



Erasmus+

KA3 - Support for Policy Reform - Initiatives for Policy Innovation

European Policy Experimentations 2014

(Call for proposals EACEA/10/2014)

Final Report Template

Questions can be sent to:

E- mail: EACEA-Policy-Support@ec.europa.eu

1st version June 2017

I. GENERAL INFORMATION

Project title: EMREX
Agreement number: 2014 - 3656 / 001 - 001
Project website: www.emrex.eu

Reporting period: From 01.01.2015
To 31.12.2017
Date of submission: 9.3.2018

Beneficiary organisation: CSC
Project coordinator (contact person): Antti Mäki / Mats Lindstedt
Project coordinator email address: antti.maki@csc.fi / mats.lindstedt@csc.fi

II. DECLARATION ON HONOUR BY THE BENEFICIARY

Grant Agreement number: 2014 - 3656 / 001 - 001

I, the undersigned, hereby declare that the information contained in this Report is accurate and in accordance with the facts. In particular, I certify that the Financial Statement, provided as an Excel spreadsheet (Financial reporting Table) with this report, properly reflects the financial transactions made for the project in accordance with the provisions of the Agreement and its Annexes signed with the Education, Audiovisual and Culture Executive Agency and that full supporting documentation to justify the costs and revenues is available for checks and audits.

This information has been checked and approved by the partners involved in the activities set out in this report.

I herewith request payment of further pre-financing payment in accordance with article 1.4.1 of the Agreement.

The beneficiary allows the European Commission and the Education, Audiovisual and Culture Executive Agency to make available and use all data provided in this report for the purposes of managing and evaluating the Erasmus + Programme. All personal data collected for the purpose of this project shall be processed in accordance with Regulation (EC) No 45/2001 of the European Parliament and of the Council on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies.

Data subjects may, on written request, gain access to their personal data. They should address any questions regarding the processing of their personal data to the Education, Audiovisual and Culture Executive Agency. Data subjects may lodge a complaint against the processing of their personal data with the European Data Protection Supervisor at any time.

Signed in: Espoo, Finland

on 2 / 3 / 2018

Signature of the beneficiary's legal representative**Seal/stamp of the organisation***Name and function in capital letters: KIMMO KOSKI, MANAGING DIRECTOR*

III. INFORMATION RELATED TO THE IMPLEMENTED ACTIVITIES

Please provide an overview on **implementation of the project**, by following the instructions below.

1. Executive Project Summary

Please provide a succinct summary of the project as implemented. Outline the main activities carried out and explain to what extent the results achieved are contributing to the aims of the project and the objectives of the call. Please summarise the main outputs and outcomes, the partnership involvement, future upscaling plans and the project contribution to EU policies. (Please do not copy the description of the application).

The main priority that EMREX addressed was the EU 2020 target that 20% of higher education students should be mobile during their studies. The process of admission and recognition is costly and inefficient today, and EMREX hopes to lower the barrier for foreign exchanges by making the process easier and thus increase the rate of student mobility.

A field trial between six countries tested a solution for electronic transfer of achievement records between HEIs.

The evaluation of the trial consisted of five analyses:

1. Logs on the usage of EMREX
2. A user survey to evaluate the tool
3. In-depth interviews with administrators
4. Data on student mobility
5. A survey on exchange students' opinion on the recognition process

The key finding was that EMREX works and supports student mobility. The main outputs from the project:

- The EMREX network and User Group that will continue in production also after the project
- ELMO standard for achievements
- www.emrex.eu
- Field Trial report with policy recommendations, technical documentation and the evaluation report

The EMREX project was a joint effort by 8 partners from Denmark, Finland, Italy, Norway, Poland and Sweden. The partners had direct support from their Ministries. The key success factor for EMREX was the decision that EMREX is a joint and agile project. All information was at all times shared with all partners.

The stakeholders were: national agencies for Erasmus+, ministries of HE, HEIs, and students in higher education.

Dissemination was mainly through www.emrex.eu, newsletters and presentations at international conferences. New partners have joined the network and interest is global, e.g. the cooperation with PESC in the USA.

The Field trial report states some candidates for policy recommendations. The major ones are:

- Need for common standard for achievement results (ELMO)
- Common policies for linking student data to eID in HE
- Acceptance of electronic signatures across borders

This section will be published on the [Erasmus+ Projects' Results Platform](http://ec.europa.eu/programmes/erasmus-plus/projects/) (<http://ec.europa.eu/programmes/erasmus-plus/projects/>). Please upload project results & outcomes into the platform, which are obligatory at final report stage. Information on how to use the Platform is available here (<http://ec.europa.eu/programmes/erasmus-plus/projects/eplus-help/>).

The maximum character limit is **2000 characters** (spaces included).

2. Award criteria

2.1 Relevance

Please explain concretely how the project addressed the European/national priorities identified in the original proposal and the main results achieved in addressing these priorities. Describe how the high level expertise of public authorities on the evaluation of policy impact was ensured.

The main priority that EMREX addressed was the EU 2020 target that 20% of higher education students should be mobile during their studies. The process of admission and recognition is costly and inefficient today, and EMREX planned to lower the barrier for foreign exchanges by making the process electronic, and thus easier, and increase the rate of student mobility.

Whilst digitizing student records by placing individual at the centre of data management, the project actually fostered interoperable environment (or ecosystem) for free flow of educational data across borders. By increasing business opportunities and availability of knowledge for various actors across Europe, EMREX has supported European data economy and ultimately, the Digital Single Market.

During the project EMREX first built a network for electronic exchange of achievement data, then tested the solution with exchange students in the partner countries in a field trial. Over 400 students transferred their results using EMREX. The experiences from the field trial showed that the technical solution is easy to use and greatly appreciated by the students, but also that there is some need for more harmonizing of policies on a EU level. For example more agreement on the recognition of prior learning process and what data should be used for it.

The project utilized the high level expertise of public authorities in three ways.

1. EMREX had a policy Steering Group (SG) consisting of high-level representatives from Ministries and similar bodies in each participating country.

<https://confluence.csc.fi/display/EMREX/Steering+Group>

The SG was in charge of the overall strategic leadership of the project. The SG met twelve times during the project and also followed the project via monthly progress reports. During the meetings the SG members provided valuable support and contacts to policy groups that EMREX could be in contact with.

2. The Stakeholder Forum met in 27.10.2015 in Copenhagen and the second meeting was in Helsinki 31.1.2017. In each meeting the plans for EMREX were presented and feedback gathered from various stakeholders, including HEI staff, related projects and policy makers.

3. In addition each partner arranged national meetings with appropriate national bodies to explain EMREX and to gather feedback.

<https://confluence.csc.fi/display/EMREX/Emrex+presentations+and+marketing>

The project has also cooperated with other EU initiatives, especially with Erasmus Without Paper, European Student Card and the FAIR project. In addition to being active in Nordforum, EUNIS, EAIE and the Groningen Declaration Network to involve also non-project members in defining the future digital solutions. EMREX has also participated in many events arranged by EU agencies.

2.2 Project design and implementation

2.2.1 Experimentation methodology and protocol. Please describe the experimentation methodology and the steps of the experimentation protocol implemented. Please comment any change (target groups, methodology, roles and responsibilities, roadmap, monitoring and reporting, typology and timing of field trials, assessment criteria and benchmarks, evaluation plans) which occurred in the protocol in comparison with the original work plan and describe measures taken to address these changes. Also describe how ethical challenges were addressed by the partnership.

EMREX's aim was to improve the recognition process and by doing that to increase student participation in exchange programmes. The original research design included analysis of changes in the number of recognised grades or ECTS credits and if possible the recognition rates i.e. the share of recognised grades or ECTS credits, the monitoring of changes in the number of exchange students as well as the analysis of changes in student perception of the recognition process at both target and control group of higher education institutions. The first two issues were to be studied with administrative data on student mobility. The third one was to be studied with data collected in the survey of exchange students.

In the course of the trial, the methodology had to be revised. First, the random assignment to the treatment and control group was not implemented. This step was taken in order to maximise the number of potential users. Cancelling the random assignment let the project team to recruit more HEIs to offer the tool to students (participation in the trial was not mandatory for institutions). On the other hand, it is still possible to compare student mobility before and after the intervention and to use students coming from or going to one of the countries not participating in the trial as the reference group.

Second, the set of indicators had to be adjusted because of the issues with data quality and availability. By and large, administrative data is the best possible source of information for this type of research. Relying on administrative data allows the study to cover the entire population and greatly reduces the cost of such an endeavour, but it also limits the analysis to the kinds of information collected by the administration. There is however no single European register of students comprising all information on students' educational paths. The Mobility Tool aims to gather data on student exchanges within the Erasmus programme. But Erasmus programme is far from being the only student exchange programme in Europe. Therefore, the research team had to rely on the data on the number of exchange students collected by various institutions in partner countries (see the detailed description of data sources in the following subsection). The standards of reporting vary from country to country affecting the comparability of the results. This means that one should avoid comparing the number of exchange students. However, the data suffice to monitor changes in the mobility rate or the proportion of students going to a given country within a country or a HEI.

