



## D.6.1 QUALITY ASSURANCE PLAN

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## 1. Project objectives

The UniSchoolLabs Comenius project aims at improving quality in science education in Europe, by promoting collaboration between universities and schools in the provision of remote access to science laboratories for primary and secondary schools through internet-based services and mobile learning devices.

The use of internet-based services allows access to science experiments that would not otherwise be possible, because of the difficult or fragmented access to science laboratories in most schools (especially for that one based in rural areas), the obsolescence of much of the equipment, the limited range of possible experiments.

UniSchoolLabs, through the promotion of remote access for schools to university science labs by using internet based solutions, aims to promote the use of new technologies and ICT based services in order:

- To foster in teachers and school pupils the key competences needed to live and work in the knowledge society by giving them the opportunity to develop the right skills for facing the new globalisation challenges and opportunities.
- To increase the attractiveness of Science studies to schoolchildren. In fact Science teaching at primary school has a strong long-term impact. Primary school corresponds to the time of construction of intrinsic motivation, associated with long-lasting effects, it is the time when children have a strong sense of natural curiosity and it is the right time to tackle gendered patterns.

The involvement of Universities allows knowledge update for school teachers about the use of new technologies in learning setting, and didactic methods update in applying inquired based approaches for Science teaching. Among other methods, being part of a network allows teacher to improve the quality of their teaching and supports their motivation.

It is important to underline that in UniSchoolLabS the term of “sciences” is referred to all of physical sciences, life sciences, computer science and technology.

UniSchoolLabS’ main objectives are the following:

- Improve the quality of Science education in Europe by making Universities’ Laboratories available to Primary and Secondary Schools.
- Develop a Toolkit which will include a Remote/Virtual Laboratories catalogue, teachers and students guides, pedagogical plan editor and lab notebook.
- Engage ten (10) Pilot schools from Germany, Austria, Italy and Greece into evaluating and improving the UniSchoolLabS Toolkit based on teachers' and students' feedback.
- Organise workshops and introduce Toolkit to more Schools.
- Present the evaluation results of UniSchoolLabS and make appropriate recommendations to policy makers

The project expected results and main deliverables are:

- Selection of 10 Good practices and drafting a report
- UniSchoolLabs Toolkit
- Support services
- National workshops

## 2. Theoretical and methodological Evaluation framework and Quality assurance

### 2.1 Theoretical basis of the evaluation approach

This section describes both the general characteristics of the theoretical approach proposed and its adaptation to the UniSchoolLabs Project structure articulating a set of evaluation activities at the project level and presenting some tools for developing and implementing the evaluation work programme.

The UniSchoolLabs evaluation approach stems from a consolidated experience developed through the management and evaluation of European projects<sup>1</sup>. Accordingly, the evaluation approach proposed focuses on:

- Existing evaluation theory and practice;
- Project design and development process;
- Context of project implementation.

Concerning the first point, a *constructivist evaluation approach* is adopted, focused on an active involvement of project actors/stakeholders and potential users within the development of the project. This implies the capability of the project to: a) address different actors having different needs and interests with appropriate tools; b) adapt to actors'/stakeholders' changed needs, requirements and feedback throughout the project duration.

Concerning the *project design and development process*, particular attention should be devoted to the communication system, allowing interaction among partners and stakeholders but bearing also serious risks of hindrance to the successful development of the project, if communication systems and rules are not defined, commonly agreed and constantly monitored

The *context*, that is the technological, organisational, socio-economic and educational settings deeply influence the project development.

The objectives of WP 6 Evaluation & Quality assurance as described in the DoW and after KoM discussion are threefold:

- To systematically collect information on project achievements and critical aspects, to feed and support Project management and to evaluate project outcomes.
- To evaluate the collaboration between schools and universities with respect to the process of setting up remote access to science labs, the development of pedagogically relevant activities that are mutually beneficial for the schools and universities involved through/during validation activity.

