

Romania
Ministry of National Education and Scientific Research
Romania Secondary Education Project
Loan Agreement N° 8481-RO

Terms of Reference of the Data Model Design Consultant
for Development of the Project Management Information System

1. Background

On April 17, 2015, the Government of Romania (GoR) and the World Bank (WB) signed the Loan Agreement N° 8481-RO on the implementation of the **Romania Secondary Education Project** (hereinafter referred to as **the ROSE Project**). The ROSE Project was declared effective on October 14, 2015, and will be implemented by the Ministry of National Education and Scientific Research of Romania (MENSUR) until November 2022. The ROSE Project Development Objectives (PDO) are to improve the transition from upper secondary to tertiary education and increase the retention in the first year of tertiary education in project-supported education institutions. It is structured in three components, as described below.

Component 1 – School-based and Systemic Interventions. This component finances supply-side interventions at the school and system levels to address the academic and personal factors hindering Romanian students from transitioning from upper secondary to tertiary education, including dropping out, declining to take the Baccalaureate, or scoring a low mark at the Baccalaureate exam.

Sub-component 1.1 – School-based Interventions. This sub-component supports the transition of students from upper secondary to tertiary education using a decentralized approach based on non-competitive grants to low-performing public high schools. The criteria for selection of eligible high schools combine the following rates: Baccalaureate passing rate, dropout rate and upper secondary graduation rate. Grants will be awarded to public high schools for a 4-year period to allow sufficient time for implementing activities aimed at supporting students from Grade 9 through Grade 12. At the end of the Project, it is estimated that approximately 80 percent of Romanian public high schools (1,160) would benefit from this sub-component.

Sub-component 1.2 – Systemic Interventions. This sub-component finances: (i) revision of the upper secondary education curriculum, with specific consideration for the needs of disadvantaged students including Roma; (ii) training of teachers and public school directors on implementing the revised curriculum, on adapting the curriculum to the needs and abilities of different students (inclusive education), student-centered teaching approaches, intercultural competence and on formative assessment; (iii) improving teaching conditions within Teachers Houses; (iv) revising and updating Grade 8 and Baccalaureate exam banks of items, and providing training and improvement of existing information and technologies platform; (v) development and implementation of a Grade 10 learning assessment, to be administered at the end of the compulsory education cycle; (vi) development of digital teaching and learning materials; (vii) development and implementation of campaigns to raise student and teacher awareness, which could be tailored for Roma students; and (viii) strengthening of MENSUR's capacity to use educational information to monitor upper secondary education and the transition of students into tertiary education.

Component 2 – University-Level Interventions and Bridge Programs. This component supports activities designed to address the needs of students who are at risk of dropping out of faculties in the first year of study in tertiary education. It finances two grant schemes – one non-competitive and one competitive – for public universities that serve these at-risk students. In addition to the grants, this component finances technical assistance for evaluation of proposals and grants implementation monitoring. Approximately 85 percent of Romanian public faculties would benefit from this component.

Component 3 – Project Management, Monitoring and Evaluation. This component finances day-to-day project management activities, Monitoring and Evaluation (M&E) activities, project audits, as well as incremental operational and staffing costs of the MENSr's Unit for the Management of Externally Financed Projects. This component also finances the carrying out of: (i) surveys concerning high school students attending bridge programs; (ii) an impact evaluation of the high school grants program to assess improvements in student outcomes and school management processes; (iii) a revision of the existing student loan scheme developed for tertiary education students; (iv) an analysis of existing demand-side programs addressing the needs of disadvantaged upper secondary students that are currently under implementation; and (v) other M&E studies, as needed. The MENSr is the main implementing agency responsible for the ROSE Project. Public high schools and public tertiary education institutions identified as beneficiaries of the grant components implement their corresponding parts of the Project under a decentralized approach, but with technical assistance of specialists financed under the Project. School Inspectorates play a role in the transfer of funds to public high schools under the implementation of the Sub-component 1.1. ROSE Project implementation arrangements rely on the existing structure of the MENSr. The MENSr's Unit for the Management of Externally Financed Projects (UMEFP) has extensive experience with Bank-financed projects, having implemented almost all of the previous operations in Romania, as well as projects financed from other sources. This unit has the adequate capacity to carry out day-to-day project management activities including centralized procurement, financial management, reporting, and project M&E.

