

Report of the risk analysis of the UP-RES project

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Ari-Matti Auvinen
Managing Partner

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Report of the risk analysis of the UP-RES project

1 Rationale of the risk analysis

Risk analysis report is an elementary part of the mid-term evaluation of the UP-RES project. The risk analysis is a “snap shot” of the work and implementation of the project at the moment (as by Summer 2012). An internal risk analysis is especially important, as the contracting of the evaluator for the project was severely delayed and thus the UP-RES project has been working for over 18 months without an evaluator.

As the project has after Summer 2012 a mere half a year to finish its work, it is appropriate to identify and define risks of the project and also find and discuss solutions to solve the various identified risks. The approach undertaken in this risk analysis was to identify the key risks of the project in fulfilling its “service promises” (for the funding agency, the partners as well as the various stakeholders) and also in fulfilling the contractual obligations of the project.

The risk analysis procedure used here is called the FMECA (Failure Modes, Effects and Criticality Analysis). Fundamentally it is a procedure for analysis of potential failure modes within a system for classification by severity or determination of the effect of failures on the system. The typical goal in using FMECA is to eliminate failure modes with high severity and probability, and to reduce as much as possible those with high severity or high probability.

By its origin, the FMECA approach is an extension of Failure Mode and Effects Analysis (FMEA). In addition to the basic FMEA in detecting failures modes and effects, FMECA includes also the assessment of criticality of the various failures. The probability of failures is assessed against the severity of their consequences. The result highlights failure modes with relatively high probability and severity of consequences, allowing remedial effort to be directed where it will produce the greatest value.

The most common use of the FMECA analysis is in the design and early stages of the project, when its results can be used effectively to reduce factors with high severity or high probability. However, the FMECA approach provides also a useful tool even during the project in understanding the important explicit or implicit risks the projects must solve.

The data provided for the FMECA assessment enables priority ranking by means of the so called Risk Priority Number (RPN). The RPN is a result of a multiplication of detectability (D) x severity (S) x occurrence (O) - each on a scale from 1 to 10. The highest RPN is $10 \times 10 \times 10 = 1000$. This means that this failure is not detectable by inspection, very severe and the occurrence is almost sure. If the occurrence is very sparse, this would be 1 and the RPN would decrease to 100. Thus criticality analysis enables to focus on the highest risks. The higher the resulting index is, the more urgent the need to find a solution.

In the process of FMECA, the informants (in the case of UP-RES the project partners) are asked to identify failures and effects they have detected in the work of the project (and in the case of UP-RES, more specifically in the implementation of the work packages) and also discuss possible causes. For each of identified failure, the informants are then asked to assign a value from 1 to 10 for each of the following aspects of the failure:

- **Severity** (1= not important, 10 = very important)
- **Occurrence** (probability that the failure will happen/does happen - 1= not probable/has not occurred, 10 = very probable/has occurred)
- **Detectability** (how easy is it to detect? 1 = easy to detect, 10 = almost impossible to detect)

In particular, in detectability the informants must pay attention to the detectability of an action *prior to the actual dead line* - for instance, according to training events, how detectable is the success of the training event before the start of the planning and marketing and commitment to the actual implementation work.

2 Work phases undertaken

The work phases undertaken for this risk analysis report were the following:

- The evaluator of the UP-RES project, Mr Ari-Matti Auvinen, run a half-day workshop for the UP-RES partners of the evaluation on the UP-RES project in conjunction with the project partner meeting in 15 April 2012 in Erfurt. In this workshop the partners were introduced with the FMECA approach and the partners started to fill the FMECA forms.
- The evaluator sent on 9 May 2012 the partners an Excel file to be filled – including the instructions to fill the forms (see *Annex 1*) with a deadline of returning them by 24 May 2012.
- All the partners sent in their assessment and the final response came 17 June 2012.
- After receiving all the answers, the evaluator merged the content to one major grid displaying all the results and thus facilitating comprehensive overview.
- The evaluator unified the answers to present a comprehensive view of the risks identified. For instance, as there are three partners from Germany, the German approaches were unified from the

answers given. Also the Finnish contribution included aspects valid both for the UP-RES project in general as well as the Finnish implementation of courses, so these results were unified.

- All the key failures were reported according to the Work Package structure of the UP-RES project – this was seen sensible, as the responsibility of the work packages is with different partners. In addition, a summarized synthesis is provided of the key identified risks of the UP-RES project to enable it to make decisions on key preferences in its future work.

The responses from the partners came from the following persons:

Aalto PRO (FI): Anna-Maija Ahonen, Arto Nuorkivi

AGFW (DE): Sarah Vautz

BRE (UK): Robin Wiltshire

SaAS (ES): Christoph Peters

TUM (DE): Johannes Dorfner

UA (DE): Thomas David

UD (HU): Andras Zold.