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<sup>1</sup> References have been taken from three main documents, namely the “*Evaluation Guidelines - Handbook for Learning Technology Innovation*”, produced by the Tavistock Institute, London within the ARTICULATE Evaluation Project in 1995, the “*Evaluation and Monitoring System*”, produced by the Tavistock Institute of Human Relations – EDU, London, and SCIENTER, Bologna within the TRENDS project in 1997 and the “*Evaluation Framework*”, produced by SCIENTER within the L-CHANGE Project in 2001.

- To evaluate the interest of other universities in making their labs available for UniSchoolabs project and toolkit to develop other learning activities entailing remote access to university science labs by school through/during dissemination activities.

The evaluation approach adopted by UniSchoolLabs will follow two sub categories approaches:

- 1) Formative evaluation approach of project implementation** means to accompany the development of the project and through evaluation suggest improvements whenever problems are identified. It also means to generate learning among all the actors involved to better achieve the task at hand. The formative approach will have an operational purpose with regards to how the project is being developed, implying a clear reference to the project management style, to the quality of partners' participation, to the quality and efficiency of the communication system and of the information management system, to the quality of deliverables and the respect of deadlines, etc. The evaluation activities assure that the project management and the other partners continuously monitor the quality of the complex process being enacted.
- 2) Summative evaluation approach of project outcomes** means to check if the expected objectives have been achieved and refer to the traditional approach to evaluation, i.e. to judging and assessing the match between the expected results, the invested resources, and the goals achieved. This dimension of evaluation interests both internal actors (i.e. the project partners) and external stakeholders.

According to the two approaches UniSchoolLabs project evaluation activities will deal with two different but integrated evaluation objects:

1. the "formative" evaluation context, concerning the "informal" elements, which characterise the project process and lifecycle (e.g. the identification of developmental opportunities, the description of the relationships and interactions among the stakeholders, etc)
2. the "summative" evaluation context, concerning the final results/ outcome the ToolKit and its support services and the pedagogical effectiveness of the Toolkit;

In particular

**1) Formative approach of project implementation- evaluation objects:**

- Project management performance
- Project communication patterns internal and external
- Project partners involvement
- Quality of deliverable and respect of deadline
- Dissemination activities
- Project events

The project evaluation process has wide field of investigation, which includes evaluation of process itself, procedures and of course outcomes. It is important to remind here that the validation is part of the whole evaluation process for this reason, since the project has a specific WP addressed to validation of project outcomes, the evaluation work package will focus mainly on process and procedure of the project while the summative evaluation of the outcome will fall under the Validation plan (D 4.1). However, quality aspects (for example related to quality of the outcomes)

of specific objects of validation can fall under evaluation work package activity . In particular, evaluation focuses on quality aspects of the following objects by following a summative approach.

## **2) Summative approach of project outcomes- Evaluation and Validation objects<sup>2</sup>**

- Toolkit including teachers and students guide
- Support service and online community
- University-collaboration

Different evaluation criteria are defined according to the different evaluation approaches and related objects, more details about criteria vs objects are provided in next chapter .

The clear identification of the scope or unit of analysis of the evaluation is of extreme relevance in order to compose a coherent evaluation plan.

In general terms, the project will establish appropriate mechanisms and procedures addressing the whole range of administrative, financial and technical issues such as internal review at the project level and standards for reporting and documentation. Such reviews will be carried out throughout the duration of the project. The eventual problems arising in terms of management, procedures and methodology will be discussed and solved in the framework of evaluation and quality monitoring activities within the scheduled management meetings and seminars of UniSchools.

