# Thinking about risk

## Managing your risk appetite: A practitioner's guide

November 2006

HM TREASURY

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## Managing your risk appetite: A practitioner's guide

November 2006

**HM Treasury contacts**

This document can be found on the Treasury website at:

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For general enquiries about HM Treasury and its work, contact:

Correspondence and Enquiry Unit
HM Treasury
1 Horse Guards Road
London
SW1A 2HQ

Tel: 020 7270 4558
Fax: 020 7270 4861
E-mail: public.enquiries@hm-treasury.gov.uk

ISBN-10: 1-84532-232-0
ISBN-13: 978-1-84532-232-8

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# Contents

# 1 Overview

**1.1** It is essential that the Board's attitude to risk is communicated to the whole organisation and applied in decision making regarding the prioritisation of policies, workstreams, programmes, projects, operational service delivery and the funding that goes with them.

**1.2** With the rapid improvement of risk management across Whitehall, many Departments have already introduced a number of innovative and effective approaches to incorporate risk management into their day-to-day business and reform delivery management arrangements.

**1.3** The aim of this guide is to help you to refine the application of your organisation's risk appetite so that risk judgements are more explicit, transparent and consistent. As a practitioner you also need to understand your own risk appetite and how it aligns to that of your organisation. We do not seek to replicate methodologies that have already been covered by other publications, in particular the Orange Book[1] and Green Book,[2] which this guide is designed to complement.

## What is Risk Appetite?

**1.4** There are numerous definitions of organisational 'risk appetite', but they all boil down to how much of what sort of risk an organisation is willing to take. Risks need to be considered in terms of both opportunities and threats and are not usually confined to money - they will invariably also impact on the capability of your organisation, its performance and its reputation.

> For the purpose of this guide we have adopted the Orange Book definition of Risk Appetite, being:
>
> 'The amount of risk that an organisation is prepared to accept, tolerate, or be exposed to at any point in time.'

**1.5** Risk appetite is about taking well thought through risks where the long-term rewards are expected to be greater than any short-term losses. Indeed, it may even be appropriate in some instances to incur a loss if this paves the way to success in the long-run.

**1.6** It is worth noting that the Public Accounts Committee supports well-managed risk taking, recognising that innovation and opportunities to improve public services requires risk taking, providing that we have the ability, skills, knowledge and training to manage those risks well.[3] This support has also been endorsed by the House of Lords Economic Affairs Select Committee, which is concerned that the public sector reward and assessment systems may emphasise the adverse impact of failure rather than the gains from success and so encourage excessive risk aversion.[4]

1 The Orange Book: Management of Risk – Principles and Concepts.

2 The Green Book: Appraisal and Evaluation in Central Government.

3 Public Accounts Committee Report – HC444 – Managing Risks to Improve Public Services – March 2005

4 House of Lords Select Committee on Economic Affairs Report – HL Paper 183/1 – Government Policy on Management of Risk.

**1.7** By enhancing your approach to determining risk appetite you will be raising your organisation's capability to deliver on challenging targets to raise standards, improve service quality, system reform, and provide more value for money. Risk appetite needs to be considered at all levels of the business- from the Ministerial view, which may be influenced by the political climate, down through the business from strategic decisions to operational delivery.

## Why do you need to determine your risk appetite?

**1.8** If the managers are running the business with insufficient guidance on the levels of risk that are legitimate for them to take, or not seizing important opportunities due to a perception that taking on additional risk is discouraged, then business performance will not be maximised, and business opportunities will not be taken. At the other end of the scale an organisation constantly erring on the side of caution (or one that has a risk averse culture) is one that is likely to stifle creativity and is not necessarily encouraging innovation, nor seeking or exploiting opportunities. You need to be steering a course where risk taking is clearly calculated with a view to achieving defined rewards.

Clearly articulating your risk appetite will have definite business benefits through:

1. Supporting and providing evidence of the decision-making processes.
2. Demonstrating how each element of the business contributes to the overall risk profile.
3. Showing how different resource allocation strategies can add to or lessen the burden of risk.
4. Supporting the approvals process.
5. Identifying specific areas where risks should be removed.
6. Transparency and consistency of business decisions.
7. Improved understanding of risk-based budgets.