In some cases, the informants just commented on the work of the work packages they have actively been participating in. Also the responses to the WP 2 (Training Needs Analysis and tools modification) and WP 8 (Dissemination in IEE) were vague – this is due to the fact that WP 2 was already finished early in the project and the purpose of WP 8 seemed to be vague to most of the partners.

In summarizing and presenting the risks identified and discussed by the partners, editing and modification was also undertaken due to the fact that answers came from three different German partners and that the Aalto Pro answers included both risk assessment of the whole project as well as the Finnish implementation. In the presentation in the following chapter, the risks identified and discussed have been classified to two main categories: high and low. This rough division of the risk categories basically implies that the project consortium must handle quickly and firmly the “high risk” failures for the successful finalization of the project. The “low risk” failures are identified risks, but do not jeopardize the finalization of the project or fulfillment of its key aims.

After showing the results of the risk analysis per work package, also general conclusions have been presented and discussed.

3 Risks identified by work packages

3.1 WP1: Project management

The failures of the work package of project management with identified **high risk** included the following:

- a. *Delays in outcomes* (deliverables, reporting). These failures lead to poor technical performance appearance of the project. The causes for these failures were identified to be the fresh project organization without common working history and also alterations both in the project consortium as well as the representatives of the project partners in the project.
- b. *Difficulties in the communication between the project (in particular, the project coordinator) and the Agency (EACI)*. These difficulties can cause lack of confidence by the Agency towards the project. The causes were partially due to the UP-RES project in the late delivery of the reports and deliverables, partially due to the changes of the project officer and the uncertainty of the responsibilities within the Agency.
- c. *Inadequate management of partner communication*. This has meant unawareness of the performance situation per partner (in particular, for the coordination tasks). The causes identified were the insufficient communication within the consortium and lacking role specification of the work.
- d. *Lacking project consortium agreement*. The effect of the lacking consortium agreement is that the sustainability of the project can be seriously harmed due to the potential disputes in IPR issues etc. The causes identified were linked with the challenges of making an appropriate agreement with partners with different legal status and the slowness of the university partners' legal entities.

The failures of the work package of project management with identified **low risk** included the following:

- a. *Varying level of the work of National Steering Groups (NSGs)*. The work is varying in different partner countries and thus the effects also vary country by country. The joint effect is that if the NSGs do not work properly, the important link with various stakeholders is underutilized. In some countries, however, the fluent communication with the key stakeholders has not required the formal method of NSG work, as the partners are well linked with the key stakeholders in everyday activities.
- b. *Project web site has been poorly accessed and focused on Aalto PRO activities*. This has caused reduced communication of the project objectives, but it should also be recalled that the partners have communicated with their respective audiences through their own communication channels, and thus the generic project web site (especially being in English only) could not be expected to be the sole communication – or even web communication – vehicle.

3.2 WP2: Training needs analysis and tools modification

This work package was finished during the risk analysis survey. According to the answers, there seemed not to be major risks occurring from this work package. However, two **low risk** aspects were identified by the partners, which were the following:

- a. *Challenges with the sample size of the responses on the first round.* Initially in Finland not a sufficient number of responses were reached, the number of potential informers was increased and thus the TNA was more comprehensive than originally planned and required.
- b. *Access to the tools used.* The tools originally provided required certain commercial proprietary software, which potentially limited its use – in particular within the actors of the public sector.

3.3 WP3: Short training courses design and delivery

This work package was by and large already finished during the risk analysis, but it was a work package with great importance to the success of the project.

The failures of the work package of project management with identified **high risk** included the following:

- a. *Alteration of the original format of the short courses.* In the various partner countries, the modality (including the length and depth) of the short courses changed considerably during the implementation. Also the variations of the course format were wide between countries. The causes for the alteration of the original format was main the quick change in the economic environment as well as the restrictions with the participants (as it showed rather impossible to take experts for three day courses from their workplaces).
- b. *Delays in the planning and delivery of short courses.* The design of the courses took in some countries longer than foreseen, and the delay in short courses lead also to “domino effect” in delaying the planning and implementation of long courses (WP4).
- c. *Lower number of participants than foreseen.* The effect with lower number of participants was less penetration of the UP-RES content to the various stakeholders. The main causes were outside of the control of the UP-RES project – i.e. due to worsening economic situation in Europe, financial cutbacks at local authorities. This meant also additional work load for the partners in identifying new participants / substituting participants for the courses.

The failures of the work package of project management with identified **low risk** included the following:

- a. *Little information in public of the short courses.* The media (such as local newspapers etc.) were not publishing news or articles related to the courses or the themes of new energy solutions, and thus assistance by the media was low in attracting new participants to the short courses.

