

## MQP Level 2

# Risk and Opportunity Management Procedure

The ITER Risk and Opportunity Management Procedure forms part of the ITER Management and Quality Programme and defines the process for the identification, assessment, analysis, mitigation/exploitation and management of ITER Project Risks and Opportunities. Risk and Opportunity Management is central to the effective management and successful on time and cost delivery of projects. The results from the Risk and Opportunity Management process will be used to inform project decision making at all levels throughout the lifecycle of the ITER project.

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<i>Change Log</i>			
<b>Risk and Opportunity Management Procedure (22F4LE)</b>			
<i>Version</i>	<i>Latest Status</i>	<i>Issue Date</i>	<i>Description of Change</i>
v1.0	Signed	25 Feb 2005	
v1.1	Approved	07 Mar 2005	
v2.0	In Work	05 May 2009	
v2.1	Approved	24 May 2009	
v2.2	Signed	08 Oct 2009	Document re-drafted and split into two documents 1. Management focus and 2. Practitioner focus. The latter document is Risk Assessors Handbook [IDM ref: ITER_D_2YRJG2 v 1.0]
v3.0	Signed	20 Jan 2011	<p>This new version incorporates the recent improvements proposed for the ITER risk process, which simplify the structure of the overall risk process and provide further clarity on the relationship to the other management processes, such as procurement arrangement, design review and project change control, while the Risk Assessors Handbook (3G3TH2) provides the details of the risk analysis methodologies and processes for the risk practitioners.</p> <p>Sections 1 and 2 of this document are designed to give an overview of the process and have been specifically targeted at Managers within the ITER Project. The remainder of the document is targeted at Responsible Officers who will be required to understand and use the risk process as necessary though with the assistance of the risk practitioners as needed.</p>
v3.1	Signed	07 Feb 2011	<p>Incorporated reviewer's comments:</p> <p>Alignment of Roles and Responsibilities with the new organization structure Update of the Reporting and Communication section</p>
v4.0	Revision Required	24 Oct 2014	<p>This update contains major changes from the previous version as follows.</p> <p>The previous Risk Management Plan contained descriptions and definitions of methodologies. It has been decided that such details should be described in the lower level document. A new Risk Management Procedure (Q4SQA2) has been developed. The majority of the contents in the previous version of Risk Management Plan have been moved into the newly created Risk Management Procedure (Q4SQA2).</p> <p>The IO organization and overall strategy (including roles and responsibilities) for project management and risk management have been changed since 2009. The latest strategy has been reflected in this new version.</p> <p>The previous version was issued (i.e. approved) in June 2009. The risk management practices have been evolved since then, which have been reflected in this new version and the new Risk Management Procedure (Q4SQA2). The inconsistency between the previous version and the actual practices such as the risk assessment matrix has been resolved.</p>
v4.1	Signed	15 Jun 2015	Reviewers' comments have been incorporated. The document has been refined in order to be aligned with the new IO (CT & DA) organization.
v4.2	Approved	15 Jul 2015	Reviewers' comments have been incorporated.
v5.0	Signed	21 Nov 2016	This new version incorporated 2016 changes in the ITER Project risk and opportunity management process. These changes to the process have been reviewed and approved at the monthly PROMC-WG meetings.
v5.1	Approved	30 Nov 2016	Incorporated reviewers' comments

v6.0	Signed	30 Mar 2017	Addition of language and tables to more fully cover opportunities Clarification of terminology for better alignment with the MQP Level 1 parent document, Project Management Plan Change Title to Risk and Opportunity Management Procedure Uploaded following MQP doc Request UFY88B
v6.1	Signed	04 Apr 2017	MQP L2 procedure for Project Control Office processes added under Scope.
v6.2	Signed	04 Apr 2017	Risk and Opportunity Management Procedure on template MQP Document Template (438T76 v2.4) (current)
v6.3	Approved	05 Apr 2017	All comments, changes accepted except:  Comment 1 - definition of an issue. It is necessary to have a distinct boundary between issues and risks for clarity. Boundary is that a concern is not an issue unless it has happened, that it is a fact Comment 3 and 4 - Score of 8 was set by Hans. We would want to study how many risks would be affected by raising the "accept" bar to 16. We will put the suggestion of 16 in the folder we've already started for changes to the next version of the Risk and Opportunity Management Procedure. We expect a new version may be necessary to address comments by the IC independent assessment
v6.4	Approved	09 Oct 2019	As per approved MQP doc request <a href="https://user.iter.org/?uid=29E835">https://user.iter.org/?uid=29E835</a> the changes are: MQP document updated with the new organization structure (see attachment with the track of changes)

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# 1 Purpose

For the ITER Project a risk is anything that, if it were to occur, would negatively impact achievement of the ITER Project's objectives. An opportunity is anything that, if it were to occur, would positively impact achievement of the ITER Project's mission. For the ITER Project, risks and opportunities (R&Os) are managed using the same Risk and Opportunity Management (R&OM) principles. The strict application of these principles is regarded as a core activity to ensure delivery of the ITER Project's objectives to time and cost.

The purpose of this document is to describe “*how*” the R&OM process is implemented by IO and DAs and “*who*” is responsible.

# 2 Scope

According to the “Common Understandings on ITER Management and Procurement” of the “Joint Declaration – Implementation (signed at Brussels on 24 May 2006)” ([1] [6. Joint Declaration - Implementation \(all sections\) \(2KTCJY\)](#)), the ITER Organization and the associated Domestic Agencies manage risks and opportunities in order to fulfil their responsibility to meet the Project objectives and safety requirements.