**1.9** This Guide is the second part of a set of 3 documents.

**1.10** The first part, a Board Paper entitled "Thinking About Risk – Setting and Communicating Your Risk Appetite" explains what risk appetite is and how it depends on the aims of the business. It needs to be considered not only for individual programmes/projects, but also across business areas, units, functions, and in its totality, to ensure that an organisation's overall portfolio of risks is appropriate, balanced and sustainable.

**1.11** This second part, a Practitioner Guide entitled "Thinking About Risk – Managing Your Risk Appetite" explains how to apply risk appetite and provides a guided walk through of an assessment process at Chapter 2 that will:

- Help you to incorporate risk appetite into your risk framework
- Use the risk appetite when assessing whether risks are being appropriately addressed.

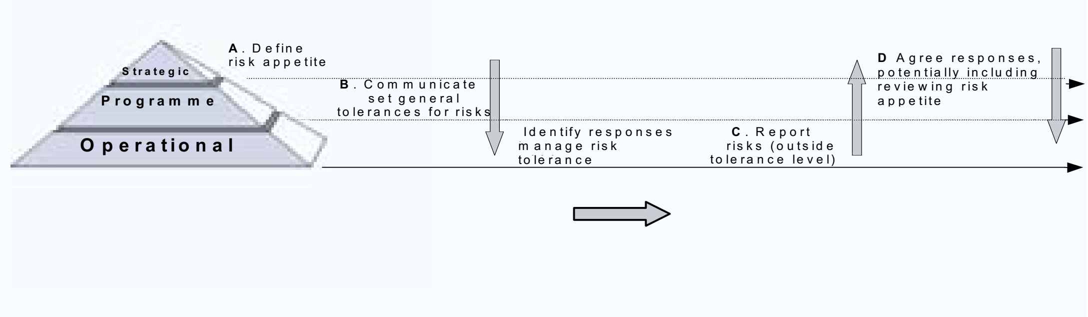
**1.12** Annexes D-G provide graphical illustrations of how you might like to diagrammatically represent your risk appetite in relation to the risks of your business. Annexes H and I provide basic information that will help you to further refine those judgements to quantify your risk appetite, if appropriate.

**1.13** The final, third part "Thinking About Risk – Managing Your Risk Appetite: Good Practice Examples" illustrates how some Departments have approached their own risk appetite. Whilst no example will be suitable for adoption without modification, we hope that they provide you with useful food for thought.

# 2 APPLYING RISK APPETITE

## Introduction

**2.1** Each level of the organisation needs clear guidance on the limits of risk that they can take. Risk appetite should be expressed in the same terms as those used in assessing risk. An organisation's risk appetite is not necessarily static; in particular the Board will want to vary the amount of risk that it is prepared to take depending on the circumstances at the time. The model below sets out these concepts in more detail:




**2.2** Risk appetite is not a magic number, nor always quantifiable. It is dependent upon the aims of the business and what risks have to be taken to achieve those aims. However, those risks must be well-considered and well-managed. To be so, an organisation must provide guidance on the acceptable level of risk that it considers appropriate across the breadth of its business (i.e. risk appetite). Risk appetite needs to be considered not only for individual programmes/projects, but also across operational delivery areas and, in its totality, for the overall portfolio[5] of risks to ensure that an organisation's risks are appropriate, balanced and sustainable.

**2.3** At the organisational level risk appetite can become complicated, but at the level of a specific risk it is more likely that a level of exposure[6] (consequences) that is acceptable can be defined in terms of both an impact if a risk occurs, and the frequency of that impact. It is against this that the residual risk[7] has to be compared to decide whether or not further action is required. What is tolerable may be affected by the value of assets lost or wasted in the event of an adverse impact; stakeholder perception of such an impact; the cost of implementing actions to further manage the risk; the likelihood of the risk occurring; and the balance of potential benefit to be gained.

## Need for Guidance

**2.4** If your Organisation has not made a formal statement on its risk appetite, you will have a control problem. Without such a statement managers are running their business with insufficient guidance on the levels of risk that they are permitted to take, or not seizing important opportunities due to a perception that taking on additional risk is discouraged. Your role is to help the board set and communicate the risk appetite as

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[5] The overall portfolio of risks that the organisation is exposed to = Risk Profile

[6] Exposure = the consequences, as a combination of impact and likelihood, which may be experienced by the organisation if a specific risk is realised.

[7] Residual Risk = the exposure arising from a specific risk after action has been taken to manage it and making the assumption that the action is effective.

set out in the Board Paper "Thinking About Risk – Setting & Communicating Your Risk Appetite".

