations (statistically significant,  $p < .05$ ). Moreover, according to the data obtained from schools with completed projects, significantly more students from urban areas participate in extracurricular activities (statistically significant,  $p < .05$ ), with an average of 153 students versus 58, significantly more take classes in specialized laboratories (statistically significant,  $p < .05$ ) and practice workshops (statistically significant,  $p < .05$ ) and more, but not significantly, take classes in the gym or on the specially arranged sports field (statistically insignificant,  $p < .05$ ).

The net impact on the endowments was differentiated per **types of school units**. We found that investments of this type at the high school level work better and have a positive impact, significant, of 0.6 units, while the impact on other types of school units is statistically insignificant.

There were **significant differences** between the two calls regarding the type of school units financed and the selection criteria. These differences led to a different impact of the intervention according to the call. Thus, call 1 has a very strong and statistically significant impact on the school infrastructure, measured through the percentage of the rehabilitated buildings, which was 25% higher for the school units funded under this call.

**TABLE 6. IMPACT DIFFERENCES WITHIN THE 2 CALLS FOR PROJECTS**

VARIABLE	SAMPLE	TREATED	CONTROL	DIFFERENCE	STANDARD ERROR	T-STAT
Call 1	Unmatched	0.879709	0.630845	0.248864	0.029316	8.49
	Matched through PSM-	0.881061	0.629698	0.251363	0.033883	7.42
Call 2	Unmatched	0.850758	0.771622	0.079136	0.032581	2.43
	Matched	0.850758	0.838838	0.01192	0.049351	0.24

In the case of the educational infrastructure, the **relation** of the educational institutions with the main categories of stakeholders (MNE, local authorities, NGOs, employers and parents) is similar, the relationship with the ATUs being the most consolidated. However, when it comes to the factors that influenced the implementation, the support received from the local community is by far the most important (83%), followed by the availability of funds to ensure the cash flow needed to carry out the project (64%) and the ability to write and implement projects (63%), factors also linked to ATU. The effects of the recession of 2008 were the main negative factor affecting the smooth development of the completed projects (33%), followed by financial corrections (27%), the public procurement legislation (22%) and the regulations on allowed expenses (22%). 30% of schools with completed projects that answered the questionnaire mention that they have insufficient financial resources available, compared to 59% of the units with unfinished projects.

According to the survey, for the unfunded or unfinished educational infrastructure projects, the main reasons that prevented the projects from being carried out were the lack of support from the ATUs for such projects, the insufficient funds for co-financing and the bureaucracy, along

with an excessively short time between bids, complaints and the deadline for projects (for the second call) and the very high costs of rehabilitating heritage buildings.

Focus groups and interviews revealed different approaches: ATUs that had a proactive approach, planning and managing the process, or ATUs that had a reactive approach, to start the process at the request of schools. The successful examples identified are based on a **good collaboration between the school and the ATU**, each party contributing in this collaboration with specific competences: ATU is expected to bring experience in ROP project management, and the school, competences in education, including a vision for performance development and growth. Thus, the projects developed in a ATU - school partnership, with both parties contributing with adequate capacity and experience, create the premises for better impacts.

In the case of **pre-university campuses**, there is clearly a profiling of investments according to the profile of the educational institution but also according to the nature of the impacts, thus technological high schools aim at the insertion of the graduates in the labour market, while national theoretical colleges target the graduates' competences for the continuation of the studies in prestigious universities.

Summarizing the above information, we can say that the main differentiation is given by the environment of residence of the funding beneficiary school.

In the rural area, funding beneficiaries were able to better solve the problem of the rehabilitation of the available buildings, while in the urban environment, the schools with a larger infrastructure and more buildings could not fully modernize them with the available funding. On the other hand, regarding the impact on the access to utilities, the results indicate a positive but lower impact in the rural area, due to the limited possibilities of access to the range of public utilities. A significant differentiation between the urban and rural areas remains among the funded schools the participation of students in extracurricular activities and the use of laboratories in the teaching and learning process.

## 5. CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

**Conclusion 1.** POR 2007-2013 has fulfilled through KAI 3.4 its objective of contributing to the "improvement of the quality of the infrastructure in compulsory education", through the 501 funded investment projects. The investments have prioritized the problems of infrastructure in compulsory educational, which continue to persist in the education system. However, there was no prioritization of investments guided by a strategic approach at national level.