## ITER Management

3. *The ITER Organization shall have the overall responsibility to meet the project objectives and safety requirements.*

.....

*It shall perform systems engineering and integration, control the cost and value utilizing earned value systems, manage risks, oversee the procurements, assemble/install/maintain and operate ITER and prepare for decommissioning.*

*It shall manage changes to the ITER configuration considering performance, risk, cost/value and schedule.*

The Risk and Opportunity Management Procedure is a MQP Level 2 document belonging to the Project Control Office (PCO) processes.

# 3 Definitions and acronyms

The abbreviations related to this document include the following:

CCB – Configuration Control Board

CTMB – Central Team Management Board

DA – ITER Organization Domestic Agency

DG – Director General

DRT – Deliverable Realization Teams, meaning the necessary combination of individuals regardless of their employer (IO or DA) necessary to execute the workscope. This term is introduced to include such groupings as IO and DA teams under PA and Project Teams.

EPB – Executive Project Board

IC – ITER Council

IDM – ITER Document Management system

IO – ITER Organization Central Team

Issue – A certain (100% probability) event that will or is having an effect on project objectives

MAC – Management Advisory Committee

Manager – A line manager or organizational unit manager. The individual within IO or DA with overall responsibility for delivery of any ITER system, component or sub-component to time and cost. Typically indicates Section Leader, Division Head or Department Head within IO.

Opportunity – An uncertain event that should it occur would have a positive effect on project objectives

PA – Procurement Arrangement

PBS – Plant Breakdown Structure

PEE – Project Execution Entity meaning IO or DA

Project Risk or Opportunity – Risk or opportunity which may impact beyond a single organization's (IO or DA) authority level.

PROMC – Project Risk and Opportunity Management Committee

PROMC-L1 – Level 1 of PROMC corresponding to EPB or CTMB level

PROMC-L2 – Level 2 of PROMC corresponding to LII CCB level

PROMC-L3 – Level 3 of PROMC corresponding to IO Department level or lower

PROMC-WG – PROMC Working Group, advisory to PROMC-L2

Project Baseline – The scope, schedule and cost that constitute the baseline, as summarised and approved by the ITER Council referencing the Overall Project Cost, the Overall Project Schedule and the Project Plan and Resource Estimate

PROR – Project Risk and Opportunity Register

Risk – A threat or an uncertain event that should it occur would have a negative effect on project objectives

RO – Responsible Officer; meaning the individuals within IO or DA with responsibility for relevant areas, including Technical Responsible Officers

STAC – Scientific and Technical Advisory Committee

WBS – Work Breakdown Structure

## 4 References

- [1] Risk management – Principles and guideline. International Standard, ISO 3100, 2009
- [2] [IO Management and Implementation Plan \(IMIP\) \(2NCR3F\)](#)
- [3] [Project Change Procedure \(22F4E5\)](#)
- [4] [Project Issue Management Procedure \(SSU96T\)](#)
- [5] [Risk and Opportunity Management Implementation Guideline \(TRD5E7\)](#)

## 5 Basic principles

The R&OM Procedure is based on industry standards, such as those issued by the Project Management Institute (Project Management Body of Knowledge (PMBOK)) or the International Organization for Standardization (ISO 31000:2009 Risk Management), and is applicable to the full lifetime of the ITER Project. The R&OM Procedure will be reviewed regularly. As is normal Quality Management practice, all Project Execution Entities (PEEs, such as the IO, the DAs, and suppliers) shall define and implement their own R&OM working instructions which are consistent with this procedure.

The R&OM Procedure, in the scope of the Project Control Office process, propagate requirements from IO Management and Implementation Plan (IMIP)[2].

## 6 Responsibilities

R&Os can be identified at any level and any organizational point. However, to maximise the effectiveness of the R&OM process across all PEEs, the management and control of R&Os must be consistent with the following principles:

- The IO DG, with engagement with the Senior Managers and the DA Heads, is responsible for the management and control of those R&Os, which potentially could impact the ITER-Project's technical performance, cost and schedule.
- Identification, management and control of all other R&Os is delegated according to the delegation authority and responsibility principles defined for any given PEE.

Table 1 defines the roles and specific responsibilities for the R&OM process.

**Table 1: Roles for R&O Management**

<b>IO Director General</b>
<p>The Director General (DG) is responsible for controlling the ITER Project's R&amp;O environment and overall R&amp;O profile. The DG must work with all key stakeholders, particularly the ITER Council, the DAs and the ITER Members to realize this responsibility. Specific responsibilities of this position include:</p> <ul style="list-style-type: none"> <li>• Be the primary manager responsible for controlling those R&amp;Os, which may affect the ITER Project as a whole.</li> <li>• Ensure that such R&amp;Os are reviewed regularly, appropriate and realistic response plans are implemented and required decisions are taken in a timely manner</li> <li>• Delegate through the ITER Project, through applicable processes, agreements or contracts, the responsibility for control of lower level R&amp;Os.</li> <li>• Consult the EPB (Executive Project Board) prior to taking decisions</li> <li>• Escalate to the ITER Council if and where R&amp;Os, or their response strategies, are beyond the DG's delegated powers.</li> </ul>
<b>Domestic Agency Heads</b>
<p>The DA Heads are responsible for the management of R&amp;Os within their respective organizations. Responsibilities include:</p> <ul style="list-style-type: none"> <li>• Contribute to the establishment of this R&amp;OM Procedure.</li> <li>• Implement a R&amp;OM process as part of their organization's management system, consistent with this R&amp;OM Procedure.</li> <li>• Advise DG through EPB membership on the decisions with respect to those R&amp;Os, which may affect the ITER Project as a whole</li> <li>• Ensure that the R&amp;OM Procedure is cascaded into the DAs' supply chains</li> <li>• Ensure that R&amp;Os identified by the DAs are recorded within the ITER Project's R&amp;O Register (PROR).</li> <li>• Ensure escalation according to the rules set forth in this R&amp;OM Procedure, where the impact of R&amp;Os, or the magnitude of their response plans, are beyond the DAs' delegated powers.</li> </ul>