Originally data was to be exported separately for every semester. There were however two obstacles. On the one hand, in countries collecting aggregated data from HEIs a typical reporting period is a year or an academic year. Forcing HEIs to submit data twice a year would be a serious institutional change. On the other hand, in countries with centralised databases, universities usually do not register all data regularly. Data quality improves dramatically before

the scheduled exports for reporting purposes. Therefore, the analysis uses data for years not semesters. The inflexibility of reporting systems has one more adverse consequence, namely different reporting periods. Some countries collect statistics for years while other do so for academic years.

Delays in data processing proved to be a real challenge. It may take several months after the end of a semester or year before official statistics are available. Therefore, mobility data on 2017, the year with the highest number of EMREX users, could not be included in the analysis.

The number of recognised grades of ECTS credits proved to be problematic. The advantage of centralised data collection systems is their standardisation but they are often inflexible and lack more detailed data. The number of recognised grades needed to evaluate the impact on the recognition process is but one example of such information. The only solution would be to use data collected by universities which tend to have more detailed information (Norway is an exception because it runs a centralised database for all public institutions in the country). This solution was not organisationally viable in Sweden and Denmark. In Norway, Finland, and Italy the exported data on the recognised records did not seem reliable enough to be analysed. The differences in recognition process organisation between institutions or even between departments within an institution (mentioned in the qualitative study) may be to blame. Apparently without a centralised and standardised approach to such a complicated matter as recognition the records cannot be useful for evaluation purposes. However, a part of the questionnaire of the exchange students survey regarded the share of recognised grades or ECTS credits.

After the listed changes, the design of the administrative data analysis was as follows. The analysis monitors changes in both outbound and inbound mobility. If the impact of EMREX is independent of any other policy affecting student mobility that was implemented at the same time, the number of students going to or coming from one of the countries participating in the trial should rise faster or fall slower than the number of students going to or coming from the other countries. Therefore, this study focuses on the changes in the share of outgoing exchange students choosing to go to one of the trial countries and the share of incoming exchange students coming from trial countries. It compares the share of students going to EMREX countries or coming from such countries in the year when the tool was implemented and in the year preceding it. Focusing on the share of incoming or outgoing students has two advantages. First, it takes into account a possible variation in the number of students at an institution. Second, it should not be affected by a general rise or fall in student mobility.

EMREX promised easy transfers between three countries: Finland, Norway, Sweden, and selected institutions in Denmark and Italy. But EMREX's delayed roll-out in Denmark and limited implementation in Italy mean that during larger part of the field trial the system was operational only in Finland, Norway, and Sweden. That is why the share of exchange students coming from or going to EMREX offering countries was calculated twice: for all EMREX countries and only for the three countries that had fully implemented the tool.

The analysis has two levels: national and institutional (HEI). In the case of a single HEI not all results are presented as some institutions have the number of exchange students so small that even a minor change in student choices could significantly affect the indicators. In the case of outbound mobility only institutions with over 100 outgoing students in both measurements are included in the tables. Analogically, in the case of inbound mobility only institutions with over 100 incoming students in both measurements appear in the tables.

The survey of exchange students was disseminated among all exchange students in the field trial countries. The questionnaire consisted of five blocks of questions or modules. The first module comprised questions identifying the home and host institutions of respondents and their countries and questions regarding the detail of the exchange, including the starting and ending date (month and year), exchange programme as well as basic information on respondents' academic programmes. The second block consisted of questions on organisation of the process of academic records recognition at a respondent's home institution. In the next section of the questionnaire respondents were asked what the process looked like in their case. The evaluation of the recognition process was the topic of the fourth section. In the final section EMREX and other electronic solutions for improving the recognition process were assessed.

The analysis compares the results before and after the implementation of EMREX for the control group and target group of the survey. The compared groups are:

- 1) students who went from a field trial institution (all institutions in Finland, Norway, and Sweden) to a field trial institution (all institutions in Finland, Norway, and Sweden as well as selected institutions in Denmark and Italy) who constitute the treatment group;
- 2) the other students i.e. those who either come from a non-field-trial institution or went to a non-field-trial institution who are the control group.

The exposure to EMREX at the time of return is the treatment in this study therefore the distinction between "before" and "after" is made according to the time of return to the home institution. The first live tests with real students and real data were conducted in March 2016 therefore it is assumed that students who returned from their exchange studies in the fall semester of 2016 are those who were potentially affected by the implemented policy.

In order to evaluate the effects of the experimentation the following steps were taken:

- 1) the calculation of the difference in the values of indicators between respondents coming from or going to a non-EMREX institution who returned before September 2016 and those who returned in September 2016 or later,
- 2) the calculation of the difference in the values of indicators between respondents coming from and going to an EMREX institution who returned before September 2016 and those who returned in September 2016 or later,
- 3) the comparison of the differences.

Moreover, the evaluation of the project included two other research projects: a study of EMREX users conducted immediately after they had used the tool and a series of interviews with administrative personnel. The aim of both studies was to evaluate the tool and identify possible improvements.

To summarize, after detailed analysis of the possible data sources, the methodology was adapted accordingly. Five different studies were carried out to measure results of the field trial, data was collected and analysed. Conclusions were formulated in the final evaluation report. The designed methodology is easily scalable. The evaluation could be improved if there was a centralised and standardised data collection system that collected complete data on student mobility. It is also essential to improve the quality of data on the recognised credits and grades. These recommendations of the evaluation team were also added in the report.

Ethical challenges were addressed by the partnership by respecting privacy of students taking part in the field trial, privacy of students filling in surveys (long, short), choosing on a voluntary basis administrative staff taking part in a qualitative study, doing statistical analysis of data

only when a certain number of samples could be collected, not using student's credentials to transfer data on their behalf etc.

2.2.2 Implemented activities. Please describe schematically and chronologically the main phases of the project, highlighting the key deliverables/outputs/results achieved.

During the first year of the project, in 2015, the focus was on designing the solution, planning the field trial and starting the dissemination activities. Immediately at the start of the project the project planning, organisation and setting up of the needed tools took place. The main deliverables and output from the work packages in 2015 were:

WP 1:

- Project plan prepared and approved by all partners in the beginning of the project
- Consortium plan prepared and signed in January 2015
- Quality plan prepared and approved
- Risk plan prepared and approved
- Set-up of the collaboration workspace and communication channels to be used throughout the project
- Setting up the Steering Group

WP 2:

- Planning document prepared, including technical requirements for the solution
- Report on legal issues affecting EMREX

WP 3:

- Open source mechanisms listed
- Development of national contact points
- Development of EMREG
- Development of student mobility plug-ins
- Security report

WP 4:

- List and agreements with HEIs to participate in the field trial
- List of students that could participate in the field trial
- Information material about field trial prepared for the HEIs

WP 5:

- Desk research
- Planning the evaluation methodology
- Choice of tools for the evaluation part
- Initial qualitative study

WP 6:

- ELMO examples from all partners
- Suggestion for changes to the ELMO standard to support the field trial
- Model of ELMO
- Standardized attributes in ELMO

WP 7:

- www.emrex.eu website launched
- Marketing plan created
- The first EMREX Seminar and Stakeholder Forum

During the second year, in 2016, the field trial started and dissemination continued. Also the development activities were continued and finished in many partner countries.

WP 1:

- Maintaining the collaboration workspace and communication channels
- First report to EACEA delivered
- Running the SG meetings

WP 3:

- Local development and deployment of the EMREX network for the field trial

WP 4:

- Starting the field trial in all countries except Denmark
- Field trial marketing material improved and delivered
- Support for field trial commenced

WP 5:

- First collection of survey data
- First collection of administrative data

WP 7:

- Communication plan established
- Dissemination activities, e.g. presenting EMREX at many conferences
- Website renewed
- Production of EMREX “commercial” videos

In the last year of the project, during 2017 the field trial was finished and the analysis of the results conducted. In addition to a lot of dissemination activities and planning for the continuation of the EMREX network after the end of the project

WP 1:

- Hand-over plan
- Preparing the final report
- Second report to EACEA
- SG meetings
- Establishment of the EMREX User Group

WP 3:

- Additional development of the EMREX network
- Denmark joined the network
- Technical documentation finalized

WP 4:

- Denmark joined the field trial

- Running the field trial, ending it
- Support, improving material
- Field trial final report including policy recommendations

WP 5:

- Second collection of survey data
- Second collection of administrative data
- Interviews with administrations in all partner countries
- Raw data collected from all partners
- Evaluation report

WP 6:

- Glossary published
- New version of ELMO 1.2.
- Final report on standardization

WP 7:

- www.emrex.eu updated and maintained
- Second EMREX Seminar and Stakeholder Forum
- EMREX Unleashed Seminar
- Dissemination activities, e.g. lots of conferences
- Technical workshops with potential new partners

In case of deviation or changes, please explain clearly which activity was not implemented in line with the initial work plan, which activity foreseen in the description of the project was modified. You are also invited to provide here details of problems encountered and the solutions that were implemented. Please use the work package titles, types and references that you used in annex I of your grant agreement.