3.4 WP4: Long training courses training design and delivery

The failures of the work package of project management with identified **high risk** included the following:

- a. *Impact of the pilot training approach not applicable and effective.* The key objective of the project is to develop a sustainable model for professional continuing education. The effects have been that the concept, curricula and materials developed might not be suitable for wider application and sustainable course implementation in various countries. The causes identified were – among others – that the target audiences were not sufficiently considered and that the actual working practices within the organizations of the course participants were not known deeply enough.
- b. *Insufficient utilization of the TNA results and short course experiences.* Although the training needs analysis work was relatively well assessed by the partners, the design of the project relied also on the experience gained with the short courses in the development work of the long courses. The effect of this failure is the underutilization of existing experience in the actual long course design.
- c. *Inadequate numbers of trainees in all courses.* The target numbers of trainees is unlikely to be met, the causes of which are the worsened economic situation with the employers of the potential participants, the novel topic and competence area (which requires certain time for maturity within the audiences) and the lacking fit into the existing national educational systems. In addition, the expectation that the participants could register for a multi-module training was not realistic.
- d. *German long pilot training delayed by several months.* The effect of one key country being late is considerable, especially as the span of the long course goes over the end date of the UP-RES project. The effects are obvious for the German partners, as their financial proportion might be reduced. The causes for this failure were the strategic decisions to market the long course as a entity (requiring long commitment and high registration fee) as well as the challenges with the German system of professional development recognition.

3.5 WP5: Evaluation

The failures of the work package of project management with identified **high risk** included the following:

- a. *Late contracting and thus late start of the evaluation.* The evaluation activities were effectively started in mid-Spring 2012. Other priorities in the work of the project (and in particular, of the partners responsible for the evaluation contracting) surpassed the start of evaluation in 2011. The causes were that needed evaluation input was not available for pilot training design or training material development.
- b. *Availability and quality of the material for evaluation.* As the evaluation activity was initiated and started late, also the guidance of materials for evaluation was not available until the short courses had ended and pilot long courses were already running.

3.6 WP6: Communication and dissemination

The failures of the work package of project management with identified **high risk** included the following:

- a. *Delays in the training material development.* Training material development is the key for the sustainability of the UP-RES project, but also for the effective dissemination. The joint core training material development has suffered from the other problems of the project, and thus the schedule of the training material development has been delayed. The effects are visible, as the training materials are the essentials for marketing to various educational institutions, and thus the widening of the training institutions for 2012-2013 is unlikely in the foreseen magnitude.
- b. *Attractiveness of training materials to other educational institutions.* The training materials developed within the UP-RES project should also be attractive to the AESOP member planning schools. The effect of this failure is also the delay in widening the reach to new providers of UP-RES training concept.

The failures of the work package of project management with identified **low risk** included the following:

- a. *Difficulty in scientific conference presentations and journal articles.* The high requirement level of scientific articles is a challenge, but the UP-RES project, although based on sound scientific background, is not primarily a research project.

3.7 WP7: Certification of planners with RES skills

The failures of the work package of project management with identified **high risk** included the following:

- a. *The European level certification path is not realistic.* The effect of this failure is hampering the European marketing and has its impact also on the attractiveness of a European training concept. The causes are that the European certification process is likely to be overly cumbersome and bureaucratic.
- b. *The certification in various partner countries faces internal challenges.* If no clear certification and certification procedure is available, the recruitment of participants to the courses might be difficult. The causes are that e.g. in Germany each German state has different requirements for professional certification or that in Finland the national certification might not be reached through the national urban planner professional organization.
- c. *The authoring of the deliverables in WP7.* Due to the failures described above, there is a major risk of the content and quality of the deliverables of this work package.

4 Summary of the risks and challenges

This section summarizes the findings of the risk analysis and proposes some clear actions to be taken by the project consortium.

According to risks identified and discussed by the UP-RES partners, the following is proposed:

1. The project coordinator intensifies **communication** with the partners as well as with the Agency. This might require more frequent communication both with partners as well as with the Agency. Also the communication between the partners should be intensified.
2. Particular consideration must be paid to the **tighter and more precise scheduling** of the activities, as the project is running out of time and has in several areas delays.
3. The actions to sign the **consortium agreement** must be intensified and solved in latest in early Autumn 2012.
4. The **alternative solutions for the long courses** are investigated and documented. The learning points and lessons of the long courses are documented in appropriate detail.
5. The project coordinator and German partners approach the Agency in Autumn 2012 in discussing the specific situation of the **German long course implementation** and the various opportunities.
6. The **training material development is structured, standardized and intensified**. Various stakeholders are used as “critical readers” of the training materials to ensure their suitability for the market.
7. Concrete and directed actions are planned and undertaken to solve the issues regarding **certification**. Clearly documented alternative strategies and implementation models are authored by the project partners to address this critical issue.