**PROMC L2 (LII CCB) Chair**

The Chair of PROMC-L2 (LII CCB), to whom the DG has delegated authority, supports the DG in managing high level R&Os. Responsibilities of this role include:

- After consultation of PROMC-L2, ensure that Level-2 R&Os are reviewed and timely decisions are taken (CCB-II)
- Where there is the potential for a R&O becoming a Level-1 R&O, escalate to Level-1 decision power (i.e. IO DG).

**PROMC-WG**

As defined in [Terms of Reference – ITER Project Risk & Opportunity Management Committee \(TEPUUE\)](#), the Project R&OM Working Group (PROMC-WG) is charged with:

- To review Level -1 and -2 R&Os reported from the PROMC-L3 by providing independent input on:
  - response strategy
  - assessment (probability and impact ranking)
  - cost benefit analysis for response actions
  - R&O response actions.
- To propose response actions, or approaches to develop actions, where those proposed are considered insufficient either by the Departmental manager, or assigned decision making body. Such approaches could include proposals to create special task forces or gain input from external experts.
- To confirm the implementation of mitigation actions into the schedule, or via the use of Key Performance Indicators (KPIs) if tracking is required at a more detailed level; raising concerns as appropriate.
- To monitor progress of response actions for Level -2 and Level -1 R&Os; raising concerns as appropriate to the PROMC-L2 (LII CCB).
- To develop the basis for the creation and use of a common funding source for response actions.
- Recommend the assignment of resources to support actions to the decision making body (EPB, or PROMC-L2 via delegated authority) in accordance with the fund allocation process when defined.

**IO & DA Managers**

Managers are responsible for ensuring that R&Os are identified, managed and reported according to this procedure for their area of work responsibility.

- Ensure that R&Os as well as their response strategies are regularly reviewed and monitored at all levels of his/her area of work responsibility.
- For R&Os at the Level which is commensurate with their authority level, take decisions in a timeframe such that the subsequent actions can be realistically achieved to support the intent of the decision.
- Ensure that R&Os and their potential response strategies are escalated (e.g. to PROMC-L2 (LII CCB)), if and where they are beyond their authority level i.e. Level 1 and Level 2.
- The IO Department Manager is responsible for confirming this procedure is working effectively for their Departmental work scope.



### IO & DA Responsible Officers

For each Procurement Arrangement (PA, i.e. In-kind procurement) there is a Technical Responsible Officer (TRO) in IO and a partner TRO in DA. The TROs for each PA must work as a single team to control its related R&Os. As such, the TROs have overall responsibility for identifying, recording, reporting and managing R&Os.

For each In-cash procurement there is a Technical Responsible Officer (applies to IO only). The TRO. As such, the TRO has overall responsibility for identifying, recording, reporting and managing risks and opportunities.

The Responsible Officers (ROs) for non-technical areas have overall responsibility to identifying, recording, reporting and managing R&Os related to their areas of responsibilities.

### IO PCO Head

The IO PCO Head is responsible for implementing project management methods, processes, tools, including for R&OM, in collaboration with the DA counterparts. Responsibilities of this position include:

- Ensure industry best practices for R&OM are implemented within the ITER Project
- Advise the Managers, DG, Domain Heads, DA Heads, Organizational Unit Managers and TROs on R&OM matters

### R&OM Officers

The R&OM Officers (R&OMOs) are responsible for defining the R&OM process and supporting key stakeholders (DG and DA Heads, Organizational Unit Managers, TROs, R&OOs) in its implementation. Responsibilities of this position are to:

- Develop and maintain the R&OM process through management system documentation,
- Provide training and advice on the implementation of the R&OM process to key stakeholders.
- Support on an as needed basis the key stakeholders in their efforts to implement the R&OM process
- Ensure that all relevant affected persons are informed and engaged during the initial drafting or major revision of a risk.
- Develop and maintain a centralized Project PROR database
- Perform project R&O analysis as necessary<sup>1</sup>
- Ensure R&Os are recorded correctly in the Project PROR.

### R&O Reporter

The Risk & Opportunity Reporters (PRORPs) are nominated to be responsible for the end to end management of the risk or opportunity on the R&O. Responsibilities of this position are to:

- Ensure that the risk once raised follows this procedure
- Ensure that a Response Plan is set up and implemented for the R&O (where needed)
- Ensure that actions are issued to implement the Response Plan
- Follow-up Response Plan actions and ensure that they are executed as planned
- Ensure any associated PCR is raised if needed to incorporate significant new risk mitigation work scope into the Project Baseline.

### IO Category Owners

Transversal function managers are responsible for ensuring that R&Os related to their transversal process are appropriately assessed by:

- Engaging in the initial drafting of R&O in their category
- Performing at least every two years an overall assessment of all R&O in their assigned category to identify common root causes that could be resolved by the functional transversal manager.