**Recommendation 1.** Continue financing investments in educational infrastructure while using a national strategy for prioritizing investments in education. Prioritization should take into account at least the demographic changes that may influence demand in the future, the options for optimizing the network of educational establishments, the specific needs regarding space, the state of the basic infrastructure and the quality of the teaching and learning environment. Criteria for the prioritization of projects financed in the future, can be formulated and operationalized through implementing the program on the recommendations in the "Strategy for modernizing the educational infrastructure 2018-2023", following its adoption. This further



implies the necessity of prioritizing investments which are complementary, regardless if they are ROP, LDNP or state and local budget.

**Conclusion 2.** Over 220.000<sup>26</sup> pupils are learning in schools that have benefited from the investments, and have the opportunity to enjoy a comfortable and stimulating learning environment. The projects funded by KAI 3.4 have primarily addressed the basic infrastructure problems regarding compliance with the requirements for the authorization to operate, thermal comfort, access to sanitary groups, safety, and quality of the environment. The impact of the infrastructure investments on school participation and performance is conditional on the orientation of investments towards modern learning environments, and complementary actions with the direct involvement of pupils, parents and the community, and last but not least, the motivation of the teaching staff and a vision of performance-oriented development.

**Recommendation 2.** The infrastructure development projects need to be better targeted towards effects on school performance together with improved study conditions. This can be done through the projects selection methodology by using criteria focused on creating an efficient and stimulation learning environment, complementarity with other projects and actions of the soft type, involving the target groups as well.

**Conclusion 3.** The complementarity between ROP investments and OSPHRD 2007-2013 was difficult to achieve at the level of the beneficiary schools. This was due to the mismatch between the dates of implementation, differences in eligible applicants, major differences in procedures and documentation, all which have been perceived by beneficiaries as a barrier in the way of accessing and transferring the educational process.

**Recommendation 3.** It is recommended to develop a financing mechanism within the same project which can access both infrastructure investments and “soft” interventions, which will create a stronger link between intervention and expected impacts of the education sector, such as access, participation and school performance.

**Conclusion 4.** The quality of the project concept and technical documentation influences the way in which infrastructure can lead to long-term effects. Projects that are designed proactively with a clear vision of a learning environment which fosters the creativity of teachers in using new learning methods, creates the prerequisites for a stronger impact on school and student performance than those who have a reactive approach to eliminating a problem.

**Recommendation 4.** It is recommended that the MA in cooperation with the NME prepare and make available to authorities, beneficiary schools and project writers guides for designing modern learning environments which go beyond the minimum authorization criteria. Examples of good practices from within the country and from abroad can inspire designing projects of modern schools which encourage performance.

**Conclusion 5.** Investment in university campuses have contributed to improve the access to education, by offering the students quality accommodation for lodging at accessible prices, however, the number of accommodation remains too low for the number of students.

---

<sup>26</sup> Number of pupils enrolled in the 2017-2018 school year according to SIIR

**Recommendation of 5.** Financing future investments must take into account increasing the number of accommodation for students, as well as the optimizing the conditions of surface area, number of students per room or sanitary group access<sup>27</sup>.

**Conclusion 6.** A regulatory framework must give impetus to the workforce and vocational training providers in order to produce visible results and impact in infrastructure. KAI 3.4 did not produce a significant impact on the vocational training centers due to the fact that there was a single project finances, and thus limiting its effect to the area of the afore mentioned project. Although the needs for continuous vocational training and improved infrastructure were high and continue to be so, access was limited by the eligibility conditions and the impact was limited by the decrease of the solvent demand for continuous training from both the active population and the employers, but also by the inadequacy of the vocational training system certified at national level in relation to the actual market needs.

**Recommendation 6.** The financial plans for the infrastructure of the vocational training centers must be adapted to their institutional profile in order to facilitate access to the funds, while the framework must be adapted to the needs of the workforce and training providers and thus be capable to stimulate the request for quality continuous vocational training.