A project management and information system for monitoring, reporting and financial management has to be developed on the terms and in a manner acceptable to the World Bank.

Accounting records will be kept in the MENSr's existing accounting software, with supplemental project records and reports kept, in both local and loan currency, in a ROSE Management Information System (RMIS) to be developed with project funds. The UMEFP is responsible for keeping detailed accounting records for the ROSE Project. Specific functionalities should be in place for the timely archiving of the monthly files and regular information backup. Given the large multi-tranche grants schemes for a high number of geographically-dispersed recipients, it is considered beneficial that the RMIS is implemented for monitoring, reporting, and financial management (FM), in particular related to these components which account for more than 80 percent of the loan. It is expected that this RMIS would be able to maintain multi-currency records, per each project component, category, activity, contract and grant, and generate automatic reports to be used for project monitoring, financial reporting and disbursement of the loan proceeds. Appropriate project analytical records and supporting documentation would be maintained at grantees level as well.

The RMIS's objects should be designed to store financial data and to prepare monthly reports to the Ministry of Public Finance, quarterly and annual reports to the World Bank (according

to the templates of interim unaudited financial reports), financial statements for the auditors, and other relevant project reports such as the Project Implementation Plan and Project Procurement Plan. RMIS's objects should store all needed data for management of all activities defined in the Project Implementation Plan in terms of: financial management (resources allocated, committed, and spent); procurement (procurement method, estimated and actual dates of all relevant phases of the procurement process); implementation schedule (estimated and actual implementation periods); and monitoring (measurement of related intermediate and outcome indicators).

The RMIS's data model should include instruments to manage the grants schemes supported by the ROSE, both for the financial and technical activities, according to specific procedures for management of grants to high schools and universities provided by UMEFP.

The RMIS should allow introduction of data from different entities, approximately 1.500, over an Internet connection. It also should allow for keeping detailed project accounting records, including distinct records for each grant project that UMEFP manages.

The RMIS should be able to maintain multi-currency records in Euros and Romanian Lei, per each project component, category, activity, contract and grant, and generate automatic reports to be used for project monitoring, financial reporting and disbursement of the loan proceeds; The RMIS should allow the timely archiving of the monthly files and regular information backup.

The RMIS should be able to produce *inter alia*:

- Project Interim Unaudited Financial Reports (see templates in Annex 1).
- Project Implementation Plan (see templates in Annex 2).
- Project Procurement Plan (see template in Annex 3).
- Project Indicators Monitoring Report (see template in Annex 4).

2. Objective

The objective of this assignment is (i) to design the software architecture of the ROSE Management Information System (RMIS), which should include functionalities on financial management, procurement, monitoring and evaluation, reporting and auditing; and (ii) to coordinate the team of 3 IT consultants (2 software programmers and 1 IT security specialist) and ensure the quality of the final product.

3. Scope of Services

To achieve the objective of this assignment, the Consultant is expected to undertake the following activities:

- *Learning tasks:*
 - Familiarize with the ROSE Project documents including the Project Appraisal Document, Loan Agreement No 8481-RO, Project Operations Manual, Project Implementation Plan and Project Procurement Plan.

- *Have regular meetings with UMEFP Director and other relevant team members* in order to prepare, develop and coordinate all the activities required to fulfill the tasks envisaged. The progress of the services will be closely analyzed, highlighting issues and constraints that may impact the delivery of the RMIS.
- *Coordinate the team of three consultants*, two programmers and one IT security specialist, and provide quality assurance of the final product.
- *Prepare a work plan for the proposed tasks.* Prepare the work plan including the inputs received from the other IT consultants and present the work plan to the ROSE Project Director in a draft version. All comments provided to the Consultant should be incorporated in the final version of this document.
- *Design the RMIS's data model* which should include data objects able to store and report data to be collected at the central (MENSUR-UMEF) and beneficiary (high schools and universities) levels. The design elements will describe the desired RMIS features in sufficient detail to allow the development of the programs with minimal additional input design. A draft version of this data model should be submitted to the Project Director, and all comments provided to the Consultant should be incorporated in the final version of this document.
- *Design specific modules as follows:*
 - *RMIS core (financial management, procurement, monitoring and evaluation, reporting and auditing).*
 - *Project grant applications submission and evaluation.*
 - *Online training.*

A draft version of each module will be developed and the final version will incorporate all comments provided to the Consultant.