<sup>1</sup> IO R&OM Officers may be required at DG instruction to perform R&O modelling. The purpose of this modelling would be to inform senior management decisions in terms of the effectiveness of the R&OM process to support achieving the Project Objectives within the available time and cost boundaries.

## 7 R&OM Process

The overall R&OM process (see Figure 1) will be implemented through the use of Project R&O Register (PROR). The output of this process is the fully developed R&O records in the PROR.

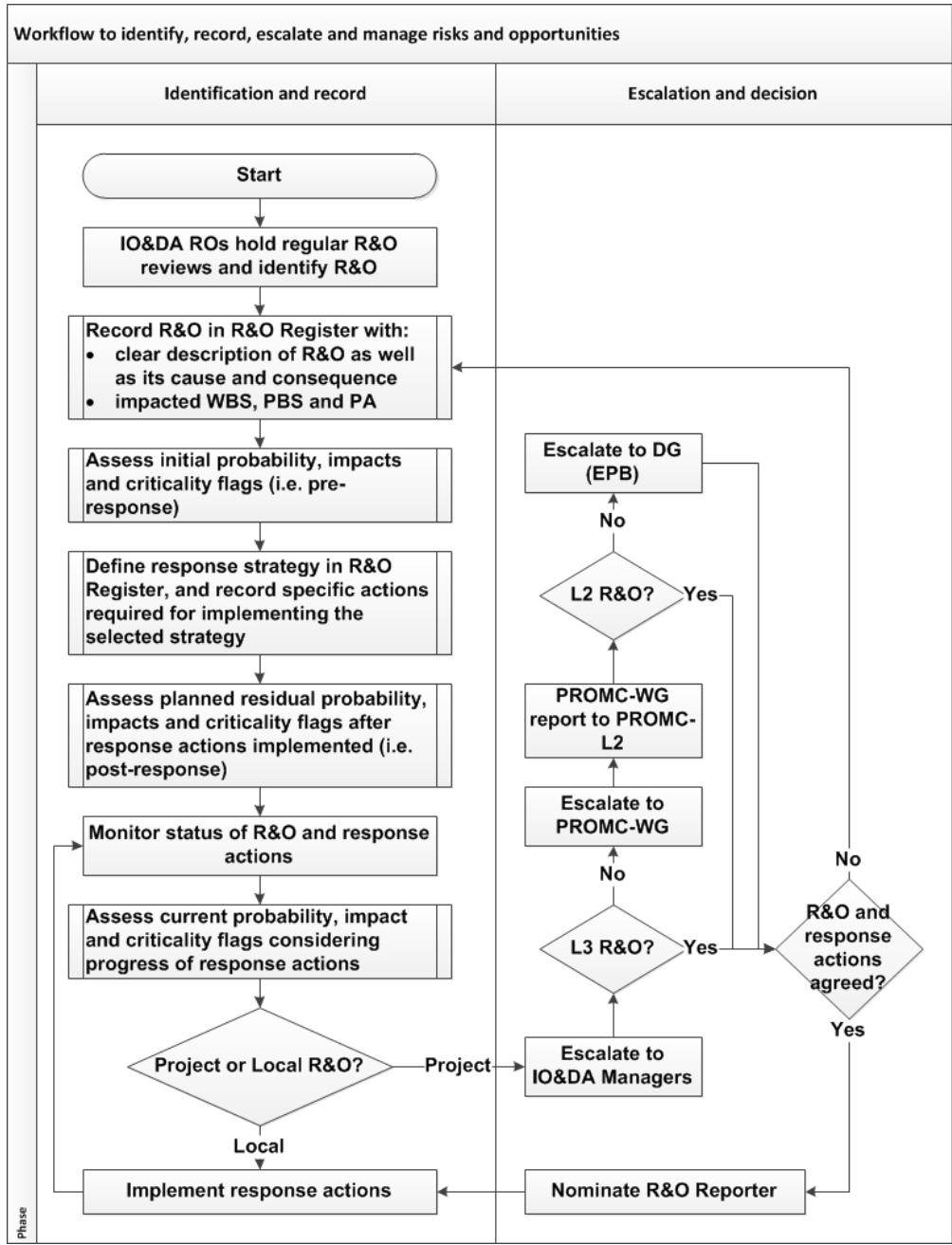


Figure 1: R&OM Process

### 7.1 R&O Identification

R&Os may be identified by any one working for the ITER Project. However, it is expected that most R&Os are identified by the members of the Deliverable Realization Teams (DRTs) across the ITER Project.

The Responsible Officers (ROs) of these DRTs are in charge to hold regular R&OM reviews with their teams, where not only newly identified R&Os are discussed, R&Os are pro-actively searched for by using as a checklist the standard R&O categories depicted in Table 2, and response action plans for existing risks are updated and reported by the R&O Reporter.

It is up to the ROs to define the frequency of R&OM reviews for their teams. A minimum interval of three months and a monthly frequency for the more significant R&Os is required.

It is expected, subject to available project resource and therefore DG decision, that the project shall hold a risk workshop (or series of) at least once every two years with the aim of ensuring the major risks and opportunities affecting the project are identified and mitigation is progressing satisfactorily.