### ***2.1 Quality procedure***

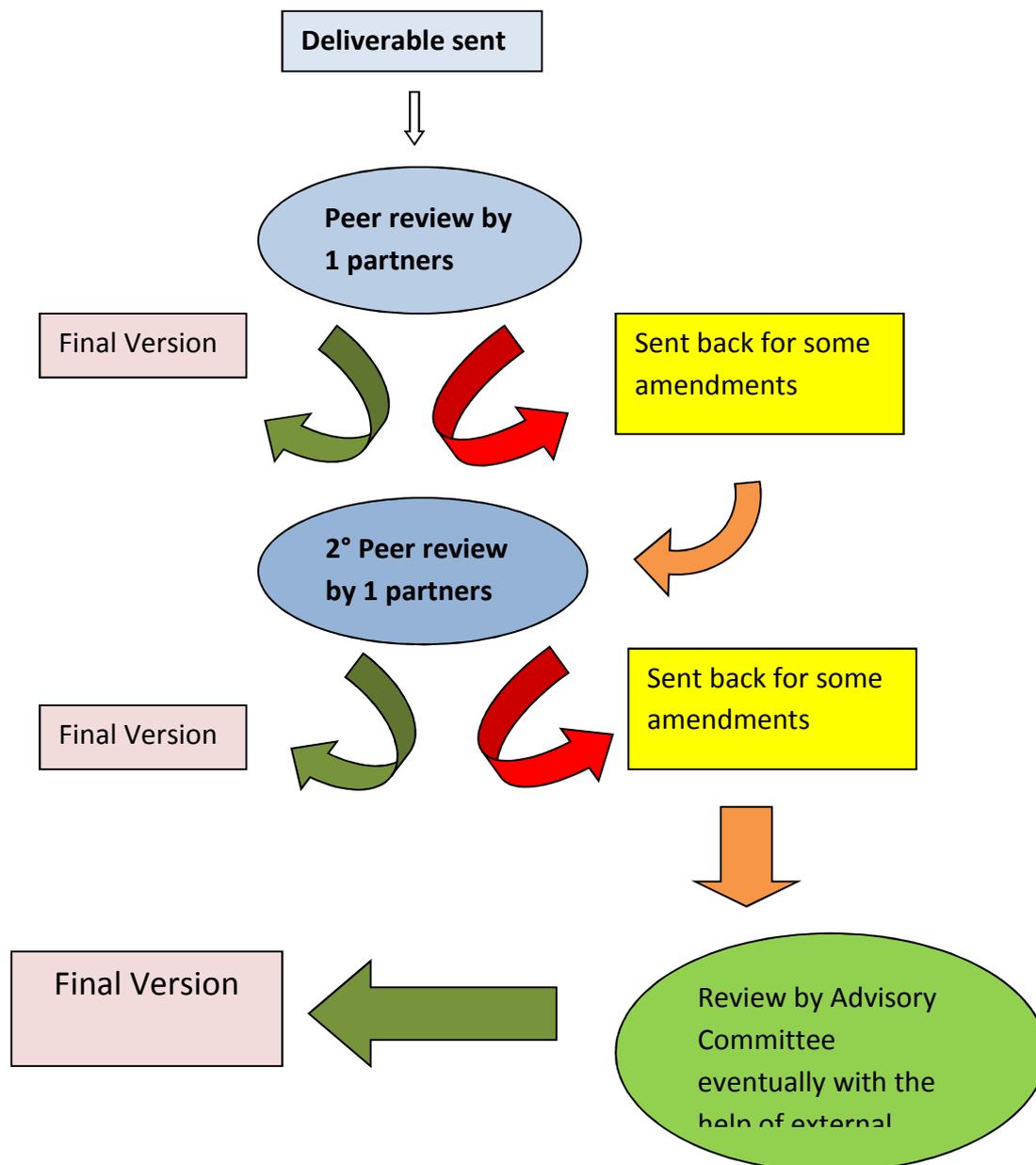
The evaluation process includes quality evaluation of project implementation and of project outcomes. For this reason a quality procedure is defined for two main purposes:

- Assuring the quality of deliverables and project outcomes
- Assuring the quality in the project implementation such as verifying the quality of project communication or quality of project dissemination activities

Regarding the quality of deliverables, a review procedure has been agreed with project partners. The following scheme describes step by step review cycle that each deliverable shall pass in order to be finalised

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<sup>2</sup> For details description of these objects please refer to D4.1 Validation Plan