- *Develop documents and system requirements* for the implementation of the RMIS. The consultants should (i) create conceptual, functional, and technical design specifications; and (ii) prepare the specifications of all processes to be developed.
- *Prepare a comprehensive documentation* for the RMIS core. Consolidate inputs received from the other IT consultants and prepare a comprehensive documentation for the RMIS core.
- *Assist the UMEFP staff to acquire the proper hardware, setup and configure* hardware and software platform for RMIS and deploy this system.
- *Provide training to the UMEFP staff* for introducing data and utilization of RMIS, including for producing different types of reports.
- *Assist the UMEFP in RMIS administration*, perform minor adjustments over the course of the contract to be signed based on this Terms of Reference.
- *The Consultant will take the full responsibility to identify* the source of malfunctions or errors and will coordinate the other consultants for solving the issue within a reasonable time i.e. providing a response within 3 days. Any bug-fixing will be ensured over a one

year functioning of the RMIS. An evaluation committee set up by the UMEFP will provide a partial operational acceptance for RMIS core and other modules. The final acceptance will be provided after one year of software functioning. Acceptance criteria will be defined by the evaluation committee in terms of functional and non-functional requirements, covering key quality attributes of functional stability, portability and reliability.

The Consultant will make all reasonable efforts to provide clean, error free software, with all required functionalities.

4. Deliverables

As a result of the services described above, the Consultant shall deliver the following:

Deliverable	Deadline (weeks from contract signature)	Deadline (due date)
Draft version work plan	1	
Final version work Plan	2	
1st Version of the RMIS's Data Model	3	
Final Version of the RMIS's Data Model	4	
Documents and system requirements for implementation	4	
1st Version of the RMIS core	6	
2nd Version of the RMIS core	11	
RMIS core documentation	16	June 14, 2016
RMIS system deployment report	16	June 14, 2016
Specific training for the UMEFP staff and report (phase 1 – RMIS core)	18	June 28, 2016
Final Version of grant application submission module	20	
Final Version of evaluation module	23	
First Version online training module	32	
Final Version online training module	36	
Specific training for the UMEFP staff and report (phase 2)	42	
Final implementation report	52	

All reports will be prepared in Romanian language.

5. Qualification

The minimum competencies required from the Consultant are the following:

- Bachelor/Master degree or equivalent in Computer Science or related field;
- Minimum of 5 years of experience with development, implementation or administration of complex IT systems;
- Proven experience in systems design, in-depth knowledge of database development, testing, and integration methodologies;

- Proven knowledge of entity-relationship modeling (E-R modeling) and of system development using relational database management system (relational DBMS);
- Proven ability to conceptualize, design and implement complex information systems, with innovative problem-solving ability, and to produce complex reports;
- Ability to deliver under tight deadlines and produce high quality outputs;
- Experience in documenting and managing issues and actions for development of information systems;
- Ability to work in teams, preparing technical specifications, and communicating with all team members;
- Demonstrate client orientation: balance a responsive and proactive approach to meeting client needs;
- Demonstrate strong interpersonal skills and good written and oral communication skills in English and Romanian;
- High standards of personal integrity and ability to treat people with fairness and respect.

6. Other Relevant Terms

Period of the Assignment. This assignment is planned between March, 2016 and April, 2017.

Reporting. The Consultant should report to the Project Director, and will closely work with the Technical Coordinator, Financial Management Specialist, Grant Officers, Information System Specialist and Monitoring and Evaluation Specialist in the UMEFP.

Deployment of the RMIS. The RMIS should be installed in the MNESR/UMEFP (using the recommended hardware acquired by the MNESR).

Confidentiality. The Consultant shall not at any time communicate to any person or entity any confidential information acquired in the course of the proposed assignment.