**2.5** The need for guidance was underlined in the PAC Report,[8] concluding that:

- Departments should signal clearly their commitment at Board-level to taking managed risks that can deliver tangible improvements in services; and

- Departmental management boards need to form an overall view on the one hand, greater risk taking is justified (for example in new policy initiatives) and where they need to minimise risks (for example in essential service delivery on which citizens depend).

**2.6** There is also a need for a management culture and supporting processes that allow due consideration of risk before major decisions are taken to begin new policy projects or corporate change initiatives and during the development and implementation of programmes of work.

## Steps towards embedding the Board's Risk Appetite

**2.7** At its simplest, each risk needs to be assessed against the risk appetite that must be determined by the Board and communicated. A framework is needed for describing and analysing risks and assessing them according to a common currency or set of metrics. An overview of the three issues of communication, assessment and metrics is given at Annex C. This approach will give you the basis for improving the consistency of risk decisions.

**2.8** It is helpful to have risks classified into categories and mapped to business areas. This allows you to see the way in which risks impact different parts of the business and to what extent some parts of the business have an unacceptable level of risk (either too high or too low). Risk registers that simply list risks individually with their ratings may not indicate how the ratings compare to the risk appetite. They may also fail to facilitate the identification of pressure points, imbalances and inconsistencies in approach.

**2.9** One solution is to assign risks to risk categories and then produce a matrix relating categories of risk, such as operational or reputational, to the type of response, on a scale of risk averse to risk hungry, which the different categories of risk would typically evoke.

**2.10** Annex A provides a basic framework for doing this showing the factors to consider against each risk category. It also gives examples of the sorts of scales that can be used to distinguish levels of risk appetite. Example 1 in "Thinking About Risk – Managing Your Risk Appetite: Good Practice Examples" shows how DTI have applied this technique.

**2.11** Annex B shows a framework that describes the attitudes and behaviours the risk appetite should give rise to for each risk category. This framework may be useful when assessing the adequacy of the responses to risk and in communicating the Board's risk appetite to the whole organisation.

[8] Public Accounts Committee Report – HC444 – Managing Risks to Improve Public Services – March 2005

**2.12** With the risk appetite so defined individual risks can be assessed against the risk appetite descriptors and decisions can be made about whether the optimum level of residual risk has been reached. There are many techniques now in use for illustrating this graphically and these are shown in Annexes D & E. A variety of tools are given at Annexes F to I showing how the application of risk appetite can be demonstrated by explicit decisions about the acceptability of specific levels of risk.

# A PRELIMINARY CONSIDERATIONS TO TAKE INTO ACCOUNT PRIOR TO DETERMINING RISK APPETITE

## 1. Identify the group(s) of risks that you have:

For example:

| Grouping / Business Area | Factors to consider prior to determining your risk appetite include: |
|---|---|
| Policy / Guidance / Strategic / Political / Change | Business Objectives.<br><br>Extent of Innovation.<br><br>Robustness of Control Framework. |
| Operational Delivery / Service Delivery / People / Equality and Diversity<br><br>Internal Systems /<br><br>Health & Safety | Constraints imposed by existing controls & systems.<br><br>Skill remits, stakeholders<br><br>Implementation of new systems/procedures and the risks that will be ran to realise their full benefits.<br><br>Need to continue to deliver 'business as usual' |
| Regularity / Propriety /<br><br>Compliance /<br><br>Accountability / Financial Loss or Cost | Spending limits.<br><br>Regularity & propriety.<br><br>Value for money.<br><br>Accountability to Ministers and Parliament. |
| Reputation /<br><br>Credibility /<br><br>Public Perception /Confidence | Degree of experience.<br><br>Historical evidence.<br><br>Lessons learned from past crises. |
| External Factors /<br><br>Environmental /Social | The extent and robustness of continuity and contingency plans, to ameliorate exposure to external factors, over which there is limited control. |

## 2. Describe your Risk Rankings:

For example:

| Ranking | Description and Action Needed |
|---|---|
| Very High | This is above the organisation's defined tolerance level. The consequences of the risk materialising would have a disastrous impact on the organisation's reputation and business continuity. Comprehensive action is required immediately to mitigate the risk. |
| High | The consequences of this risk materialising would be severe but not disastrous. Some immediate action is required to mitigate the risk, plus the development of a comprehensive action plan. |
| Medium | The consequences of this risk materialising would have a moderate impact on day-to-day delivery. Some immediate action might be required to address risk impact, plus the development of an action plan. Status of the risk should be monitored regularly. |
| Low | The consequences of this risk materialising would have a minor impact. No immediate action is required, but an action plan should be actively considered. Status of the risk should be monitored periodically. |
| Very Low | The organisation accepts this risk / impact of risk would be insignificant. Status of the risk should be reviewed occasionally. |

