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DELIVERABLE (D-PM1.2) **Risk Management Plan**

Author(s):

Vincent CHAUVET

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PU	Public	
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RAPHAEL (ReActor for Process heat, Hydrogen And ELectricity generation)





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Document title						
Risk Management Plan						
Abstract						
The present deliverable is a management document for the RAPHAEL project. It presents the methodology used and the first risk assessment carried out within the project. As a project management tool, the risk analysis and action plan will necessarily evolve during the project. The analysis described in the present report thus represents the situation at the time of delivery.						
Revisions						
Rev.	Date	Short description	Author	WP Leader	SP Leader	Coordinator
00	30/04/2006	First issue	V.Chauvet, STEP 	V.Chauvet, STEP 	E.Bogusch, AREVA NP 	E.Bogusch, AREVA NP 
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1 Introduction

1.1 Applicability

The present risk management plan has been issued by the Project Management Support (PMS) of RAPHAEL and applies for decision-making and implementing action plans. As such, it will possibly provide inputs for the project management meetings of RAPHAEL.

1.2 Purpose

The purpose of this plan is to identify, assess and respond to potential risks affecting the RAPHAEL project.

As defined in the Annex I to the contract, the purpose of **risk management** is to ensure that levels of risk and uncertainty (on work progress, planning, budget, etc.) are properly managed so that the project is successfully completed. It enables the project management team to identify possible risks, the manner in which they can be contained and possibly the likely cost of countermeasures.

As such, the objectives of the Risk Management Plan are to:

- Provide a tool for managing and reducing the risks identified during the project,
- Document risk mitigation strategies being pursued in response to the identified risks and their grading in terms of probability and impact (or consequence),
- Provide the Executive Board with a documented framework from which risk status can be reported upon; when necessary, the risk status may also be reported to the Steering Committee.

The plan thus describes:

- The process which will be used to identify, analyse and manage risks both initially and throughout the project (methods, periodicity, actors),
- Roles and responsibilities,
- How risk status will be reported and to whom.

The Risk management plan will be supported by a Risk Register recording details of all the risks identified at the beginning and during the life of the project, their grading in terms of likelihood of occurring and seriousness of impact on the project, initial plans for mitigating each high level risk and subsequent results.

2 Methodology

2.1 Definitions

- **Risk:** uncertain event affecting the project negatively
- **Probability:** likelihood of the occurrence of a risk
- **Consequence:** impact of the occurrence of an event; can be positive (opportunity) or negative (risk)
- **Criticality:** measure of the level of the risk, combining probability and consequence
- **Criticality matrix:** matrix that combines probability and consequence into an overall criticality measure used to prioritise the risks
- **Risk analysis:** assessment of project-specific risks, and its periodic follow-up
- **Risk management:** systematic process of identifying, analysing and responding to project risks
- **Risk management plan:** document comprising the risk analysis and action plan
- **Preventive action:** action aimed at avoiding the occurrence of a specific risk
- **Corrective action:** action aimed at mitigating the impact of a risk, should it occur

2.2 Risk assessment methods

3 steps are followed for completing the risk assessment:

1- Identify the risks: the list of risks which be analysed and followed is established in the early stages of the project and monitored periodically (to ensure that any new risk is taken into account)

2-Analyse the risks: for each of the risks identified, quantify its probability and consequence, and combine them to measure its criticality. The first analysis is made by assuming that no preventive or corrective action has been carried out; the criticality of the risks will furtherly evolve, in accordance with the actions decided.

The potential impacts on budgets, plannings, and quality of the work performed, are systematically assessed when estimating the consequence of each risk.

The scales used for the measures are defined in the following criticality matrix:

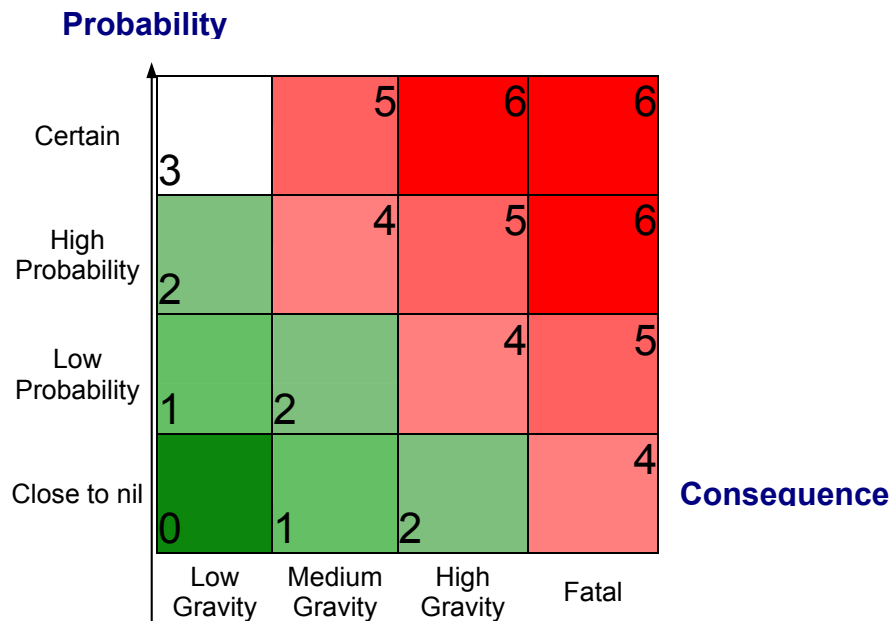


Fig.1: criticality matrix used for the risk analysis

Risks ranging with a criticality degree of 6 are very high and need immediate action to be avoided or mitigated.

3- Define the action plan: a list of preventive or corrective actions must be defined in order to control the risks. The implementation of actions is required at least for all risks with a criticality above 3.