Proprietary Rights. All program codes and relevant documentation such as diagrams, models, and databases compiled or prepared by the Consultant for the MNESR/UMEFP in the course of the proposed assignment shall be confidential and become and remain the absolute property of the MNESR. The Consultant shall, not later than upon termination or expiration of the Contract to be prepared for the proposed assignment, deliver all such program codes and documents to the UMEFP.

Equipment and Software for Development of the RMIS. The Consultant should use his/her own equipment to carry out the tasks proposed in this Terms of Reference.

Annex 1 - Project Interim Unaudited Financial Reports

ROMANIA
SECONDARY EDUCATION PROJECT
SOURCES AND USES OF FUNDS
FOR THE QUARTER ENDED XX/XX/201X
IN LOCAL CURRENCY

[illegible]

Interim un-audited Financial Reports (IFR)

ROMANIA
SECONDARY EDUCATION PROJECT
TREASURY ACCOUNT STATEMENT
FOR THE QUARTER ENDED XX/XX/201X
IN LOCAL CURRENCY

[illegible]

ROMANIA
SECONDARY EDUCATION PROJECT
SUMMARY OF WITHDRAWAL APPLICATIONS
FOR THE QUARTER ENDED XX/XX/201X
IN LOCAL CURRENCY

1. Withdrawal application #1 covering the period	Amount requested	Amount approved	Cumulative	Value date
Total Withdrawal Applications				

ROMANIA
SECONDARY EDUCATION PROJECT
BREAKDOWN OF GRANTS TO HIGH SCHOOLS
FOR THE QUARTER ENDED XXXX/201X
IN LOCAL CURRENCY

	Grant No. / approval date	Approved Grant amount	Paid Grant amount	Remaining balance	Payments incurred during the quarter	Payments incurred cumulative-to- date
Sub-component 1.1 School-based and Systemic interventions						
Beneficiary 1						
Pedagogical activities						
Extracurricular activities						
Small rehabilitations						
Grant management costs						
Beneficiary 2						
Pedagogical activities						
Extracurricular activities						
Small rehabilitations						
Grant management costs						
Beneficiary 3						
Pedagogical activities						
Extracurricular activities						
Small rehabilitations						
Grant management costs						
Total						

Interim un-audited Financial Reports (IFR)

ROMANIA
SECONDARY EDUCATION PROJECT
BREAKDOWN OF GRANTS TO UNIVERSITIES
FOR THE QUARTER ENDED XX/XX/201X
IN LOCAL CURRENCY

	Grant No. / approval date	Approved Grant amount	Paid Grant amount	Remaining balance	Payments incurred during the quarter	Payments incurred cumulative-to-date
Component 2. University-level Interventions and Bridge Programs						
Beneficiary 1 (university)						
Grant 1						
Bridge programs						
Grant 2						
Learning centers						
Sub-beneficiary 1 (faculty)						
Academic activities						
Grant management costs						
Sub-beneficiary 2 (faculty)						
Academic activities						
Grant management costs						
Beneficiary 2 (university)						
Grant 1						
Bridge programs						
Grant 2						
Learning centers						
Sub-beneficiary 1 (faculty)						
Academic activities						
Grant management costs						
Sub-beneficiary 2 (faculty)						
Academic activities						
Grant management costs						