## 3. Articulate your classifications of Risk Appetite:

For example:

| Classification | Description |
|---|---|
| Averse | Avoidance of risk and uncertainty is a key Organisational objective. |
| Minimalist | Preference for ultra-safe business delivery options that have a low degree of inherent risk and only have a potential for limited reward. |
| Cautious | Preference for safe delivery options that have a low degree of residual risk and may only have limited potential for reward. |
| Open | Willing to consider all potential delivery options and choose the one that is most likely to result in successful delivery while also providing an acceptable level of reward (and value for money etc.). |
| Hungry | Eager to be innovative and to choose options offering potentially higher business rewards, despite greater inherent risk. |

# B

# Discussion framework

| | 1<br>Averse | 2<br>Minimalist | 3<br>Cautious | 4<br>Open | 5<br>Hungry |
|---|---|---|---|---|---|
| | **Avoidance of risk and uncertainty is a key Organisational objective** | **Preference for ultra-safe business delivery options that have a low degree of inherent risk and only have a potential for limited reward.** | **Preference for safe delivery options that have a low degree of inherent risk and may only have limited potential for reward.** | **Willing to consider all potential delivery options and choose the one that is most likely to result in successful delivery while also providing an acceptable level of reward (and value for money etc.).** | **Eager to be innovative and to choose options offering potentially higher business rewards (despite greater inherent risk).** |
| **Category of Risk** | **Example behaviours when taking key decisions…** | | | | |
| **Reputation and credibility** | • Minimal tolerance for any decisions that could lead to scrutiny of the Government or the Department. | • Tolerance for risk taking limited to those events where there is no chance of any significant repercussion for the Government or the Department. | • Tolerance for risk taking limited to those events where there is little chance of any significant repercussion for the Government or the Department should there be a failure. | • Appetite to take decisions with potential to expose the Government or Department to additional scrutiny but only where appropriate steps have been taken to minimise any exposure. | • Appetite to take decisions that are likely to bring scrutiny of the Government or Department but where potential benefits outweigh the risks. |
| **Operational and policy delivery** | • Defensive approach to objectives – aim to maintain or protect, rather than to create or innovate.<br>• Priority for tight management controls and oversight with limited devolved decision making authority.<br>• General avoidance of systems / technology developments. | • Innovations always avoided unless essential.<br>• Decision making authority held by senior management.<br>• Only essential systems / technology developments to protect current operations. | • Tendency to stick to the status quo, innovations generally avoided unless necessary.<br>• Decision making authority generally held by senior management.<br>• Systems / technology developments limited to improvements to protection of current operations. | • Innovation supported, with demonstration of commensurate improvements in management control.<br>• Systems / technology developments considered to enable operational delivery.<br>• Responsibility for non-critical decisions may be devolved. | • Innovation pursued – desire to 'break the mould' and challenge current working practices.<br>• New technologies viewed as a key enabler of operational delivery.<br>• High levels of devolved authority – management by trust rather than tight control. |
| **Financial/VFM** | • Avoidance of financial loss is a key objective.<br>• Only willing to accept the low cost option.<br>• Resources withdrawn from non-essential activities. | • Only prepared to accept the possibility of very limited financial loss if essential.<br>• VfM is the primary concern. | • Prepared to accept the possibility of some limited financial loss.<br>• VfM still the primary concern but willing to also consider the benefits.<br>• Resources generally restricted to core operational targets. | • Prepared to invest for reward and minimise the possibility of financial loss by managing the risks to a tolerable level.<br>• Value and benefits considered (not just cheapest price).<br>• Resources allocated in order to capitalise on potential opportunities. | • Prepared to invest for the best possible reward and accept the possibility of financial loss (although controls may be in place).<br>• Resources allocated without firm guarantee of return – 'investment capital' type approach. |
| **Compliance – legal / regulatory** | • Avoid anything which could be challenged, even unsuccessfully<br>• Play safe. | • Want to be very sure we would win any challenge. | • Limited tolerance for sticking our neck out. Want to be reasonably sure we would win any challenge. | • Challenge will be problematic but we are likely to win it and the gain will outweigh the adverse consequences. | • Chances or losing are high and consequences serious. But a win would be seen as a great coup. |

## C.1 Risk Appetite – COMMUNICATION

**1. Language:**

Is there a common understanding of risk management concepts throughout your organisation?