Although the risk analysis revealed a number of failures, it does not indicate that the project would have been failing in its work. There are a great number of good achievements, although the project has worked in a challenging environment. Of all to judge, the feedback of the participants of the training sessions has been good, the interest of the stakeholders has been vivid and the importance of the theme of the project has been growing even during the time of the work of the project.

Finally, it should also be highlighted, that this risk analysis is not an evaluation report – although it is an elementary part of the mid-term evaluation report. Rather this report coordinates and summarizes the key challenges and risks the partners see in the project, and thus it is also assisting the project consortium to concentrate on its last operating months to the critical issues at hand.

ANNEX 1

Instructions to the UP-RES partners

Risk analysis of the UP-RES project

1 Rationale

An elementary part of the mid-term evaluation of the UP-RES project is to make a “snap shot” on the work and implementation of the project at the moment (as early May 2012). The appropriate way to identify the key risks of the project in fulfilling its “service promises” (for both the funding agency as well as the various stakeholders) and its contractual obligations is to undertake a structured risk analysis.

The risk analysis procedure used here is called the FMECA (Failure Modes, Effects and Criticality Analysis). Fundamentally it is a procedure for analysis of potential failure modes within a system for classification by severity or determination of the effect of failures on the system. The typical goal in using FMECA is to eliminate failure modes with high severity and probability, and to reduce as much as possible those with high severity or high probability.

The data provided by the FMECA assessment enables priority ranking by means of the so called Risk Priority Number (RPN). The RPN is a result of a multiplication of detectability (D) x severity (S) x occurrence (O) - each on a scale from 1 to 10. The highest RPN is $10 \times 10 \times 10 = 1000$. This means that this failure is not detectable by inspection, very severe and the occurrence is almost sure. If the occurrence is very sparse, this would be 1 and the RPN would decrease to 100. Thus criticality analysis enables to focus on the highest risks. The higher the resulting index is, the more urgent the need to find a solution.

I have been introduced to the FMECA method by my colleagues at the IAVANTE foundation in Spain and we have used the methodology with my colleagues in selected European projects. My firm understanding is that this method cannot be used later than in the mid-term evaluation of the UP-RES project, but with quick processing of the results it can give the project partners necessary information to the work of the project in its final phases.

Please fill in each sheet of the Excel (one per WP) – also including those WPs already finished.

2 Practical instructions

All the partners are asked to fill in the enclosed grids of all the work packages.

As you fill in the spreadsheets, you are asked to identify failures and effects that you have detected in the work packages and also discuss possible causes. For each of the failures you identify, you are then asked to assign a value from 1 to 10 for each of the following aspects of the failure.

- **Severity** (1= not important, 10 = very important)
- **Occurrence** (probability that the failure will happen/does happen - 1= not probable/has not occurred, 10 = very probable/has occurred)
- **Detectability** (how easy is it to detect? 1 = easy to detect, 10 = almost impossible to detect)

In particular, in detectability pay attention to the detectability of an action *prior to the actual dead line* - for instance, according to training events, how detectable is the success of the training event before you start the planning and marketing and commitment to the actual implementation work.

As we have been undertaking this as an exercise in Erfurt, please document also those writings you did at the time in Erfurt.

As you might recall the fictitious example:

Failure: Project virtual environment not available on time

Effect: Poor communication within the partners

Cause: Website manager was off work due to an accident

S = 6 (this is quite an important problem)

O = 10 (this has occurred)

D = 1 (it is very easy to detect - there is no virtual environment available).

This gives us a Risk Priority Number (RPN) of $6 \times 10 \times 1 = 60$. Please just fill in the SOD indicators – I will do the summaries and also do the calculations. I will also combine some factors two or more project partners have identified.

NOTE: PLEASE NAME YOUR FILE IN A CLEAR WAY – the file naming convention is:

UP-RES_FMECA_(partner name)_date – e.g. for Aalto this would mean the following file name (as you save the file with “Save As...” command): **UP-RES_FMECA_Aalto_2012-05-09**

EXAMPLE OF AN EXCEL PAGE TO BE FILLED BY THE UP-RES PARTNERS

FMECA WORKSHEET	UP-RES				
			<i>S: Severity ; O: Occurrence; D: Detectability</i>		
WP1: PROJECT MANAGEMENT					
TASKS:	Establishing the National Steering Groups	Web conferencing practice			
	Project meetings (organization, running)	Project website			
	Internal project management platform	Reporting (to the EC and other actors)			
		Fluent day-to-management of the project			
FAILURES	EFFECTS	CAUSES	S	O	D
KEY SUCCESSES					