* Specify whether, in case of an amendment, you notified and received the approval from EACEA or not.

Workpackage Title	Workpackage Type and Reference	Planned Starting Date	Actual Starting Date	Planned duration	Actual duration
Planning	WP2	01/2015	01/2015	7 months	10 months
Deviation and the reason for it					
The technical planning and the use cases were finished as planned, but the legal workshop was postponed until fall 2015 and also the planning of the field trial continued up until the field trial started.					
Proposed or Implemented Solution					

All planned deliverables were delivered.

Workpackage Title	Workpackage Type and Reference	Planned Starting Date	Actual Starting Date	Planned duration	Actual duration
IT development	WP3 Experimentation protocol	1.6.2015	31.12.2015	7 month	26 months
<p>Deviation and the reason for it All common activities were finished within planned duration, but the local development in each country took more time than estimated. The first countries were ready for field trial in Spring 2016, and the last in Spring 2017. Based on the experience from the field trial the technical platform has been updated throughout the project, and this resulted in a viable network ready for expansion when the project ends.</p>					
<p>Proposed or Implemented Solution All proposed solutions have been implemented as part of the project. Development and deployment of NCP's were planned for five countries. In addition Poland and the Netherlands have connected to the network with their own NCP during the project period.</p>					

Workpackage Title	Workpackage Type and Reference	Planned Starting Date	Actual Starting Date	Planned duration	Actual duration
Field trial	WP4	01/2016	02/2016	13 months	20 months
<p>Deviation and the reason for it Prolonged time for field trial. The project grasped the opportunity to include even more students in the trial since no drawbacks were found with this. The project has delivered development on time and the evaluation period could easily be shortened so this was an easy decision. The Field trial also started slightly later than proposed but that was by far compensated by the longer period.</p>					
<p>Proposed or Implemented Solution Just keep the field trial active for a longer period.</p>					

Workpackage Title	Workpackage Type and Reference	Planned Starting Date	Actual Starting Date	Planned duration	Actual duration
Evaluation	WP5	1.03.2015	1.3.2015	24 months	33 months

Deviation and the reason for it

The original research design included analysis of changes in the number of recognised grades or ECTS credits and if possible the recognition rates i.e. the share of recognised grades or ECTS credits as well as the monitoring of changes in the number of exchange students at both target and control group higher education institutions. However, in the course of the trial, the methodology had to be revised and simplified due to unforeseen complications.

First, the random assignment to the treatment and control group was not implemented. This step was taken in order to maximise the number of potential users. Dropping the random assignment let the project team to recruit more HEIs to offer the tool to students (participation in the trial was not mandatory for institutions).

Second, the set of indicators had to be adjusted because of data quality issues. By and large, administrative data is the best possible source of information for this type of research. Relying on administrative data allows to cover the entire population and greatly reduces the cost of such an endeavour, but it also limits the analysis to the kinds of information collected by the administration (Jasiński, Bożykowski, Zajac, Styczeń, & Izdebski, 2015; United Nations Economic Commission for Europe, 2007; Wallgren & Wallgren, 2007).

Changes in methodology were explained in the mid-term report, and later extra explanations were delivered upon the request of the reviewers.

The duration of data gathering was extended - initially it was planned to finish the trial in February 2017, however in order to get more data it was extended to September 2017.

Proposed or Implemented Solution

All proposed evaluation studies have been carried out during the project. Every research was carried twice, the first set of data was gathered and the mid-term report was written, the results were discussed with the partners. The second step was carried after the whole set of data was gathered. In most cases it was the end of September 2017. Then the final reports were written.

Desk research was carried out in the first quarter of 2015.

Qualitative study was carried out in two phases:

1. Initial qualitative study was done in April-October 2015, interviews were run by the partners. The mid-term report was written in January 2016.
2. Final qualitative study was done in 2017. Interviews were conducted directly by the WP5 team in March-April 2017. The final report was written in January 2017.

Research based on administrative registers was carried out in two phases:

1. Initial analysis was performed on data gathered in 2015.
2. Final analysis was performed on data gathered in 2016.

Long survey was carried out in two phases:

1. First round was done in May 2016-January 2017, mid-term report was written in February 2017.
2. Second round ended in September 2017, the final report was written in November 2017.

Short survey was observed carefully during the time of the trial. It delivered valuable feedback which was immediately taken into account.

1. Data from March 2016-January 2017 was the basis for the mid-term report written in February 2017.

2. Data was gathered until the end of September 2017, the final report was written in November 2017.

Statistics from short survey, SMP logs and NCP logs were gathered constantly during the course or the trial. Twice the more deep analysis was carried and results shared with the partners:

1. Preliminary analysis was done in December 2016, using prototype tool in Excel.
2. Final analysis was done in October 2017, using upgraded tool in Excel.

Workpackage Title	Workpackage Type and Reference	Planned Starting Date	Actual Starting Date	Planned duration	Actual duration
Standardization	WP6	1.12.2014	1.1.2015	13 months	23

Deviation and the reason for it

The work package was extended to last for the whole EMREX project. The main factor for this deviation is that the ELMO format (part of the work package) needed to be updated during and after the field trial: The field trial uncovered several needs for changes in the ELMO format. In addition, as EMREX expanded to new countries, new needs arose.

Proposed or Implemented Solution

All proposed solutions have been implemented as part of the project. The ELMO format has been expanded to cover information from education levels below higher education to enable support for recognition of results from these levels.

Workpackage Title	Workpackage Type and Reference	Planned Starting Date	Actual Starting Date	Planned duration	Actual duration
Dissemination and scaling-up	WP7	1.1.2015	1.1.2015	35 months	36 months

Deviation and the reason for it

- Newsletters have not been sent out on a quarterly basis during the entire project. The reason for this was, that the project did not consider the news value high enough before we got close to the start of the field trial.
- News packages as such have not been created.

Proposed or Implemented Solution

- Six newsletters have been sent out from autumn 2015 onwards. Besides this news have been posted regularly on the website, and the website has been kept updated during the entire project.
- Newsletters and news on the website have replaced the news packages.

2.2.3 Involvement of public authorities. Please explain how the responsible public authorities contributed to steer the implementation.

Each partner has been responsible for ensuring their local high level public authority is kept in the loop. On a project level their participation was ensured through the Steering Group and by keeping them up-to-date with the progress with the monthly reports. For example in Norway the ministry is very much involved in the digitalization process of Norwegian HEI services, of which EMREX was one. In Finland the ministry and related ministry agencies closely followed EMREX and had close connections to the Finnish project-partner, which was also the case in Norway. In Denmark the ministry was one of the partners in the project. Another of the partners in the project, Swedish Council for Higher Education, is an Agency under the Swedish government. In Italy the ministry is in the board of CINECA so it was directly involved and kept in the loop about the project.

EMREX had a Steering Group (SG) consisting of high-level representatives from Ministries and similar bodies in each participating country.

<https://confluence.csc.fi/display/EMREX/Steering+Group>

The SG was in charge of the overall strategic leadership of the project. The SG met four times each year during the project (every second time as a face-to-face meeting), and also followed the project via monthly progress reports. During the meetings the SG members have provided valuable support and contact to policy groups that EMREX should be in contact with.

2.2.4 Quality assurance measures. Please explain what monitoring activities (including risk identification and risk mitigation) within the quality assurance plan were carried out in order to assess whether the project proceeded according to the work plan and include measurable quality indicators for progress. Please describe the strategy applied for internal and external evaluation of project results and include measurable quality indicators for progress.

Monitoring activities

The project QA function has produced an overall project Quality Plan as well as instructed and supported the WP's and the partners on QA issues. The purpose of the QA monitoring has been to ensure that the project planning and implementation ensures the fulfillment of promises and ambitions made in the project application.

Quality assurance has been a standing issue on the bi-weekly project management meetings where we have when needed followed up that project activities are on track, that corrective measures have been taken when needed and that these has had the required effect.

The quality assurance activities planned in the project Quality Plan included Project Reviews and Quality Audits. It was also possible for every partner in the project to call for a general review in order to verify that a process or activity is sufficient for its purpose and is applied and followed.

Project Reviews were planned to be conducted annually in order to discover any deviations from and/or risks related to time, schedule, scope, and budget which can threaten the project and/or the outcome of the project. The bi-weekly meetings did cover project quality follow-up more than well enough to make the Project Review unnecessary.

Quality Audits were also planned to be conducted annually in order to measure the application of the approved Quality Plan and discover deviations that can be negative for the project and/or the outcome of the project. Each partner was audited twice during the project period regarding their respective ability to fulfil their commitments including WP management processes and staff continuity. The audits did not reveal any major deviances unknown to the project management but they did result in some correcting recommendations. Audit reports are available on the project wiki.