Have you defined your interpretation of risk appetite [For examples, see Annex B]

**2. Guidance:**

Is comprehensive risk management guidance available to all staff?

Is it up to date and in an accessible format?

Are staff aware of its existence and where to find it?

**3. Ministerial Dialogue:**

Is there open dialogue with your Minister?

Are ministerial presentations concise, yet comprehensive and suitably formatted? [Do you know what they want? Do they know what is available]

Is your Minister aware of all evidence, even when there are conflicting opinions?

Is your Minister notified of all options and the implications (pros & cons) of each, so that they are enabled to take a fully informed decision?

**4. Culture:**

Do the Board consciously demonstrate their attitude to risk?

Are staff' aware of the Board's attitude to risk?

Do staff share the same attitude to risk? [Or, in practice is there a tendency to be reckless or to play ultra safe?]

Are there internal pressures that affect risk management practices? [Eg. Too short lead times, leading to shortcuts]

Are there external pressures that increase your organisation's vulnerability? [Eg. External regulators? 3rd party funding?]

Does the management structure of your organisation facilitate and encourage the escalation of risk? [Are concerns going to be brought to your attention at the earliest opportunity?]

Does the organisation have inter-dependencies with other Government organisations (eg Depts, NDPBs, Agencies)

**5. Board Level Commitment:**

Is there a Senior Owner for all significant risks?

Do all significant projects/programmes have a Sponsor at Board Level?

Does the Sponsor have a sufficiently broad remit to provide effective scrutiny of the project/programme and is that exercised?

**6. Success Measures:**

Do you know what constitutes success?

Do you know what are the minimum amount/level of benefits you need to achieve success?

Have you set your success measures (which may be different for different projects/programmes?

Have you set, defined and communicated your parameters of what is/ is not acceptable?

Have you set your authorisation levels for those parameters?

GO TO:
C.2 Risk Appetite - METRICS

## C.2 Risk Appetite – METRICS

**1. Success:**

Does everyone on whom your project/programme impacts know what constitutes success?

Does everyone involved know what the objectives of your project/programme are?

Do you know whether (or not) you are on course to achieve those objectives?

**2. Measurements:**

Have you determined what methods you are going to use to measure the progress of your project? [Eg. Annex C, Slide 5]

Have Key Performance Targets & Indicators been set?

Have Warning Indicators been set so that an alert is raised when a Target / KPI goes off course, before non-attainment is critical?

**3. Evidence:**

Do you know what data will be available?

Will that data meet the requirements for your measurements?

If not, can additional data be readily obtained?

Do you know when and how that data will be gathered?

Is the data collection feasible, or will it be too onerous to be undertaken regularly & consistently?

Do you have sufficient resources to process the data gathered?

**4. Exposure:**

**For Corporate Risk Appetite**

Has the Board / Snr Managers judged the tolerable range of exposure for the Organisation?

Have they identified the general boundaries for unacceptable risk / risks that must be escalated up to the Board for decision as/when they arise?

**For Projects / Delegated Risk Appetite**

Have the Targets and KPIs set been authorised by the Sponsor?

Compared to the targets you've set, have you set the levels of acceptability?

Have the 'acceptability levels' been approved by the Sponsor?

Do you know what level of exposure is considered tolerable?

**GO TO:**
**C.3 Risk Appetite - ASSESSMENT**

# C.3 Risk Appetite – ASSESSMENT

**1. Tolerability:**

Do you know what level of risk you consider to be tolerable, given the exposure?

Are the risks uncertain?

If so, do you know why?

Can the project/programme be considered radical/innovative?

Does your project/programme give rise to an opportunity to exploit positive impacts?

Does your project / programme give rise to an opportunity to exploit positive impacts?

If the inherent risks are tolerable, can they be accepted as they stand?

**2. Address Risks:**

If the inherent risks are not acceptable –

Is there a positive Cost/Benefit Analysis to support taking on the risk(s) of the project?

Are you able to 'treat' , 'transfer' or terminate the risk?
[See boxes 3, 4 & 5]

**3. 'Treat':**

Can risks be treated?