Annex 2 - Project Implementation Plan

ROMANIA SECONDARY EDUCATION PROJECT (ROSE Project)		Project Implementation Plan																														
Component	Sub-components	Activities	Implementation of ROSE Project			Unit	Library Cost	Contract												Responsible Unit	Type of Activity	Procurement Arrangements	M&E Arrangements			Link to the Education Sector Plan						
			Start Date	Contract Date	End Date			2014	2015	2016	2017	2018	2019	2020	2021	Total	Output	Related outcome														
																		Description	Baseline													
Component 1- School-based and Systemic Interventions																																
Sub-component 1.1 - School-based Interventions																																
		1.1.1 Preparation of guidelines for grant activities (grant manual, operational course in training, developing socio-emotional skills, inclusive education, professional consulting and guidance, personal development and																														
		1.1.2 Technical assistance to facilitate the preparation of grant proposals																														
		1.1.3 Monitoring for Fiduciary Activities																														
		1.1.4 Technical assistance to monitor the high school grants																														
		1.1.5 Monitoring for the high school grants																														
		1.1.6 Incremental operational costs for resources for the high school grants																														
		1.1.7 Grants to High Schools																														
		Total of Sub-component 1.1																														
		Sub-component 1.2 - Systemic Interventions																														
		1.2.1 Revision of the upper secondary education curriculum																														
		1.2.2 Training of teachers and school directors on pedagogical and didactic competences to implement the revised curriculum																														
		1.2.3 Revision and update to Grade 8 and Bacalaureat course content database and associated training																														
		1.2.4 Upgrade infrastructure (hardware and software material) for National Examinations and Evaluation Computer-based system																														
		1.2.5 Training for INECI & INCEI staff (selected teachers' representatives)																														
		1.2.6 Development and implementation of Grade 10 assessment (first attempt for each subject)																														
		1.2.7 Challenges to raise students and teachers awareness																														
		1.2.8 Strengthening INECI's data capacity and utilization of INECI data to track upper secondary students and enhance their transition into tertiary education																														
		1.2.9 Development of digital teaching and learning materials																														
		1.2.10 Improving Conditions of Teachers																														
		Total of Sub-component 1.2																														
		Total of Component 1																														
Component 2 - Inter-institutional Interventions and Results Framework																																
		2.1 Technical assistance for developing science bridge programmes, programmes for the development of social and emotional skills and tertiary education career applications																														
		2.2 Technical assistance to evaluate the grant proposals																														
		2.3 Technical assistance to monitor the grants at the level of interventions																														
		2.4 Grants for the university grants																														
		2.5 Incremental operational costs for resources for the university grants																														
		2.6 Small grants for supporting at-risk students																														
		2.7 Medium grants for supporting at-risk students																														
		2.8 Large Grants for supporting at-risk students																														
		2.9 Grants for science bridge programs																														
		2.10 Grants for learning centres																														
		Total of Component 2																														
Component 3 - Project Management, Monitoring and Evaluation																																
		3.1 Financing of INCEP staff salaries																														
		3.2 Financing of INCEP operational costs																														
		3.3 Workshops, seminars, meetings for preparation of the service providers																														
		3.4 Purchase of equipment for INCEP implementation vehicles																														
		3.5 INCEP staff training																														
		3.6 Project Financial Audit																														
		3.7 Communication campaigns for project awareness and involvement																														
		3.8 Communication - Printing and materials																														
		3.9 INCEP for monitoring and reporting projects activities (including travel)																														
		3.10 Technical assistance to design the ToR for Project Impact Evaluations and Other Monitoring and Evaluation Studies and local studies for analysis of demand-side programs																														
		3.11 Project Impact Evaluation and Other Monitoring and Evaluation Studies																														
		3.12 Local studies for analysis of demand-side programs																														
		3.13 Revision budget loan studies																														
		Total of Component 3																														
		Total of Project Costs																														

Annex 3 - Project Procurement Plan

Procurement Plan - Consultants' Services - updated on Bank approval Date of the Procurement Plan : Original Period covered by this Procurement Plan:																								
Contract Reference Number	Description	Type	Number of packages	Estimated cost (EUR)	Bank Prior Review	Selection Method	Finaliz. of TOR and Bank's NO	Request of Exp of Interest	Short List of Const	Request for Proposals	NO short listed RFP	RFP Issued	Technical Proposal Opening	Eval of Technical Proposal	NO Techn. eval. report	Financial Proposal Opening	Final Eval Report	Receipt of Draft Contract (NO)	NO to Contract	Award of Contract Signature	Contract Completion date	Contract Value (contract currency (millions))	Contract Value (mill US\$)	Consultant name
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
	plan																							
	revised																							
	actual																							
	plan																							
	revised																							
	actual																							
Component 1 - School based																								
	plan																							
	revised																							
	actual																							
	plan																							
	revised																							
	actual																							
	plan																							
	revised																							
	actual																							
Component 2 - University -Level Interventions and Bridge																								
	plan																							
	revised																							
	actual																							
	plan																							
	revised																							
	actual																							
	plan																							
	revised																							
	actual																							
Component 3 - Project Management, Monitoring and Evaluation																								
	plan																							
	revised																							
	actual																							

Annex 4 - Project Indicators Monitoring Report

ROSE's Results Framework Performance Monitoring Indicators

Project Development Objective: the Project Development Objectives are to improve the transition from upper secondary into tertiary education and increase the retention in the first year of tertiary education in project-supported education institutions.