No partner called for a general review.

Progress has been measured against defined milestones as well as status on deliverables and deviance has been followed up on the project management meetings.

Risk identification

The main risks of the project were identified early in the project by the project management group and listed in the [risk register](#) on the project wiki. The risk follow-up has been a standing issue on each project management meeting where we also decided on correcting measures. Each WP has also respectively identified specific risks and registered them in their local risk registers on the wiki.

Risk mitigation

Project risks have been analysed and discussed in the project group where the status has been followed up and a mitigation strategy defined when needed. Risk mitigation is also documented in the risk register.

Each Work Package also specified mitigation of the WP specific risks in the local risk register.

Strategy for internal evaluation of project results

The internal evaluation of project results has been a responsibility for Work Package 5.

Strategy for external evaluation of project results

The project results have not been formally evaluated as such by an external body. All results have been presented at conferences, workshops and seminars as well as in direct discussions with organizations interested in joining the EMREX network.

Measurable quality indicators for progress

Progress has been measured for each work package by the status of their respective deliverables.

Work package 1 has been responsible for the project management and for follow-up of the main deliverables of the project. The progress of each deliverable has been followed up on the project group meetings. Measurable quality indicators for progress has been:

- Arrangement of internal project meetings
- Reaction on deviations from plans
- Updated plans after deviations

- QA audits

Work package 3 has produced the technical infrastructure that each partner has implemented according to plan. Measurable quality indicators have included:

- Delivery of the technical infrastructure that ensures a secure and juridically transfer of credentials
- Installation and operation of the network
- Publication of Open Source components and instruction material for external parties who wants to join the network

Work package 4 has recruited students for the field trial. Not getting enough students to test the solution was deemed to be the biggest risk for the project and as of this WP4 has been the focus of project follows up. Major quality indicators has been

- Communication plan production and implementation
- Field trial start in each planned partner country
- Number of students testing EMREX for the transfer of credentials

Work package 5 has defined the evaluation methodology and collected data for the surveys intended to evaluate the solution and its impact on the student mobility in European higher education. WP5 has also evaluated the system solution from a technical perspective. Major quality indicators has been

- Method definition and acceptance for the evaluation
- Data collection from the field study

Work package 6 has been working on the ELMO schema for credential declaration. The major quality indicator has been the progress of producing the schema and its ability to fulfil the requirement on the schema.

Work package 7 has been responsible for the project dissemination and scaling-up. Main quality indicators have been the production of communication material and the status of arranging or participating in conferences and other openings to inform about the project.

2.2.5 Overall project management. Please explain how day-to-day project activities were managed; indicating what kind of administrative support or other support you received from the partners. If you encountered difficulties related to the management of the project, please indicate the type of problems and the solutions found to address them.

The main management principle of EMREX was that it was a joint project where all information and tasks were openly shared between the partners. For example a project group email-list was used to ensure that all partners got the same information and all documentation was shared on the project's wikipages. All partners were asked to contribute to all Work Packages and were able to assist each other throughout the project.

The operational management of the project was managed by the Project Group. Each partner had a representative in the Project Group (PG) and the PG held biweekly telcos to monitor and manage the progress of the project. All partners except KION/CINECA were also in charge of a Work Package and thus of planning its activities and monitoring its progress. Progress reports,

risk analyses, resource issues, technical decisions, etc. were handled in the Project Group. Monthly progress reports were gathered from all Work Packages and shared with everybody.

In addition and as part of the Consortium Agreement, the partners met regularly to formally check that the project was on track, that the forecasted spending was according to the budget and to verify that all partners were meeting their obligations.

The partners also held face-to-face planning meetings, e.g. the halftime workshop to discuss the progress so far and to jointly plan the rest of the project.

Throughout the project the QA function provided valuable support to the partners. Two audit rounds were done to evaluate all partners and to discuss possible bottlenecks or risks. In addition the QA manager continuously checked the reporting, documentation and planning of all the WPs.

The Project Co-ordinator acted as the chairman of the Project Group and the project manager for EMREX, ensuring that the project stayed on track.

Each partner was responsible for allocating suitable and sufficient resources to the tasks given to them. During the project several people changed positions, which sometimes caused concern. The Project Co-ordinator worked together with the partner to re-allocate tasks and to ensure a smooth hand-over to the new people.

The chosen approach of a joint project proved very useful and the project group was able to flexibly adapt to changes and work in an agile way. All partners stayed committed to the project and contributed.

2.2.6 Financial management. Please comment on the cost-effectiveness of the implemented activities, summarising it for each budgetary heading of direct costs. Please describe how the proof of cost was managed between the partners and outline the consistency of the application with the real costs. If there were any deviations please explain. Describe how the financial management arrangements were organised. Please argue how the project guaranteed good value for money.

The EMREX field trial was based on work done within the RS3G (e.g. Student Mobility Pilot) and the Nordforum community (e.g. Enabling Student Mobility) and also in some of the participating countries. For example on a prototype developed between Norway and Finland. The EMREX field trial itself was run by universities and using students from those universities as part of their normal activities. Hence the organizations and administrators needed were already in place and there was a minimum set-up cost for the field trial.

Cost per budget line:

In total the project ended up slightly below the estimated budget. The budget was updated once in February 2017.

Staff costs:

The staff costs were mostly in line with the project application. In total it proved to be even less than the estimate, partly due to synergies with other activities and for Poland's part due to the hourly rate being less than estimated. Although it also made it possible for Poland to perform

more tasks for the project. UHR switched from using a consultant to using own staff, which changed their budget, but did not have a substantial effect on the total project costs.

Travel and subsistence.

Travel costs proved to be more substantial than expected. EMREX proved to be a success much earlier than planned and the project was invited to numerous events early on. As a key to the success of EMREX is to get as many EU countries as possible to join, a lot of effort was put on dissemination activities and meetings with potential new members. The final travel costs were in line with the updated budget.

Equipment costs:

Overall the equipment costs for EMREX was very low as for most partners existing infrastructure was used. For Finland the costs were for a couple of virtual servers. For Denmark equipment costs have been related to licenses needed for maintenance of the www.emrex.eu website. However, as the costs were small and mostly part of the larger ICT overhead costs per organization, eventually no partner reported the costs as part of the EMREX project.

Subcontracting:

Especially for Denmark the amount of subcontracting increased from what was estimated due to some issues with the NCP development. For Finland an extra marketing video was made, which was not included in the original cost estimate. As mentioned UHR seized to use a contractor and replaced him with own staff.

Other direct costs:

Some extra effort was put into dissemination, e.g. extra conferences were held. The other direct costs were in line with the updated budget.

An updated forecast was presented to EACEA in spring 2017, with some extra activities possible due to less spending than expected.

Each partner was in charge of his own bookkeeping and for adhering to national regulations. On a project level accumulated costs and updated forecasts were gathered from all partners twice a year to ensure that the project was on track. In addition a monthly updated spending table was filled in by all partners. This was very useful in the beginning of the project to verify that the spending was on the right level.

Financial management and issues were part of the bi-weekly project group telcos. Changes were discussed and when needed input was sought from EACEA by the project co-ordinator.

The EMREX field trial was based on a very efficient process for sharing student data and on a simplified technical architecture. No administratively expensive central control agency and hub is needed in the developed network, the National Contact Points are enough. And since the students utilized already existing authentication systems and were directly personally responsible for initiating the transfer of their own student data from already existing databases, there was also no need for new agreements between countries or institutions. The EMREX field trial could therefore be run in a cost-effective way fully focused on implementing the field trial, evaluating its impact on the policies and recommending actions based on the results.

Because of the innovative way of using national solutions in EMREX and because important solutions and background work had already been done in other projects, and the people

involved were already familiar with the vision of EMREX, the EMREX-project could be run very cost-efficiently and the EMREX network will provide great value for money also in the future.

2.3 Partnership and Cooperation arrangements

Please describe how the division of tasks was managed between the various beneficiaries, for both co-ordination and administrative management. Particular attention should be paid to the description of how this division of tasks was managed in the decision-making process. Describe how the political leadership and direct involvement of the high level public authorities in the project was ensured in practice. Were there changes in the partnership or division of tasks compared to the application? If so, explain their impact on the partnership and the implementation of the project. Provide information on the communication strategy and tools used to reach the various stakeholders in the project.

A Consortium Agreement that defined the legal responsibilities of the partners was signed in early 2015. Consortium Group meetings were held throughout the project to monitor the activities and to verify that all partners adhere to the agreement. No major problems arose that would have required an intervention from the Consortium. All partners have been fulfilling their obligations throughout the project.