If yes –
Will/have mitigating management controls be put in place?
Will the residual risks be acceptable?

**4. 'Transfer':**

Can the project/risks be transferred?

Are you aware of the residual responsibility you will have for the project?

Will the contract be closely managed?

Will there be monitoring of project progress against the business objectives?

Can you handle any on-costs or ramifications of outsourcing the project/programme?

**5. 'Terminate':**

Can the project/risk be terminated? If yes - Will the impact be significant?
Are you aware of the consequential risks?

If no – Are you a provider of last resort?
Can the service provision be changed?
Can the means of delivery be changed?
Will any changes need innovation?

**6. Reputation:**

Are you fully aware of the reputational risks associated with the project/programme?
How much impact will the project/programme have on your Organisation?
Can you wholly abdicate responsibility for the project/programme?
What are the public & media perceptions of your risks – do you need better communication?

**7. Resource Availability:**

Can you readily finance the project/programme?

Will you be dependent upon 3rd party funding?

Is this funding secure?

Do you have enough people, with the right skills in-house, to be able to service the project/programme in addition to their current workloads?

If not - Can existing work be deferred or delegated?
Can you afford to outsource/buy-in skills?

Are you dependent upon key personnel?

Are you providing sufficient training & work experience to provide for succession planning?

Are you dependent upon new/innovative technology or systems?

Do you have sufficient time within which to comfortably deliver the project/programme, allowing for contingency arrangements?

**8. Decision Making:**

Does the project/programme fit with the business's priorities?

What type of project is it – speculative, pilot or standard?

Is it mission critical?

Is delivery reliant upon inter-dependencies with other Govt orgns, contractors or other 3rd parties?

Is the size of the project relative to the the size of the business?

How good is your delivery performance?

Is there a history of legacy issues to be tackled?

Do you have a tendency to repeatedly face the same difficulties (ie PIR lessons are not being learnt / there is little embedded learning.

## C.4 Risk Appetite – Examples of Metrics and Risk Analysis Techniques

**See C.2 Risk Appetite – Metrics**

**Data analysis:**

- Statistical Means, Variance, etc.
- Distributions – Gaussian distribution (normal), Poisson (e.g., radioactive decay), etc.
- Correlation coefficient (-1 to 1)
- Regression analysis ($R^2$)
- Rate & Quotient analysis
- Delphi analysis (qualitative)

**Risk analysis and quantification:**

- Event Bow Tie (Cause-Event-Effect)
- Failure Mode Effects [and Criticality] Analysis (FMEA)
- Critical Path Analysis
- Bayesian Belief Networks
- Traffic light systems
- Monte Carlo simulation

**Human resources:**

- Average age
- Average salary
- Ratio of managers to staff
- Retention/turnover rates
- Absence rates
- Training spend per employee
- Diversity indicators
- Number of vacancies filled internally/externally
- Number of staff to number of pensioners
- Pension liabilities
- Loss Time Injury Rate

**Financial:**

- Value of transactions
- Volume of transactions
- Value of income
- Value of expenditure
- Capital employed
- Risk ratings

**For further information please refer to:**

The Green Book – Appraisal & Evaluation in Central Government

# D GRAPHICAL ILLUSTRATIONS

1 A Single Matrix Approach - where risk appetite is scored against a number of broad categories that are specific to the Organisation/Area/Activity being assessec

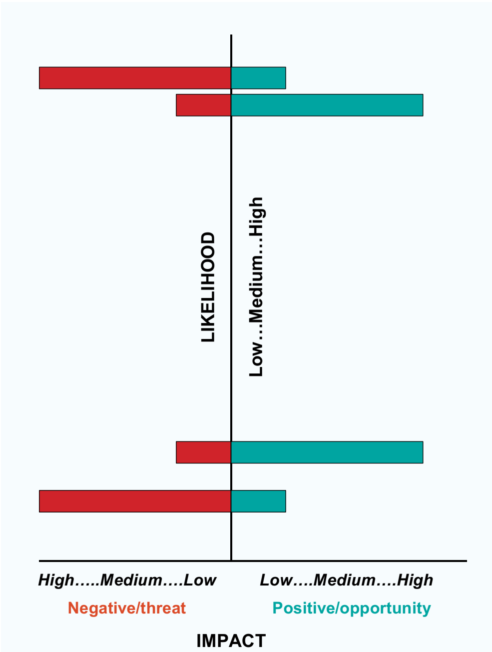
2 A Hierarchical Matrix Approach - which recognises that risks occur at different levels in an Organisation (from strategic down to operational). Unacceptable exposure to risk can occur at any level and an effective escalation procedure needs to be in place to ensure that these risks can be escalated to senior managers quickly.