Preventive actions aim to avoid a risk from occurring, or to reduce its probability, while corrective actions are planned to reduce the consequence of the unwanted event if it happens.

3 Risk management of the RAPHAEL project

3.1 Risk monitoring process

The risk assessment will be drafted by the coordinator and the Project Management Support (PMS), and amended by the Executive Board.

It will be periodically updated following a similar process. The periodicity foreseen for the risk monitoring is biannual, in accordance with meeting dates of the Executive

Board (however, it shall not be systematically on the agenda of the EB, that meets approximately 4 times per year).

3.2 Risk assessment of RAPHAEL

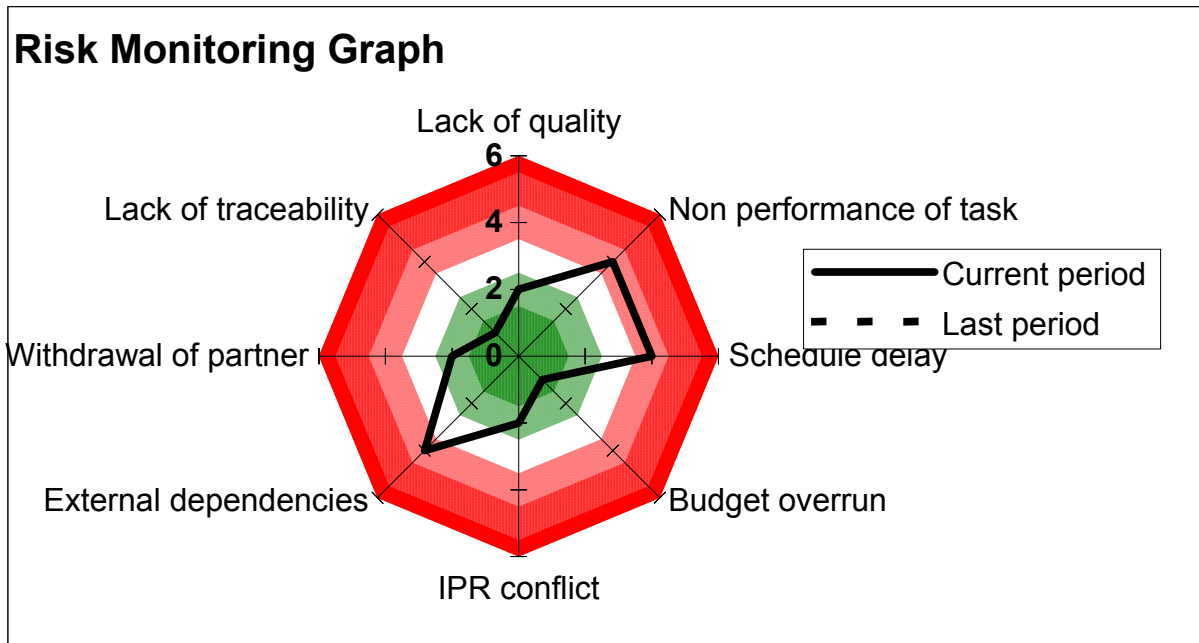
3.2.1 Major risks

The major risks initially identified for RAPHAEL are the following:

RF01	Lack of quality in a result or deliverable
RF02	Non performance of a task
RF03	Non respect of planning
RF04	Budget overrun
RF05	Conflict on intellectual property
RF06	Impact of external events
RF07	Withdrawal of a partner
RF08	Lack of traceability

3.2.2 Risk analysis

The probability and consequence of each risk have been monitored initially. The resulting risk monitoring graph is as follows:



The analysis provided here shall evolve periodically in order to ensure that it effectively and accurately reflects the project risk environment.



3.2.3 Action plan

Actions were decided in order to control most risks, and all risks with a criticality above 3.

Origin	Risk	Detail		Type	Action	Responsible	Planned date	Actual date	Status
RF01	Lack of quality	QA of report		Preventive	Monitor application of Project Quality Plan (PQP)	PMO	continuous	continuous	Ongoing
RF01	Lack of quality	QA of report		Preventive	Finalise review of partners' Quality Assurance procedures and provide minimal QA requirements	PMO	15-oct-05	April 06	Ongoing
RF01	Lack of quality	Quality of work carried out		Corrective	Decide peer reviews when judged necessary	Coordinator & SPLs			
RF02	Non performance of task	Defaulting partner	Required	Preventive	Link fund transfer to effective deliveries or contributions				
RF03	Schedule delay		Required	Preventive	Monitor the project planning	PMO			
RF03	Schedule delay	Late delivery of reports	Required	Preventive	Include automated warnings in next version of SINTER	IKE			
RF03	Schedule delay	Impact of previous delay	Required	Preventive	Identify critical paths in Sub Project work plans	SPLs	Annually in May		Ongoing
RF03	Schedule delay	Late delivery of reports	Required	Corrective	Require from SPL an impact analysis for each late deliverable	Coordinator			
RF04	Budget overrun			Preventive	Review per Sub-Project the effort & costs declared by partners	SPLs	Annually in May		Ongoing
RF05	IPR conflict	Respect project IPR rules		Preventive	Ensure signature by all participants of Consortium Agreement	PMO	July 05	July 05	Finished
RF05	IPR conflict	Dissemination of reports		Preventive	Structure and monitor the document workflow according to IPR principles defined in Consortium Agreement	PMO	continuous	continuous	Ongoing
RF06	External dependencies	Work depends on international programmes	Required	Preventive	(Case by case) Estimate delays and if judged necessary find substitutions	Case by case			
RF07	Withdrawal of partner								
RF08	Lack of traceability			Preventive	Ensure that all documents (reports, meetings) are placed on SINTER	PMO + Coordinator + SPLs			