Each risk and opportunity in the PROR is identified with several elements which allow inclusion of key affected personnel and central analysis for project impact. These major identifying elements include the PEE, PBS, WBS, PA,

**Table 2: R&O Categories**

	R&O primarily related to:
<b>Interface Management &amp; Technical Integration</b>	<ul style="list-style-type: none"> <li>technical interfaces and integration of multiple systems or components</li> </ul>
<b>New Technology &amp; Technical Challenges</b>	<ul style="list-style-type: none"> <li>first-of-a-kind nature</li> <li>use of new technologies</li> <li>technical complexity</li> </ul>
<b>QA/QC</b>	<ul style="list-style-type: none"> <li>aspect of quality</li> <li>quality assurance</li> <li>quality control</li> </ul>
<b>Supply Chain &amp; Contract Management</b>	<ul style="list-style-type: none"> <li>management of supply chain</li> <li>contract terms &amp; conditions</li> </ul>
<b>Project Management &amp; Management Systems</b>	<ul style="list-style-type: none"> <li>general management</li> <li>implementation of project management methods, processes, tools</li> <li>planning, controlling, reporting, communication, organization, stakeholders</li> </ul>
<b>Budget, Cost &amp; Resources</b>	<ul style="list-style-type: none"> <li>cost estimating</li> <li>budget planning and implementation</li> <li>cost control</li> <li>resource planning</li> <li>resource management</li> </ul>
<b>Nuclear Safety &amp; Regulatory</b>	<ul style="list-style-type: none"> <li>nuclear safety</li> <li>licensing aspects</li> <li>regulatory aspects</li> </ul>
<b>Health, Safety &amp; Environment</b>	<ul style="list-style-type: none"> <li>health &amp; safety</li> <li>environmental protection</li> </ul>
<b>External Conditions</b>	<ul style="list-style-type: none"> <li>changed external conditions</li> </ul>
<b>Lack of Knowledge / Uncertainty</b>	<ul style="list-style-type: none"> <li>uncertainty due to lack of knowledge</li> <li>uncertainty due to lack of experience</li> </ul>

The named Category Owners is provided in [Risk and Opportunity Category Owner \(UFY6M5\)](#).

## 7.2 R&O Assessment: Overall Rating

Identified R&Os shall be assessed along the dimensions ‘Impact’ and ‘Likelihood of Occurrence’, using scores 1-5 as defined in Table 3. ‘Impact’ assumes the most likely impact if the R&O would indeed materialize. ‘Likelihood of Occurrence’ represents the probability of the R&O occurring during the ITER Project’s lifetime.

The end result of this part of the assessment is an Overall Rating describing the relevance of the R&O. It is calculated using:

$$\text{Overall Rating} = \text{Probability Score} \times \text{Max} \{ \text{Schedule Impact Score}, \text{Cost Impact Score} \}^2$$

### 7.3 R&O Assessment: Flagging

Due to the non-disclosure policy with regards to cost, the assessment also applies a flagging system shown in Table 4. The latter allows, together with the risk rating, to cluster R&Os into a hierarchy of Control Levels defined in [Risk and Opportunity Control Level \(UCN67H\)](#) which is used for escalation purposes (see below).

### 7.4 R&O Register

All R&Os of the ITER Project shall be recorded in the Project's central R&O Register (PROR). It is the responsibility of the R&OM Officers to ensure that R&Os are indeed recorded in the PROR.

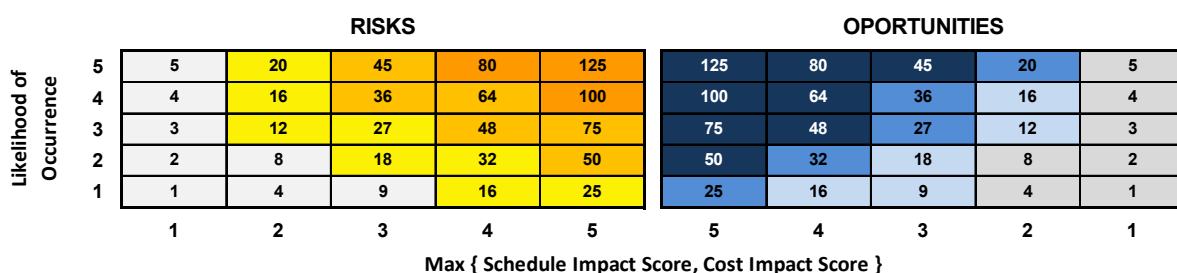
However, in order to

- advise and provide feedback to risk Reporters to improve the quality of the R&O descriptions for the sake of better understanding
- recommend risks, which in fact are issues, be removed from the PROR and registered into the ITER Project's Issue Management System
- recommend the removal of redundant, or grouping of similar, R&Os
- bundle R&Os into parent/child relationships
- provide independent peer review and challenge, and through this process, recommend adjustments to the Overall Scoring and Flagging of R&Os to avoid Reporter bias (or individual risk acceptance perceptions) to artificially distort the risk rating applied for all R&Os
- verify that Response Plans have been set up and Response Plan Owners have been identified

An inter-PEE working group (Project R&OM Committee Working Group, PROMC-WG), involving IO and DA technical transverse and corporate functions continuously maintains the R&O in the Risk Register and makes suggestions for potential Level-adjustments.