The actual work in EMREX was divided into work packages and each work package was assigned a lead partner. The lead partner was responsible for that work package and for ensuring that appropriate decisions were taken. Minor issues were dealt with directly in that work package and agreed among those partners who contribute to that work package. Note that most partners had at least one member in most work packages, EMREX was a joint project and the teams consisted of the relevant experts regardless of their home organisation. A key aspect of EMREX was to keep all partners informed and involved at all times. Larger issues were raised to the Project Group, which consisted of members from all partners. This ensured that all partners were involved in the decision making process when needed. All decisions were also documented in the meeting notes in wiki.

During the project the Project Group had 48 telco meetings and 13 face-to-face meetings and successfully dealt with the planning of the project, monitoring of the field trial, dissemination plans and jointly addressed any need for further specifications. All decisions in the project were unanimous.

Each partner was responsible for ensuring that their local high level public authority was kept in the loop. On a project level their participation was ensured through the Steering Group and by keeping them up-to-date with the progress with the monthly reports. For example in Norway the ministry is very much involved in the digitalization process of Norwegian HEI services, of which EMREX was one. In Finland the ministry and related ministry agencies closely followed EMREX. In Denmark the ministry was one of the partners in the project.

The communication plan prepared by WP7 has been kept updated and followed during the project. Stakeholders have been reached through newsletters, website, meetings, and presentations at conferences. Special focus has been on the www.emrex.eu website and two videos have been made to explain EMREX and the need for it from a student perspective.

Communication and monitoring of the field trial was done via status reports from WP4 at project group meetings every other week, monthly WP4 meetings with all involved partners and newsletters (internal and external) etc.

<https://confluence.csc.fi/display/EMREX/Trial+and+testing>

During the project one administrative change in the partnership occurred. KION was merged into its parent company CINECA, who thus became the new partner from Italy. The same persons continued in the project with the same tasks after the merger.

2.4 Impact, dissemination, and sustainability

2.4.1 Dissemination and communication. Please describe the awareness-raising, dissemination and communication initiatives carried out, both within the framework of the project and outside the project which ensure the achievement of results. In particular, please describe the upscaling approach, strategy and/or methodology of the chosen good practice(s)/action (s) at the chosen level(s) (e.g. institutional, local, regional, national and/or EU and the dissemination channels used. Please indicate any change which occurred in comparison with the original plans for dissemination.

Dissemination of results within the project (understood as among the partners):

This has primarily been done through the following activities:

- Confluence project website - <https://confluence.csc.fi/display/EMREX/EMREX> - where all important information, meeting minutes etc. are being shared.
- biweekly project group meetings (held as telcos)
- face-to-face project group meetings
- monthly project reports from each WP
- all partners participating in most of the WP-workshops as well as telcos held
- Mail groups ensuring that all who want to be informed get all important email correspondence concerning the project.

Dissemination and communication initiatives carried out with focus on outside the project:

A very important part of this work has been done through presentations and presence at different international conferences. In total EMREX has been presented in 20 different countries with a total audience of over 5.500 participants! EMREX has during the project been presented at the following international conferences in no particular order:

- EUNIS-conferences 2015, 2016 and 2017
- Groningen Conference 2015, 2016 and 2017
- ENIC/NARIC-meeting in Austria, June 2015 and again in 2016 in Brussels
- Erasmus Without Papers Kickoff, Belgium, November 2015
- Erasmus Without Papers Seminar, Porto, February 2017
- EAIE conference in Liverpool 2016 and in Seville in 2017

- NORDUNETT annual meeting in 2016
- Nordlys Conference 2016
- European Campus Card Association Conference 2016
- IAAO-conferences in 2016 (Cavtat, Croatia) and 2017 (Stockholm, Sweden)
- CRUE-TIC conference 2016
- NA-meeting in Brussels 2016
- NordForum meetings in 2015 and 2016 and at the larger NordForum Seminar in 2017 (only the project participating.)
- EMREX Seminars in Copenhagen, October 2015, Helsinki, February 2017 and Bologna November 2017 (participants from Non-EMREX countries also invited and participating)
- EURASHE Annual Conference 2017, Le Havre, France
- ECTS Medicine Association Annual General Meeting 2017, Copenhagen
- TAICEP Annual Conference 2017, Rome, Italy
- ERACON 2017 in Maribor, Slovenia
- Conference on Digital Documents in Education, 2017, Riga, Latvia
- SCOOP4C and TOOP, 2017, Germany

See total presentation list in confluence at <https://confluence.csc.fi/display/EMREX/Emrex+presentations+and+marketing>. This list includes project internal presentations – presentations primarily directed towards HEIs in project participating countries.

Beside this a website – <http://emrex.eu/> – has been established. News posts on the website have informed about what was going on in the project and different sections have made it possible for everyone interested to follow the project in general.

Regular dissemination packages as mentioned in the proposal have not been established but all necessary material has been available through the website, and 6 newsletters have been sent out during the field trial – primarily to countries within the project, but also to some stakeholders outside.

Workshops has been organized with institutions/organisations outside the project – for example SIGMA in Spain, SfH in Germany and DUO in The Netherlands. The primary focus with these has been to show that it is easy getting started with EMREX.

Joint meetings have been held with European Student Card Project and FAIR, and several people involved in EMREX are also a part of the Erasmus Without Paper Project.

The main objective of all these initiatives has been to make sure that as many people as possible working with international education and student mobility within higher education in Europe has heard of this project and has had the opportunity to learn how they can benefit from it. Many of the conferences where the project has been presented cover all levels – institutional, local, regional, national and EU.

2.4.2 Impact. Please explain how the dissemination and upscaling have the potential to generate impact at system and or policy level. Is there any visible impact on the EU level? Furthermore what activities have you initiated in order to ensure **exploitation** of the project results?

Spreading the word about EMREX to all of Europe is necessary to get as many countries/institutions started using the solution and thereby ensuring a larger network. The more countries/institutions that use EMREX, the more others will get interested as this means that the implementation will help more students with getting their achievement records digitally. The Netherlands are about to implement EMREX, and Spain, Croatia and Germany and working on it on different levels. The EMREX Project is in close contact with these coming partners to ensure that they will be successful in their implementation. Furthermore contacts have been made to for example JISC in the UK, PESC in USA and CHESICC in China.

The project has put a big effort in being as visible as possible and was also mentioned in “COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on a renewed EU agenda for higher education” when it was published 30. June 2017.

The Steering Group has been actively involved in the project from the beginning and the very early involvement of the political authorities in the participating countries has generated some impact at the system and policy level. This has also meant that in some countries, EMREX is now also used to support country internal student mobility between HEIs.

The enhanced availability and reliability of the achievement information transferred during the field trial in the participating countries resulted in lasting change of procedure for submitting the documents from the students returning from their studies abroad in one of the participating countries: University of Bergen in Norway has decided that results are no longer issued and cannot be obtained as paper transcripts. Instead, it is the digital version of achievement information obtained through the Norwegian NCP that is official and is the one to be used when sending or sharing to other higher education institutions. This procedural and policy change at one of the higher education institutions participating in the trial – apart from the success of the functionality of the technical solution – is one of the most prominent, tangible outcomes of the field trial.

An EMREX User Group will be established in January 2018 to continue the work and ensure that the EMREX network will continue developing and stay in production. As mentioned several new partners have already declared their decision to join the network.

2.4.3 Involved partners/ stakeholders. Please describe the involvement of relevant stakeholders and specify activities they were contributing to sustainability of results.

The relevant stakeholders has been kept up-to-date through newsletters, website and 2 Stakeholder Forum meetings, where the project received valuable feedback. Among the stakeholders have been:

- IRO's/Heads of international offices
- Project leader from the EWP project
- Erasmus+ coordinators
- People from Erasmus+ national agencies
- Erasmus student network representatives

- People from relevant national agencies/ministries
- NordForum
- EUNIS task force
- Synergia-group in Finland
- Internationaliseringsgruppen in Denmark
- MOST coordinators in Poland

The first Stakeholder Forum Meeting was held at the Ministry of Higher Education and Science in Copenhagen at 27th October 2015 with 21 participants of which 15 were from outside the project.

The second Stakeholder Forum Meeting was held at the Ministry of Education and Culture in Helsinki at the 1st of February 2017 with 20 participants of which 14 were from outside the project.

Both these events gave valuable feedback to the project to issues like communication channels, the future of EMREX, how to reach more students and get more countries to join the project.

Besides the Stakeholder Forum meetings and the EMREX seminars, national meetings in the different partner countries have been held for as well dissemination purposes as to get feedback to the project. Throughout the field trial a short survey has been conducted to receive feedback on the working solution enabling the project to make it better.

2.4.4 Open access. Please describe how the results achieved are available to the public. If there are any limitations please provide more details about it.

The common software developed as part of the EMREX network, and description of the formats is openly available on GitHub.