**Table 1 quality cycle procedure**

The project **Advisory Committee** is composed by WP leaders, it is in charge to take critical and final decision according to the majority votes. If agreement still is not reached In critical cases, the advisory committee can ask for an external reviewer, the chosen of the external reviewer is up to MENON as work package 6 leader

Moreover, the Advisory Committee will actively participate in the project evaluation, by providing comments and ideas in order to improve the project results. In particular, the Advisory Committee

will play a crucial role within the foreseen *validation activities* that will include a validation of in-progress and final results

### 3. Evaluation Objects and criteria

#### 3.1 Evaluation objects

As mentioned in the previous chapter, the evaluation plan is focused mainly on the formative evaluation of project implementation. Therefore, the project aspects considered for evaluation will focus on:

- **Project Management performance:** being evaluation responsive to the lifecycle of the project development process, the evaluation approach proposed places great emphasis on linkages between evaluation itself and activities that are traditionally associated with Project Management.
- **Communication patterns internal and external:** the UniSchoolLabs project implies the need for an efficient communication system among partners. The specific nature of the project implies also a clear definition of communication patterns and strategies to address target users, stakeholders and all interested parties.
- **Quality of the deliverables and respect of deadline;** the quality of outcomes, both in terms of reports and services will undergo a process of internal and external evaluation. The actors involved in the monitoring of quality will be mainly project partners but a crucial role will be played also by the users of the products and services developed by the project.

**Dissemination activities;** dissemination plays a key role within the development of this project. The evaluation of dissemination activities will mainly concern the assessment of the portal and of the products, services offered therein, as the portal will be the virtual interface of the platform with its direct and indirect target users and beneficiaries.

- **Project events; they are** direct output of the project and refer to national workshops and international seminar scheduled already as project activities and outputs

For each of those objects some criteria have been defined, please see the following table.

**Table 1: Formative approach of project implementation -evaluation objects and criteria**

Quality Criteria	Objects evaluation/project implementation	Project management performance	Project internal Communication	Project external Communication	Project partners contribution	Quality deliverable	Respect of deadline	Dissemination activities	Project events
Efficiency			X					X	
Effectiveness		X	X	X				X	X
Timing		X	X		X		X		
Appropriateness (Content, Language and Format)				X		X		X	X

Sustainability	X	X					X	
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## 4. Evaluation Methods & Tools

The evaluation activities will proceed according to the project development process. The core lifecycle of the project is structured into the following interlinked activities aimed at building the UniSchoolLabs toolkit and its validation and at ensuring wide visibility of the project outcomes and development of a sustainability strategy in the long run.

This wide dimension of evaluation is relevant to a **variety of actors**:

- Project partners;
- Stakeholders (European Commission, E&T actors, other interested parties involved during the lifetime of the project),
- Users of the different products and services

Here below the table shows, who, how and tools<sup>3</sup> used for the evaluation activities

**Table 3 Evaluation Objects - information sources - tools**

Evaluation Objects	Approach	Sources of information	Tools
Project management performance	Formative	Project partners	Semi- structured questionnaires ANNEX 1 ANNEX 3
Internal Project communication	Formative	Project partners	Semi- structured questionnaires ANNEX 1 ANNEX 3
External Project communication	Formative	Stakeholders	Structured questionnaires ANNEX 2
Project partner	Formative	Project partners	Semi –

<sup>3</sup> Please refer to ANNEX 1, ANNEX 2 and ANNEX 3

involvement			structured questionnaires ANNEX 1 ANNEX 3
Quality of deliverable and respect of deadline	Formative	Project partners	Semi – structured questionnaires ANNEX 1 ANNEX 3 Open discussion in project meeting
Dissemination activities	Formative	Project partners Stakeholders	Semi – structured questionnaires ANNEX 1 ANNEX 3 Open discussion in project meeting
Tool Kit <sup>4</sup>	Formative	Project partners Pilot teachers and their students	questionnaires
Support Services <sup>5</sup>	Formative	Pilot teachers and their	questionnaires