**Table 3: R&O Assessment Criteria**

		Risk	Opportunity
<b>Likelihood of Occurrence</b>	1	not credible; less than 10%	
	2	very unlikely; between 10% and 30%	
	3	unlikely; between 30% and 50%	
	4	likely; between 50% and 80%	
	5	very likely; more than 80%	
<b>Schedule Impact</b>	1	less than 1 week	less than 1 week
	2	between 1 week and 3 months	between 1 week and 1 month
	3	between 3 and 6 months	between 1 and 3 months
	4	between 6 and 12 months	between 3 and 6 months
	5	more than 12 months	more than 6 months
<b>Cost Impact</b>	1	less than 0.5 M€	less than 0.1 M€
	2	between 0.5 M€ week and 2 M€	between 0.1 M€ week and 0.5 M€
	3	between 2 M€ and 5 M€	between 0.5 M€ and 1 M€
	4	between 5 M€ and 20 M€	between 1 M€ and 2 M€
	5	more than 20 M€	more than 2 M€



**Figure 2: R&O Scoring & Rating Matrix**

**Table 4: R&O Assessment Flags**

		<b>Risk</b>	<b>Opportunity</b>
<b>Schedule Impact</b>	<b>Critical</b>	Affects activities on the ITER Project's Critical Path	
	<b>Near critical</b>	Affects activities near the ITER Project's Critical Path	
	<b>Not Critical</b>	Affects activities not near the ITER Project's Critical Path	
<b>Cost Impact</b>	<b>Critical</b>	Cost risk NOT manageable within existing budget for affected IO or DA	Cost opportunity contributes to savings in IO or DA existing budget
	<b>Not Critical</b>	Cost risk manageable within existing budget for affected IO or DA	Cost opportunity does NOT contribute to savings in IO or DA existing budget
<b>Technical Impact</b>	<b>Critical</b>	ITER facility not be able to operate in DT phase	ITER facility will achieve higher objectives in DT phase
	<b>Not Critical</b>	Performance remains well within defined specifications, or Component performance affected but system specifications will be maintained, or System specifications will not be met, or ITER operational regime will be reduced	ITER operational regime will be improved, or System specifications will be met with sufficient margin, or Component performance improved but system performance not affected, or Performance will be barely improved

## 8 Risk and Opportunity Response Planning

### 8.1 Overview

Response Plans shall be implemented in order to reduce a risk's or opportunity's Overall Rating where the response strategy of mitigate is selected. To this end, for each risk or opportunity the following information is used to understand the progress and effectiveness of the mitigation action applied and the continued risk and opportunity exposure of the project:

- Initial Overall Rating: the Overall Rating resulting from the initial assessment of a newly identified risk or opportunity
- Current Overall Rating: the Overall Rating at time of project status reporting, possibly taking the as-is status of the Response Plan implementation into account
- Planned Residual Overall Rating: the Overall Rating intended to be achieved at time of full implementation of the response plan
- Actual Residual Overall Rating: the actually achieved Overall Rating once the response plan has been fully implemented.

### 8.2 Cost Benefit Analysis

Response Plans may require resources beyond those currently included in the Project Baseline to implement and execute them. A Cost Benefit Analysis therefore needs to be undertaken to identify whether or not

- mitigating a risk is more expensive than the risk's impact;
- enabling of an opportunity is more expensive than the opportunity itself.

Thus, a Cost Benefit Analysis is a way to measure the efficiency of the Response Plan compared to its benefit.

However, because every Cost Benefit Analysis requires resources on its own, it shall at least be performed if and where funding sources directly controlled by the Head of a PEE (e.g. Reserve Fund, Undistributed Budgets, Contingency Budgets, etc.) are required to implement a Response Plan. To this end, every PEE shall develop its applicable Cost Benefit Analysis

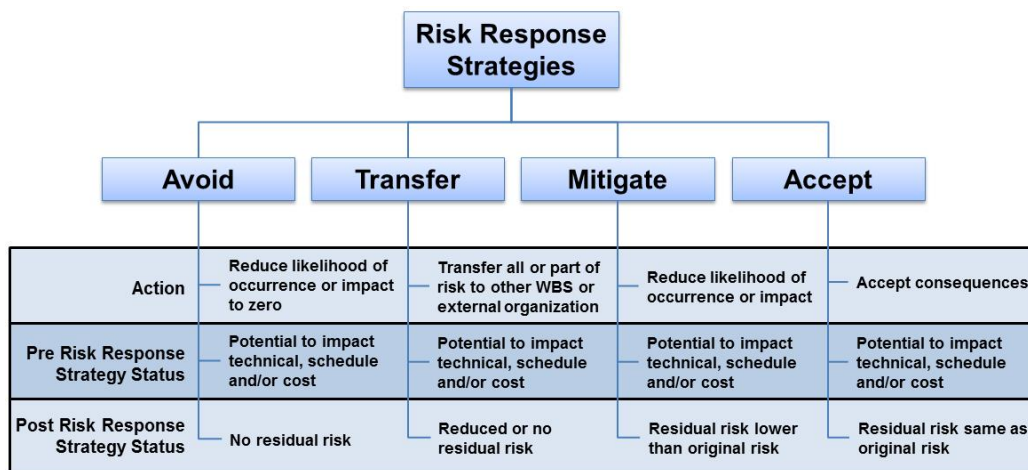
methods, processes and tools. For use of the Reserve Fund (available to all PEEs for IO directed technical scope change: [Terms of Reference ITER Reserve Fund \(RYSMB3\)](#)) or the IO undistributed budget (available only to IO for IO funding needs) the following guideline shall be used ([Internal Administrative Circular No 15 - Streamlined Budget Change Control Process \(323ERX\)](#)).

Note that, the ITER Project's baseline as of November 2016 has been set up without any allocation of initial contingencies. Where R&Os lead to PCRs, the latter may be funded out of the ITER Project's Reserve Fund subject to compliance with the relevant ToR ([Terms of Reference ITER Reserve Fund \(RYSMB3\)](#)). Where this is not the case, the ITER Project needs to generate contingencies out of opportunities, which it needs to implement. The IO's 'undistributed budget', essentially an intended delta between the cost baseline and the annual budgets released to the IO teams, is an example for this.