This covers the following

- Student Mobility Plug-in (SMP): Open software that can be introduced in existing web application, based on standard integration.
- National contact point (NCP): Mockup, as an example for development of a NCP
- EMREX client: Example of an EMREX client that includes the SMP.
- ELMO-schema: Description of the format used in the EMREX network for exchanging achievement information.
- Glossary

This software and description is available on <https://github.com/emrex-eu>

All technical descriptions of the network is available on <https://confluence.csc.fi/display/EMREX/Implementation+of+EMREX>

For newcomers, a technical description is available here: http://emrex.eu/?page_id=906

Website:

A public website – www.emrex.eu – has been established in the beginning of the project, and through news and other publications on this website it has been possible during the project to be updated and see how the project has been developing. A special section for those who wants to join has all the necessary information to get started with EMREX, and it has been possible to see which countries and institutions that were participating in the field trial while it was running. Most of the presentations used at different conferences around Europe have also been accessible here.

The www.emrex.eu website will continue to be the main dissemination channel also for the EMREX User Group after the project has ended.

2.4.5 Other information. This point could cover e.g. lessons learned, good practices and success stories identified, measures taken related to the sustainability of the project results and any other information you would like to communicate to the Agency.

Policy recommendations:

During the field trial several aspects were found that could be addressed through policy changes to improve student mobility and the digitalization process. The following suggestions are made to policy makers:

- Connecting eID to the HE sector. Identity management across borders was found to be one of the major issues affecting student mobility processes. eID is the way forward on an EU level for cross-border electronic services. However, the special needs of the HE sector (student accounts, student identities) does not yet seem to be part of eID. Common policies for linking student data to eID would help the uptake of eID in the educational sector.
- Sending electronic data is the first step, but automatic recognition is the end goal. There are still major differences in data formats and processes across countries. Therefore policy work on a common RPL process is needed, for example defining the minimum set of achievement data needed for the recognition process that all HEIs/countries should be able to provide to others in a structured format.
- One hesitation found in some countries was a reluctance to accept electronic signatures and data as equals to paper copies. There are EU directives on this issue and several ongoing initiatives, but a policy recommendation directly aimed at the HE sector with the most common issues opened up would help convince HE administrators.
- A key standard for the data format on achievement results, i.e. the ELMO-standard, was developed and proved useful in the field trial. To avoid multiple EU standards for the same tasks, a policy recommendation to jointly continue working on ELMO would save time & money and improve interoperability between services. There is also a potential for using the ELMO-format for sharing diploma supplements etc. It could already now be useful to coordinate this with relevant EU agencies. A proposal to set up a joint meeting in Brussels has been submitted.

Norwegian use of NCP for employment

In June 2017 the Norwegian NCP, called Vitnemålsportalen, was opened also for the use from recruitment systems. The first companies have implemented the connection to Vitnemålsportalen as part of their recruitment platform, and offer their applicants to share their

results from higher education when they apply for jobs. Also a “stand-alone” functionality has been implemented where the result owner can share the results from the NCP with any receiver. The first five months over 100.000 people have shared their results from the Norwegian NCP, and over 5000 of these directly with recruitment systems. Another result has been that the first universities have stopped issuing transcript of records on paper. This clearly shows the possibilities of use of the network.

Key suggestions from WP4

The Field trial report discusses extensively the key suggestions for future projects as well as policy recommendations. In addition it could be mentioned that the students need access to both their accounts to collect their credits. It is therefore necessary that the computer account is not deleted too soon after the student graduates or goes home from an exchange period. Support must also be taken seriously. If there is an error it is not apparent which system in which country that falter so there must be cross-country collaboration.

Key suggestions from WP5

The evaluation could be improved if there was a centralised and standardised data collection system that collected complete data on student mobility. In particular it would be very useful to have access to reliable data on obtained and recognized number of ECT credits and grades. Moreover, it is essential to improve the quality of such data and standardize the reporting periods.

III.3 Challenges faced and key messages

Please describe any challenges experienced during the project implementation and the measures taken to address them. Please do also provide any relevant information you think might be useful for the assessment of your project's implementation but also particular key messages coming out of the project (ie. success in bridging analysis, practice and policy, indications about the up-scaling of results, external factors of influence, re-direction of initial activities because of a better suitability to the target group needs, recognition of the project innovative approach, mainstreaming efforts made, etc.).

The key messages from the EMREX project are as follows.

EMREX is a well-functioning technical solution

The field trial was run in six countries and has proved successful in all participating countries. The initial quantitative goal for the field was to implement the solution in at least three partner countries and have the solution successfully tested by 100 students. By the end date of the field trial all six EMREX-countries participated in the project with a total of over 400 students that successfully transferred their achievement data between higher education institutions in the EMREX-countries.

Trans-national cooperation and peer-learning of the authorities involved

EMREX is a solution for electronic transfer of student records between higher education institutions in different countries. All phases of the project – the specification, development, implementation and testing – required close cooperation of the partners involved. All partners

participating in the field trial represent national authorities that provide common solutions or services to the higher education sectors in the respective countries. The field trial contributed significantly to peer-learning of these authorities.

The partners expanded their knowledge about student information systems and procedures for recognition in the participating countries. In addition, the partners gained knowledge and experience with the different governance models for national level authorities providing common information systems and services. Both the system architecture of the student information system/systems as well as the governance model for the services had impact on the results of the field trial.

The trans-national cooperation contributed to sharing best practices and clearly identified areas for improvement and further work at EU level.

Innovative solutions support innovative policies

Prior to the field trial, the recognition procedure in the EMREX-countries required the student to submit their achievement records as a paper document. During the field trial the students were able to submit the results digitally. The results could be transferred right after the result was registered in the student information system at the host institution, and did not require any waiting time for the student to obtain the transcript as a paper document or as a PDF document sent to the student by mail or e-mail. The records could be transferred to the home institution much earlier than prior to the field trial.

The students participating in the field trial had no possibility to change the achievement data that he/she transferred between institutions. Submitting transcripts printed on paper presents the theoretical possibility of forgery, as handling printed documents and forging the contents of it is easier and less complicated than forging the results directly in the source system, i.e. the student information system of the host institution in the host country. The achievement results transferred during the field trial left no questions or doubts about their authenticity. The receiving higher education institution could thus spare time, spent otherwise on double checking the paper transcripts.

EMREX is highly scalable and can be easily implemented in the whole EU

The EMREX-partnership involved five countries: Norway, Sweden, Finland, Denmark and Italy. The sixth country, Poland, participated in the project as the evaluating body. However, based on the success of the field trial, Poland decided to implement the solution in their main national student information system (USOS). The solution is in production in Poland and is currently used for transfer of achievement data between higher education institutions on national level.

The main goal of the field trial was to test the EMREX solution in order to provide a federated and integrated solution for handling the process of submitting the external results as well as the recognition process. The success of the field trial is reinforced by the decision of the Polish higher education institutions in the MUCI-consortium to implement EMREX in Poland.

Students expect the transfer to be digital

EMREX provides electronic transfer of student data which are used for the recognition process. The field trial aimed to test the solution that was put in production in the participating countries. The testing was given different approach in the different countries. The different approach was mainly a result of the differences in the national system architecture (one common national student information system versus several student information systems in

one country) and the governance models (the participating authorities' mandates to define common administrative procedures differ between countries). In Sweden and Finland the students participating in the field trial were contacted in advance, while students in Norway were mostly unaware that the link *Import results from abroad* provided in the Norwegian self-help student portal as well as the solution behind the link is newly developed and was not available prior to the field trial.

The feedback from the students given during the field trial in the surveys and during interviews with the students provides a clear message that the students were happy to use the solution, however the students expect the transfer of the achievement records to be digital. They are *digital natives* and do not see the solution as extraordinary innovative, as the most of the prior learning and procedures in the primary and secondary education are executed digitally.

Students need access to their achievement data

The EMREX solution presupposes students' access to their own achievement data. The higher education institutions in the participating countries vary greatly when it comes to policy for giving access to the student accounts and student's own achievement information. Some institutions close the accounts as early as one month after the last result is registered in the student information system. Students' access to the accounts at the host institution after completion of their exchange studies was one of the most common challenges for the students participating in the field trial.

The current legislation regarding integrity of data and applicable privacy laws differ between European countries. However, the new General Data Protection Regulation states that one of the main legal grounds for the exchange of data is the consent, i.e. when the student himself/herself initiates the data exchange. In order to comply with the regulation the higher education institutions need to enable their students as well as the alumni to access their achievement data.

Digitization of the administrative processes and need of integrated solutions

The EMREX solution was implemented as a stand-alone solution in some of the countries, while in other countries the solution was implemented as an integrated part of the existing self-help student portal. The EMREX-countries with the stand alone implementation encountered several challenges in the process of finding and contacting students in order to invite them to participate in the field trial.

The countries which invited big groups of students by using an attached link in an e-mail experienced low response rate. The most plausible reason for this is the high level of students' information security awareness and their good habit to avoid answering to unknown sender, or avoiding using the tool link fearing fraud or fishing attempts. In addition, the EMREX e-mails had to withstand potential risk for mail being sorted as spam by the mail operator or aggressive filters.