Project Development Objective Indicators (*)

Indicator Name	Unit of Measure	Cumulative Target Values							Frequency	Data Source / Methodology	Responsibility for Data Collection
		YR 1	YR 2	YR 3	YR 4	YR 5	YR 6	YR 7			
Average dropout rate in the final grade in project-supported high schools	Percentage	6.5%	6.2%	5.8%	5%	4%	3.8%	3.5%	Annual	MESR's EMIS; School Inspectorates	MESR; School Inspectorates
<i>Sub-type indicator:</i>											
Percentage of project-supported high schools with dropout rate above 7 percent	Percentage	23.1%	22%	19%	16%	13%	11%	10%	Annual	MESR's EMIS; School Inspectorates	MESR; School Inspectorates
Average graduation rate in project-supported high schools	Percentage	86.9%	88%	89%	90%	91%	92%	93%	Annual	MESR's EMIS; School Inspectorates Graduation in grade 12	MESR; School Inspectorates
Average Baccalaureate passing rate in project-supported high schools	Percentage	49.6%	50%	52%	54%	56%	58%	59%	Annual	MESR's documents	MESR
Average retention rate in the first year of tertiary education in project-supported faculties	Percentage	82.3%	82.3%	82.5%	83%	83.5%	84%	84.5%	Annual	MESR's documents; Project-supported	MESR

Intermediate Results Indicators

Component 1 – School-based and Systemic Interventions

Percentage of eligible high schools benefitting from the project grants	Percentage	0%	25%	90%	90%	90%	90%	90%	Semi-annual	MESR's documents	MESR
Percentage of project-supported high schools that implement the grants in compliance with grant performance indicators	Percentage	0%	50%	60%	75%	85%	100%	100%	Semi-annual	Grants performance requirements to be specified in the POM	MESR
Percentage of project-supported high schools that implement the grants in compliance with requirements for citizen engagement applicable to the Project (**)	Percentage	0%	65%	70%	75%	80%	85%	90%	Semi-annual	Requirements for citizen engagement applicable to the Project to be specified in the POM	MESR
Average percentage of students of project-supported high school benefitting from remedial, tutoring or counselling activities (*)	Percentage	0%	10%	20%	30%	40%	45%	50%	Semi-annual	MESR's documents	MESR
Grade 10 assessment developed and administered, and results used to inform policy	Yes/No	No	No	No	No	Yes	Yes	Yes	Semi-annual	MESR's documents	MESR

Component 2 – University-Level Interventions and Bridge Programs

Percentage of eligible faculties benefitting from project grants	Percentage	0%	25%	80%	80%	80%	80%	80%	Semi-annual	MESR's documents	MESR
Number of at risk tertiary education students benefitting from remediation and counseling programs (*)	Number (in thousands)	0	5	10	60	60	60	60	Semi-annual	MESR's documents	MESR
Number of project-supported high school students who participate in bridge programs (*)	Number (in thousands)	0	1	3	6	8	8	8	Semi-annual	MESR's documents	MESR

Component 3 – Project Management, Monitoring and Evaluation

Report on the analysis of existing demand-side programs for disadvantaged upper secondary education students published with	Yes/No	No	Yes	Yes	Yes	Yes	Yes	Yes	Semi-annual	MESR's documents	Consultant to be hired to analyze the
Share of students of project-supported high school attending bridge programs who demonstrate motivation to pursue tertiary	Percentage	N/A	N/A	To be determined	N/A	N/A	30%	30%	At the end of YR 3 and YR 5	Two student surveys. The final target is 30% higher than the	Company to be hired to carry out the
Tertiary education students loan scheme revised and used to inform policy makers	Yes/No	No	No	Yes	Yes	Yes	Yes	Yes	Annual	MESR's documents	Consultant to be hired to revise the students loan scheme
Direct project beneficiaries, of which female (*) (core indicator)	Number (in thousands)	0	460	900	1,14	1,39	1,62	1,62	Annual	MESR's documents; MESR's EMIS; School Inspectorates	MESR