### 8.3 Risk Response Strategies

There are four risk response strategies defined for the ITER Project (see Figure 3)

- Avoid
- Transfer
- Mitigate
- Accept.



**Figure 3: Risk Response Strategies**

A risk can be accepted under any of the following conditions:

- the Initial Overall Rating is below a score of 8 and there is no Criticality Flag
- it is deemed that the R&O Reporter and the PEE that following implementation of mitigation action, no further action is feasible or justifiable for broader project interests

Risks accepted in this way are tagged accordingly in the PROR and remain in it, but otherwise are no longer pursued until conditions change which require a re-assessment.

In general, all risks with high Overall Rating shall take a strategy of Avoid or Mitigate. The corresponding Response Plan may be incorporated into the ITER Project's baseline, following applicable procedures.

## 8.4 Opportunity Response Strategies

There are four opportunity response strategies defined for the ITER Project (see Figure 4)

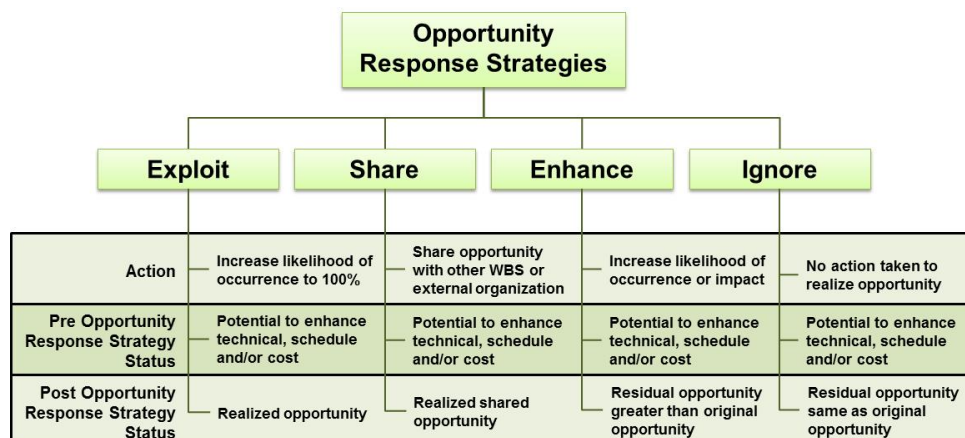
- Exploit
- Share
- Enhance
- Ignore.

An opportunity can be ignored under the following conditions:

- the Initial Overall Rating is below a score of 8 and there is no Criticality Flag
- it is deemed that the Risk Reporter and the PEE that following implementation of mitigation action, no further action is feasible or justifiable for broader project interests

Opportunities ignored in this way are tagged accordingly in the PROR and remain in it, but otherwise are no longer pursued until conditions change which require a re-assessment.

In general, all opportunities with high Overall Rating shall take a strategy other than Ignore. The corresponding Response Plan may be incorporated into the ITER Project's baseline, applying relevant procedures.



**Figure 4: Opportunity Response Strategies**

## 8.5 R&O Reporter Nomination

The ITER Project reviews R&Os on a regular basis namely quarterly for lower control level risks and opportunities (level 3 and below) and monthly for higher control level risks and opportunities (level 1 and 2).

Whatever the response strategy, the corresponding Response Plan must be approved at a level commensurate with the R&O's Control Level and Overall Scoring. At this level, an owner for every R&O shall be identified to manage the R&O end-to-end, so called Risk Reporter. This includes the responsibility to

- ensure that a Response Plan is set up
- develop actions to implement the Response Plan
- follow-up Response Plan actions and ensure that they are executed as planned.

The decision authority for a given Control Level is responsible for the effectiveness of the R&O Reporters for the R&Os.

## 9 Risk and Opportunity Decision Making

Every R&O should be managed at its appropriate level of authority. Table 5: Control Level summarizes who has R&OM decision power, depending on the R&O's Control Level.

Control Level	Decision Power	To be Consulted
0	IC	None
1	DG	PROMC-L1
2	LII CCB Chair	PROMC-L2 ('CCB-II')
3	Head of Department	PROMC-L3
4	Local Management	None

**Table 5: Control Level**

Local Management can decide for any R&O, which stays within the authority of a single organization, or organizational unit, and has no impact on another organization, unit, or system. The PROR will automatically calculate the Control Level for R&Os according to [Risk and Opportunity Control Level \(UCN67H\)](#), based on the current R&O Impact, Likelihood of Occurrence, and Flags assigned.

The PROMC-L3 is a collection of meetings and working activities below the Department level in respect of R&OM. According to the assessment of probability, impacts and criticality flags, R&Os will be reviewed by the PROMC-WG. With the advice and recommendation of PROMC-WG, they shall be considered by PROMC-L2 (also called 'CCB-II'). For control level 1 R&Os, they shall be further escalated to PROMC-L1.

Review of the R&Os for changes to the current status or the progress on implementation of response actions for Level-3 and below risks is expected on a quarterly basis, and a monthly basis for Level-1 and Level-2 risks.

## 10 Risk and Opportunity Lifecycle

The lifecycle of a risk or opportunity is depicted in Figure 5. When a risk or opportunity has come to existence in the PROR, it will be attributed with a defined status, which is one of the following:

- **“Draft”**: pending discussion with peers including, but not limited to, Category Owners as needed
- **“Cancelled”**: The peer group on discussion may conclude that the R&O does not exist, or is a duplication of an existing R&O, and agree to cancel the R&O at this stage
- **“Under review”**: after peer group agreement, the R&O will be considered by the relevant decision authority. The R&OM Officers will facilitate and support this review process for Level-1 and Level-2 R&Os.
- **“Open”**: Once the relevant decision authority has agreed with the R&O and its Response Plan. With this, the R&O enters the monitoring phase, where it will be monitored for both Impact changes and changes to the Likelihood of Occurrence, as well as for progress regarding the implementation of the Response Plan.