**Conclusion 7.** The interventions carried out through ROP have a high degree of sustainability, but the task of assuring the financial, technical and human resources in order to maintain and use efficiently the new infrastructure, remains a difficult task for the beneficiaries, at both local administration management and educational institution level. The demographic changes in the last few years and the restructuring of the school network from 2011 have not significantly influences the degree to which the financed infrastructures are used, however, due to the lack of a national strategy regarding the educational network the risk factor regarding the sustainability of the investments remains high.

**Recommendation 7.** Requirements for the quality of technical-economic documentation in order to operate the infrastructures must be maintained at a high level regarding the assurance of the necessary resources. At the same time, it is recommended to initiate a dialogue with the Ministry of Education regarding possible solutions for the proper financing of the infrastructures financed through ROP. Financing the infrastructure investments in a coherent manner with a national strategy for modernizing educational infrastructure will assure the sustainability regarding the actual needs predicted on the long term.

**Conclusion 8.** Differences in the impact of investments financed in rural areas compared to urban areas confirm that they have responded to different needs. A significant difference can be noted in the way they use infrastructure. In the urban environment, where there is a significantly higher number of pupils, the infrastructure is used by involving pupils in a greater number of extracurricular activities and laboratory or specialized rooms compared to rural schools.

**Recommendation 8.** Rural schools must be supported both in designing projects which include more than the basic infrastructure towards a modern learning environment and in implementing

---

<sup>27</sup> Confirmed need and the ANOSR reports available at: <https://www.anosr.ro/documente/publicatii/>

complementary measures for piloting new teaching methods and increasing the number of extracurricular activities.

**Conclusion 9.** The limited capacity of schools to create investment projects in infrastructure is being augmented by the TAUs which have achieved a greater experience in implementing ROP projects. Good collaboration along with assuming responsibilities during identifying and preparing the projects, implementing them, post-implementation mentoring is a success factor for creating long-term results and effects.

**Recommendation 9.** It is recommended to promote as examples the good practices regarding the collaboration of the TAU with the educational institutions on the modernization of the educational infrastructures.

### Conclusions and recommendations on the evaluation process

**Conclusion 10.** The data required for quantitative assessments, data at beneficiary level, are partially accessible in the IISER database of the NME, fact which requires collecting data directly from the educational establishments. The format of the data in the final progress reports and durability is not suitable for quantitative processing, requiring manual operation. These processes are time consuming and resource intensive and create a burden on the educational institutions and are an unjustified consumption of resources.

**Recommendation 10.** Creating a collaborative protocol between MA ROP and NME in order to prepare the data ahead of the impact evaluation and to avoid collecting quantitative data directly from the beneficiaries at school level after a significant number of years have passed after the projects' implementation. Including in the final reports of the project and the sustainability reports a number of indicators which can only be collected from administrative data. Synthesizing the accomplishments and results from the beneficiaries' reports in a format which can be analyzed quantitatively, including a system which can signal the deviations from the targets. Preparing the data for the impact evaluation of future programs must be made as early as possible, while using the experience of the data collection from the current evaluation.

## LESSONS LEARNED

There are many lessons learned from the implementation of ROP 2007-2013, of which the evaluation team has synthesized the following three lessons from the findings and conclusions already presented:

1. The impact assessment has shown that funding through different programs of modernizing the educational infrastructure, i.e. actions for the development of human capital and research and innovation, has not produced the **expected complementarities at the level of beneficiaries**. Complementary actions financed by OSPHRD, tailored to the needs of each beneficiary of infrastructure investments, had the potential to amplify the effects of investment on school performance and participation. The option of integrated projects, including in the same project both infrastructure development measures and human capital development is seen by the beneficiaries as necessary for producing long term effects.

2. **Strategic vision and quality** are factors that influence impact and can be found in the implementation of the program and projects in multiple aspects, of which we mention: the quality of projects and technical-economic documentations, the quality of the results, the quality of the management of educational establishments capable of directing investments towards performance.
3. Investment in **educational infrastructure cannot produce the expected impacts in the context of isolation from the policies in the field of education and continuous vocational training**. Consistency with educational policies and training offers a favorable and stable framework for harnessing elements of infrastructure, but also cooperation of all stakeholders (TAUs, CSI, MNE, MA, OIR, etc.), in order to extend interest about the effectiveness and impact of investment in education infrastructure.