It is hard to find contact information to students outside the own institution. Sometimes the institution cannot spread contact information and take the responsibility to inform their students themselves.

EMREX enables the free flow of educational data

EMREX supports the exchange of student records between higher education institutions, but the solution can be adapted to other education sectors, such as VET sector, to enable the flow

of student information in different phases of learning path and making the lifelong learning a reality. As a secure solution for validated educational data, the EMREX could also support the retrieval and exchange of information about diplomas to assist the recognition processes which was also highlighted in the recent European Commission's Communication (2017): Strengthening European Identity through Education and Culture – The European Commission's contribution to the Leaders' meeting in Gothenburg, 17 November 2017. Furthermore, by enabling educational data flows across borders the solution would support the development of information-based services and thus, stimulate innovation and contribute to growth.

Challenges in field trial

A major issue in the field trial was finding enough potential students to participate in the field trial. The exchange rates between the Nordic countries are not that big, except between Sweden and Norway. Another issue was finding administrators both willing and able to take part. For many it was a time issue as EMREX was run in parallel with their normal paper based process.

Although the students felt comfortable with electronic data, some HEIs were wondering if they can accept the records without the usual watermarks, stamps and signature.

More issues encountered during Field Trial

- Some HEIs in Sweden do not register incoming students at full courses in the SIS, which means that their results can't be found.
- Student studying in Finland need Finnish HETU (social identification number) to have access to their results via HAKA. Not everybody has that.
- Not all HEIs in the project countries are connected to the national administrative system.
- Delayed development is always a problem. This project needs to compete with other projects and sometimes the priorities must be set to more important needs.
- Every time a student uses the solution it involves systems in at least two countries, possibly several sub-systems. If there is an error it is not apparent which system in which country that falters so the support-issue must be taken seriously.

Challenges faced during the project

Keeping track of the project and securing continuity over three years with partners in six countries is always a challenge, especially when the cooperation is based on a language foreign to all involved. The EMREX project has been successful much due to our previous efforts within the clusters RS3G and Nordforum where we have been discussing European Student Information Systems (SIS) for some years now. A large part of our meetings has been through Adobe Connect but it has also been necessary to regularly meet physically. It is important to find the right balance as travelling is burdensome but rewarding as it is easier to talk face to face.

With our disparate backgrounds it has also been necessary to be very transparent with plans and progress and that every partner delivers on promises and undertakings.

Challenges faced in evaluation

The observation period was relatively short and made it difficult to observe the effect. Any innovation needs time to spread. In the case of EMREX that means that students have to learn

about the tool, notice its usefulness, and only then they may convince others to base their decisions at least to some extent on the availability of tools like EMREX. This is a time-consuming process.

Despite great national systems for administrative data collection and processing as well as decades of experience of the Nordic countries participating in the trial obtaining statistics on student mobility based on administrative records proved far more difficult and time consuming than expected. Data collection systems are inflexible and sometimes lack all the needed information. Therefore, some adjustments in the definitions of indicators were required. Despite the difficulties, the basic aim of comparing trends in student mobility has been achieved. Additional data would provide opportunity for more in-depth analysis.

IV. List of Products/Outputs/Deliverables

IV.1 Project web presence & online working space/platform(s)

Please provide the **login** and **password** for the confidential part of the project website (and if applicable other platforms or communities).

Please also provide links to web pages which showcase project results (online courses, learning materials, online newsletters, etc) You are encouraged to include links to partner organisations or public sites if they showcase important/relevant information on your project.

Please note that your deliverables (available online) should be arranged by deliverable number and/or work package number (e.g. WP4 Stakeholder Group, Del. 4.2 Report) in a structured way.

Finally include presence (or mention) of you project in Social Media (Facebook, LinkIn, Instagram etc).

www – web link	Login	Password	Comment/Description (key words suffice)
www.emrex.eu			Project website
www.csc.fi/emrex			Internal project wiki-pages
https://github.com/orgs/emrex-eu			GitHub site for EMREX

(Add rows as required)

Please split your results in the 2 tables below in 2 categories: the ones related to in the first the project aims and objectives table and the ones related to project management in the second table without duplication between those two tables.

IV.2 Project outputs related to the project objectives, its aims, the good practise(s)

(Provide a list of all deliverables of the project objectives & aims using the table below).

No of Work package (as in your application)	Deliverable Nr. (as in part 3 of your application) and title	Delivery date	% Achieved (at the end of the reporting period)	Type of Output ¹ (Please choose the right choice-see footnote)	Quantity	Electronic, Paper, Online or Event (E, P, O, EV)	Language versions (enter 2 initials for each language version)	Number of issues disseminated	Comment (optional)
WP2	2.1 Report on legal issues	7.10.2015	100%	Document	1	E	EN	1	
WP2	2.2 Planning document	21.4.2015	100%	Document	1	E	EN	1	
WP3	01 Open Source mechanisms	15.5.2017	100%	Document	1	E	EN	1	
WP3	02 Development of NCPs	15.12.2015	100%	Other	1	E	EN	1	IT-system
WP3	03 Development of EMREG	30.6.2015	100%	Other	1	E	EN	1	IT-system
WP3	04 Development of SMP	30.6.2015	100%	Other	1	E	EN	1	IT-system
WP3	05 Local deployment of NCP and SMP	15.5.2017	100%	Other	6	E	EN	1	IT-system
WP3	06 Security	1.9.2015	100%	Document	1	E	EN	1	
WP3	07 Technical documentation	1.8.2015	100%	Document	1	E	EN	1	

¹ No crosses nor tick-boxes except if explicitly requested

WP4	01 Agreements with institutions to work with	31.10.2015	100%	Document	1	E	EN	1	Agreement
WP4	02 List of students to work with	30.9.2017	100%	Document	1	E	EN	1	Agreement
WP4	03 Information material	31.10.2015	100%	Document	1	E	EN	1	List
WP4	04 System running live for a period of two semesters	30.9.2017	100%	System	1	E	EN	1	Live system
WP4	05 Final report from field trial	1.11.2017	100%	Document	1	E	EN	1	Final report
WP5	01 Evaluation methodology - registry-based	26.10.2015	100%	Document	1	E	EN	1	Included in the main evaluation report
WP5	02 Evaluation methodology - survey-based	26.10.2015	100%	Document	1	E	EN	1	Included in the main evaluation report
WP5	03 Choice of tools for evaluation	01.11.2015	100%	Document	1	E	EN	1	Included in the main evaluation report
WP5	04 Raw data	28.12.2017	100%	Document	1	E	EN	1	Recommendations for software developers
WP5	05 Recommendations for software developers	10.12.2017	100%	Document+data files	43	E	EN	1	Raw data + document describing data files

WP5	06 Final evaluation report	10.12.2017	100%	Document	1	E	EN	1	Main evaluation report
WP6	01 ELMO examples	15.6.2015	100%	Other	5	E	EN	5	XML
WP6	02 Proposed changes to ELMO format	15.6.2015	100%	Other	1	E	EN	1	XML
WP6	03 Model of the ELMO standard	27.4.2016	100%	Other	1	E	EN	1	UML diagram
WP6	04 Standardized fields in the ELMO standard	15.6.2015	100%	Guidelines	1	E	EN	1	
WP6	05 New examples based on changes to ELMO	20.12.2015	100%	Other	1	E	EN	3	XML
WP6	06 Glossary	1.9.2017	100%	Guidelines	1	E	EN	1	
WP6	07 Final report	30.11.2017	100%	Document	1	E	EN	1	
WP7	01 website	30.4.2015	100%	Other	1	E	EN	1	Public Website
WP7	02 Communication plan	13.4.2015	100%	Document	1	E	EN	3	Communication plan
WP7	03 Marketing plan	13.4.2015	100%	Document	1	E	EN	2	Marketing plan (included as part of the communication plan)

IV.3 Project Management outputs

Provide a list of the **main deliverables** related to the project operational and financial management using the table below (e.g. project handbook(s), quality control procedure, partnership agreements etc.). Full access to all management deliverables has to be granted through access to your online working platform as specified in **table IV.1** above.

No of Work package (as in your application)	Deliverable Nr. & name/title (as in part 3 of your application)	Delivery date	% Achieved (<i>at the end of the reporting period</i>)	Type of Output ² (Please choose the right choice-see footnote)	Quantity	Electronic, Paper, Online or Event (<i>E, P, O, EV</i>)	Language versions (enter 2 initials for each language version)	Comments (optional)
WP1	1.1 Project plan	15.4.2015	100%	Wiki-pages	1	E	En	
WP1	1.2 Quality plan	27.5.2015	100%	Wiki-pages	1	E	En	
WP1	1.3 Hand-over plan	15.12.2017	100%	Document	1	E	En	
WP1	1.4. Final report	Jan 2018	100%	Document	1	E	En	
WP1	1.5. Consortium agreement	Jan 2015	100%	Document	1	E	En	Not published
WP1	1.6 Risk plan	15.4.2015	100%	Wiki-pages	1	E	En	

V. STATISTICS

This section aims to gather **statistical data** of the project:

- Implementation (V.1)
- Dissemination (V.2)

V.1 Implementation

In this section, please indicate the statistical data about **development** and **testing (field trials)**.