- “Retired”: when the Impact or Likelihood of Occurrence reduces to zero (e.g. if the task associated with the R&O has passed or the risk is avoided or the opportunity ignored).
- “Materialized”: when the Likelihood of Occurrence has changed to 100%. At this stage, a risk becomes an issue and as such is transferred to the Issue Management System and tracked under the issue management process.<sup>2</sup> An opportunity has fully materialized at this stage.

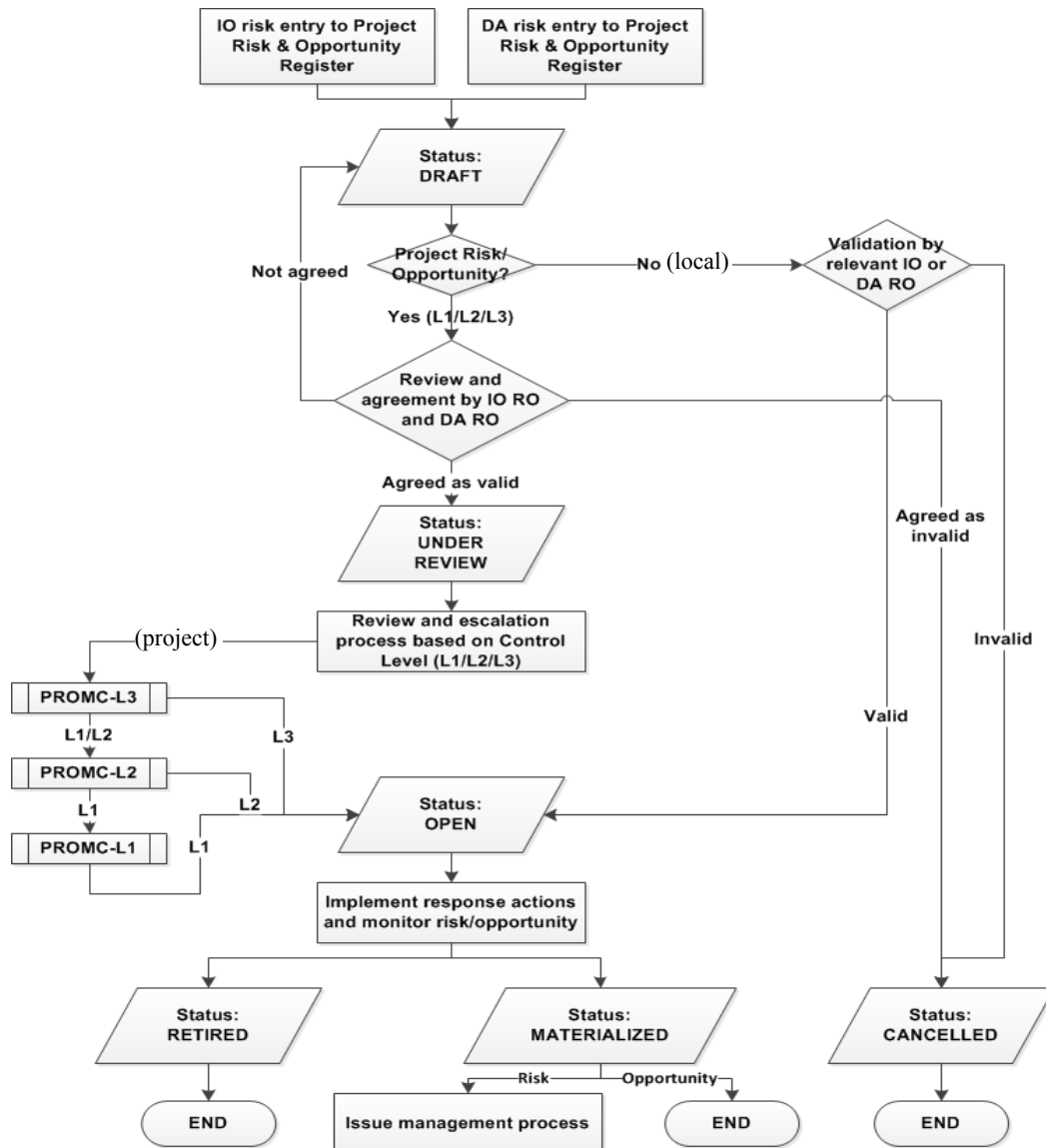


Figure 5: Risk and Opportunity Lifecycle

<sup>2</sup> Note that, there is the possibility that a risk occurs and becomes an issue (i.e. if it has materialized), however it can become a risk again. In such a case, the risk status will initially be moved to “Materialized” and an issue will be proposed following the [Project Issue Management Procedure \(SSU96T\)](#). After re-assessment of the risk for taking remaining risk into account, the risk status can be set back to “Open”, leaving comments in the R&OR referencing the issue ID.

## **11 Records**

All R&Os of the ITER Project shall be recorded in the Project's central R&O Register (PROR). It is the responsibility of the R&OM Officers to ensure that R&Os are indeed recorded in the PROR. The PROR database is maintained by the Project Information System Division (IT) and follows protocols established by IT Division.