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<sup>4</sup> According to Validation plan and in collaboration with Validation activities

<sup>5</sup> According to Validation plan and in collaboration with Validation activities

		students	
Project Events <sup>6</sup>	Formative- Summative	Project partners  Stakeholders  Teachers not only the one involved in validation  Students not only one involved in validation	Semi – structured questionnaires  ANNEX 2

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<sup>6</sup> They are direct outputs of the project, and refer to international and national workshops scheduled in the framework of WP 5 Dissemination of implementation and results of the project



## ANNEX 1

*Please give an assessment from 1 minimum to 5 maximum*

Quality Criteria	Objects evaluation/project implementation	Project management performance	Project internal Communication	Project partners contributions	Quality deliverable	Respect of Deadline	Dissemination activities
<b>Efficiency :</b> relationship between results achieved (outputs) and resources used (inputs)		How do you assess the efficiency of communication among partners?				How do you assess the dissemination activities undertaken so far in terms of cost/benefit?	
		How do you assess the efficiency of communication between project manager and partnership?					

Quality Criteria	Objects evaluation/project implementation	Project management performance	Project internal Communication	Project partners contributions	Quality deliverable	Respect of Deadline	Dissemination activities
<p><b>Effectiveness :</b> refers to the degree to which a planned effect is achieved</p>	How do you assess the effectiveness of the project management in terms of result achieved so far?	How do you assess the effectiveness of cummination in terms of well understanding the messages/contents/tasks ?				How do you assess the dissemination activities carried out so far in terms of dissemination results achieved? (feedback received from other stakeholders who know or want to know more about the project)	
<p><b>Timing</b></p>	How do you assess the effort of project management in making project implementation proceed in time?	How do you assess the waiting time for receiving answers from partners and/o from project manager?	To what extant are they in time in delivering comments/inputs?		To what extant have they been delivered according to the timetable?		

Quality Criteria	Objects evaluation/project implementation	Project management performance	Project internal Communication	Project partners contributions	Quality deliverable	Respect of Deadline	Dissemination activities
<b>Appropriateness (Content, Language and Format)</b>						How do you assess the dissemination materials already delivered in terms of content format and language?	
				Format:			
				Language: Content:			
<b>Suitable</b>	To what extent do you consider the project management fit the project implementation?	To what extent do you consider the way, the tools and methodology of communication relevant with the project				To what extent do you consider the dissemination materials/activities planned fit with the project	

Quality Criteria	Objects evaluation/project implementation	Project management performance	Project internal Communication	Project partners contributions	Quality deliverable	Respect of Deadline	Dissemination activities
		implementation?				implementation?	

Please describe briefly which are in your opinion strengths and weakness of the overall project implementation

STRENGTHS	WEAKNESS

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**ANNEX 2<sup>7</sup>****EVALUATION QUESTIONNAIRE FOR ATTENDEES****Evaluation of UniSchoolLabs Project events****Typology of event:****Date:****Venue:****Organiser:**

<b>PERSONAL DETAILS</b>	
Name & Surname:	
Institution or Company:	
Country:	

<sup>7</sup> The following questionnaire is the official template to be used during the project event, of course according to the typologies of the events and attendees involved, some questions can be changed in order to be in line with the purpose and context of the specific event.

E-Mail:	
Telephone:	

*Please provide to each question a concise (1-2 short paragraphs, or maybe more detailed, if you wish) textual answer with your opinion and give it back to the organiser, so that we can summarise them for the project report.*

How did you learn about UnischoolLabs project?