Choose as appropriate all items which are applicable to your project and to the reporting period. Remove tables or appropriate for your project and reporting period and add missing lines or columns in the same format as the initial or

Please indicate the area of work, type of target groups and numbers / crosses (X) in the columns, and per column implementation. Purely management items should not be listed in this Part as required in Part V.1.

Implementation phases	Area / Target group	Total number	Main countries involved (Please enter the 2 country initials for the different countries) Example: DE – SK - IT	International
V.1.1 DEVELOPMENT				
Desk research	WP nr: 5 and 6	Comments (if any): we understand it as how many sources did we use		
	Academic books			
	Articles			
	External studies - surveys	2		ESN projects
	Good practice examples within the partnership			
	Good practice examples outside the partnership			
	Other: (please specify)	1		Previous ELMO-work
	TOTAL NUMBER			

Survey / Questionnaire	WP nr: _5_	Comments (if any): WP5 pre-interviews		
	School students			
	HE students			
	VET learners			
	Adult learners			
	Youth actors/ Volunteers			
	Other learners: (please specify)			
	Teachers / educators - sector: (please specify)			
	Educational institutions - sector: (please specify)	11	IT, SE, FI, NO, DK	Surveys
	NGO's			
Private companies				

	Local /regional/ national/ European authorities (please select as appropriate)			
	Other stakeholder: (please specify)			
	TOTAL NUMBER			

Field study visits / interviews	WP nr: ____	Comments (if any):		
	Schools			
	HE institutions			
	VET institutions			
	Adult institutions			
	Youth actors/ Volunteers			
	NGO's			
	Private companies			
	Local /regional/ national/ European authorities (please select as appropriate)			
	Other stakeholders: (please specify)			
	TOTAL NUMBER			

Workshops not applicable	WP nr: ____	Comments (if any):		
	School students			
	HE students			
	VET learners			
	Adult learners			
	Youth actors/ Volunteers			
	Other learners: (please specify)			
	Teachers / educators - sector: (please specify)			
	Educational institutions - sector: (please specify)			
	NGO's			
	Private companies			
	Local /regional/ national/ European authorities (please select as appropriate)			
	Other stakeholder: (please specify)			
	TOTAL NUMBER			

Other: (please specify)	WP nr: ____	Comments (if any):		
	(Please specify the area / Target groups as above)			

V.1.2 TESTING				
Pilot/focus groups	WP nr: <u> 4 </u>	Comments (if any):		
	School students			
	HE students	400+		
	VET learners			
	Adult learners			
	Youth actors/ Volunteers			
	Other learners: (please specify): General survey to all students in HE	2000?		
	Teachers / educators - sector: (please specify)			
	Educational institutions - sector: (please specify) Higher education	100+		
	NGO's			
	Private companies			
	Local /regional/ national/ European authorities (please select as appropriate)			
	Other stakeholders: (please specify)			
	TOTAL NUMBER			

Workshops / seminars	WP nr: <u> </u>			
	School students			
	HE students			
	VET learners			
	Adult learners			
	Youth actors/ Volunteers			
	Other learners: (please specify)			
	Teachers / educators - sector: (please specify)			
	Educational institutions - sector: (please specify)			
	NGO's			
	Private companies			
	Local /regional/ national/ European authorities (please select as appropriate)			
	Other stakeholder: (please specify)			
	TOTAL NUMBER			

Webinars	WP nr: <u> 4 </u>	Comments (if any): National webinars in Finland, Sweden and Italy		
	School students			
	HE students			

	VET learners			
	Adult learners			
	Youth actors/ Volunteers			
	Other learners: (please specify)			
	Teachers / educators - sector: (please specify)			
	Educational institutions - sector: (please specify)			
	NGO's			
	Private companies			
	Local /regional/ national/ European authorities (please select as appropriate)	100	SE, FI and IT	
	Other stakeholder: (please specify)			
	TOTAL NUMBER			

Other: (please specify)	WP nr: ____	Comments (if any):		
	(Please specify the area / Target groups as above)			

V. 2 DisseminationV.2.1. Number and type of events

Indicate the number of people targeted per dissemination event

	Country code: <u>FI</u> (Please enter the 2 country initials here)	Country code: <u>DK</u> (Please enter the 2 country initials here)	Country code: <u>I</u> (Please enter the 2 country initials here)	Country code: <u>SE</u> (Please enter the 2 country initials here)	Country code: <u>PL</u> (Please enter the 2 country initials here)	Country code: <u>NO</u> (Please enter the 2 country initials here)	International
Workshop / Seminar	8 Seminars 657 targeted			8 Seminars: 380 targeted	5 seminars: 160 targeted	3 seminars: 500 targeted	14 seminars: 717 targeted
Bilateral meeting with people outside the partnership	21 meetings: 254 targeted	3 meetings: 36 targeted		2 meetings: 41 targeted	1 meetings: 80 targeted	3 meetings: 40 targeted	7 meetings: 106 targeted
Webinar	2 webinars: 110 targeted						1 webinar: 60 targeted
Thematic / Cluster conference	2 conferences: 115 targeted			2 conferences: 80 targeted	4 conferences: 220 targeted	2 conferences: 350	27 conferences: 2152 targeted
Other: All of the above and more							Youtube EMREX movie: 1000+ views Youtube Students react to EMREX movie:: 600+ views
TOTAL NUMBER	33 events: 1136 people targeted	3 events: 36 targeted	0	12 events: 501 targeted	10 events: 460 targeted	8 events 890 targeted	49 events: 2963 targeted
Comments (if any): Categories has been hard to define. Bilateral meetings has typically been meetings between a partner and one or many HEIs. International events are defined by audience and not location							

V.2.2. Paper dissemination

Indicate the number of people targeted by the dissemination of the project results/products/outputs through flyers, brochures and paper dissemination

	International	Country code: ____ (Please enter the 2 country initials here)	Country code: ____ (Please enter the 2 country initials here)	Country code: ____ (Please enter the 2 country initials here)	Country code: ____ (Please enter the 2 country initials here)
Within the partnership					
Outside the partnership	100s of screenwipers and business cards distributed at different conferences and seminars				
TOTAL NUMBER					
Comments (if any): During the project EMREX businesscards and screenwipers has been spread out at conferences and seminars. At one conference (EURASHE) the presentation was a poster session. Beside this - everything has been digital.					

V.2.3. Website

Indicate the activity of the project website

	Total number	Main countries involved (Please enter the 2 country initials for the different countries) <i>Example: DE – SK - IT</i>	International
Amount of monthly visits	13604*	-	-

Most visited pages: (please specify)	EMREX Seminar 2017: 1686 visits About: 1046 visits EMREX seminar and EMREX stakeholder Forum 2015: 606 visits	-	-
Number of unique visitors	31072*	-	-
Other relevant data: (Please specify)	-	-	-
Comments (if any): * 2017 It is not possible to tracks from which countries all the visitors are coming, so this is not shown. It is not possible in statistics to see which visits are real and which is actually robots.			

IV.2.4. Social media

Indicate the social media coverage of the project

	Total number	Main countries involved (Please enter the 2 country initials for the different countries) <i>Example: DE – SK - IT</i>	International
Number of Facebook followers	-	-	-
Number of Tweets	9	-	-
Other: (Please specify)	-	-	-
Comments (if any): A twitteraccount has been established, but only rarely used.			

VI – ANNEXES

VI.1 Financial reporting table

VI.2 Checklist

Annex VI.1 Financial reporting table

The financial reporting for your project must be carried out using the Excel workbook that has been provided by the Agency for that purpose.

The template can be found on the European Policy Experimentation Projects Agency's 'Beneficiaries' Space', under the tab 'Reporting':

https://eacea.ec.europa.eu/erasmus-plus/beneficiaries-space/policy-experimentations-2014_en

European Policy Experimentation projects 2014

Annex VI.2 Self-control check-list for coordinators for completeness of reports

To be enclosed in the Final Report

Grant Agreement nr. 2014-xxxx	
1. The Agency's template for the final report is respected.	X
2. The report is written in English .	X
3. All parts of the report are completed .	X
4. The Declaration on honour (Section II of the form) is signed by the legal representative of Partner 1 as indicated in the Grant Agreement or in a subsequent amendment. If this Declaration has not been signed by the legal representative, a power of attorney to grant authorisation of signature to the signatory has been attached to the Report.	X
5. The Financial reporting table in excel format has been completed and is enclosed with the Report.	X
6. The final costs are eligible and presented in line with the budget breakdown and possible adjustments as agreed in the Grant Agreement (Annex III) or subsequent amendments.	X
7. Access to all products and supporting documents as well as a numbered list of all the documents is provided in the report through a specific link including login and password .	X