- a) By chance searching in internet
- b) Newsletter from one of the project partners
- c) UniSchoolLabs brochure
- d) Conference announcements/programme
- e) Suggestion/recommendation from colleagues

1. What were your expectations in participating at UnischoolLabs event?

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YOUR OBJECTIVES	(A) OVERALL RATING	(B) COMMENTS
<b>Was the UnischoolLabs Seminar able to meet your expectations?</b>	①-②-③-④-⑤-⑥-⑦ <i>not at all</i> <span style="margin-left: 100px;"><i>fully</i></span>	

2. Do you feel sufficiently introduced to the UnischoolLabs objectives?

(A)	(B)
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OVERALL RATING	COMMENTS
<p style="text-align: center;">①-②-③-④-⑤-⑥-⑦</p> <p><i>not at all</i> <span style="float: right;"><i>fully</i></span></p>	

.....

3. Did the presentation adequately introduce the Unischollabs Toolkit?

(A) OVERALL RATING	(B) COMMENTS
<p style="text-align: center;">①-②-③-④-⑤-⑥-⑦</p> <p><i>not at all</i> <span style="float: right;"><i>fully</i></span></p>	

.....

4. Did the event encourage you to get involved in any of the USL activities or using some USL products?

(A) OVERALL RATING	(B) COMMENTS
<p style="text-align: center;">①-②-③-④-⑤-⑥-⑦</p> <p><i>not at all</i> <span style="float: right;"><i>fully</i></span></p>	

.....

5. Did the Seminar foster you to collaborate with other Universities or schools?

(A)	(B) COMMENTS

<b>OVERALL RATING</b>	
①-②-③-④-⑤-⑥-⑦ <i>not at all</i> <span style="float: right;"><i>fully</i></span>	

.....

6. Which difficulties do you foreseen to face in the application and use the Toolkit in a school environment?

<b>(A)</b> <b>OVERALL RATING</b>	<b>(B)</b> <b>COMMENTS</b>
①-②-③-④-⑤-⑥-⑦ <i>not at all</i> <span style="float: right;"><i>fully</i></span>	

.....

7. Do you suggest to one of your teacher colleague to use this toolkit?

<b>(A)</b> <b>OVERALL RATING</b>	<b>(B)</b> <b>COMMENTS</b>
①-②-③-④-⑤-⑥-⑦ <i>not at all</i> <span style="float: right;"><i>fully</i></span>	

8. Additional comments and suggestions

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## **ANNEX 3<sup>8</sup>**

### **Evaluation Questionnaires for partners**

*Dear Partners,*

*After one year of the project it is important to collect more details feedback from you on how the project implementation is going on.*

*I would like to point out your attention, and reflection, on some aspects of the project, according to evaluation objects defined in the plan, so that gathering additional qualitative data and information on how we can improve our development of activities.*

*This is the reason why, this time the evaluation questionnaires is little bit different.*

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<sup>8</sup>This questionnaire will be applied after the first year of the project in order to gather better data and information on how the project implementation proceeds. Even the format is different from the first year questionnaire, evaluation objects and criteria are the same.

Please describe briefly which are in your opinion strengths and weakness of the overall project management<sup>9</sup>

STRENGTHS	WEAKNESS

Please give an assessment about your satisfaction of the project management

*1(minimum) 5(maximum)*

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<sup>9</sup> Please keep in mind that the definition “project management” does not refer only to the activities of the project coordinators, but also to each WP leader and task responsible.

1	2	3	4	5
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Please describe briefly which are in your opinion strengths and weakness of the overall project communication

STRENGTHS	WEAKNESS

Please give an assessment about your satisfaction of the project communication

*1(minimum) 5(maximum)*

1	2	3	4	5
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Please describe briefly which are in your opinion strengths and weakness of partners engagement and contributions in general

STRENGTHS	WEAKNESS

Please give an assessment about your satisfaction of the project partners engagement

*1(minimum) 5(maximum)*

1	2	3	4	5
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Please describe briefly which are in your opinion strengths and weakness of quality and evaluation procedures applied so far

STRENGTHS	WEAKNESS

Please give an assessment about your satisfaction of the quality and evaluation procedures

*1(minimum) 5(maximum)*

1	2	3	4	5
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Please describe briefly which are in your opinion potential risks that project is going to face and try to think on potential solution

<b>RISKS</b>	<b>SOLUTIONS</b>