## 1. RISK APPETITE - Single Matrix

**Single-Matrix Approach [Graphical Method]**

**At root level, this can be used to plot each of the risks associated with a particular programme/project.**

**Collectively, it can be used to plot the overall rating of each programme/project, to illustrate the portfolio risk**




**Single-Matrix Approach [Tabular Method] - Version 1**

**At root level, this can be used to plot each of the risks associated with a particular programme/project.**

**Collectively, it can be used to plot the overall rating of each programme/project, to illustrate the portfolio risk**

| | IMPACT | | | | |
|---|---|---|---|---|---|
| Likelihood | 1 = VL = Insignificant | 2 = L = Minor | 3 = M = Moderate | 4 = H = Major | 5 = VH = Catastrophic |
| 5 = VH = Almost | | | | | |
| 4 = H = | | | | | |
| 3 = M = Possible | | | | | |
| 2 = L = | | | | | |
| 1 = VL = Rare | | | | | |

=> Tolerability Level

**Key:** **[Example - Would need to be adjusted to reflect delegation levels appropriate to each level]**

VH = Catastrophic Consequences / Almost Certain to happen / Unacceptable unless external approval gained - eg. Govt Minister, OGC — Control: Urgent Remedial Action, Senior Level Monitoring

H = Major Consequences / Likely to happen / Acceptable only with Board Authorisation — Control: Remedial Action, Senior Level Monitoring

M = Moderate Consequences / Possible Occurrence / Acceptable with Group Director Approval — Control: High Level Monitoring

L = Minor Consequences / Unlikely to happen / Head of Team or Dept Approval — Control: Low Level Monitoring

VL = Insignificant Consequences / Rare Occurrence / Line Mgr or Staff Approval

## 2. RISK APPETITE - Hierarchical Matrix

**Simplified Assessment - Hierarchical Approach**
**This can be applied to any 'work' grouping: for example, corporate/directorate/division; programme/strand/project etc.**

**Plotting each risk on the appropriate table will show the spread of risk and illustrate if there are unacceptable risks at any level which need escalation and, similarly, if there is an unacceptable concentration of risks being carried at any level.**

**Key:** **[Example - Would need to be adjusted to reflect delegation levels appropriate to each level]**

| | | |
|---|---|---|
| VH = | Catastrophic Consequences = Unacceptable unless external approval gained - eg. Govt Minister, OGC | Control: Urgent Remedial Action, Senior Level Monitoring |
| H = | Major Consequences = Acceptable only with Board Authorisation | Control: Remedial Action, Senior Level Monitoring |
| M = | Moderate Consequences = Acceptable with Group Director Approval | Control: High Level Monitoring |
| L = | Minor Consequences = Head of Team / Dept Approval [dependent upon delegation level] | Control: Low Level Monitoring |
| VL = | Insignificant Consequences = Line Mgr / Staff Approval [dependent upon delegation level] | |

**Programme-level**

<= Tolerability Level

| Likelihood | | | | | |
|---|---|---|---|---|---|
| 5 = VH = Almost Certain | M | M | H | VH | VH |
| 4 = H = Likely | M | M | H | H | VH |
| 3 = M = Possible | L | M | M | H | H |
| 2 = L = Unlikely | VL | L | M | M | M |
| 1 = VL = Rare | VL | VL | L | M | M |
| IMPACT | 1 = VL = Insignificant | 2 = L = Minor | 3 = M = Moderate | 4 = H = Major | 5 = VH = Catastrophic |

Escalation

Sign-off

**Strand-level**

<= Tolerability Level

| Likelihood | | | | | |
|---|---|---|---|---|---|
| 5 = VH = Almost Certain | M | M | H | VH | VH |
| 4 = H = Probable | M | M | H | H | VH |
| 3 = M = Possible | L | M | M | H | H |
| 2 = L = Unlikely | VL | L | M | M | M |
| 1 = VL = Rare | VL | VL | L | M | M |
| IMPACT | 1 = VL = Insignificant | 2 = L = Minor | 3 = M = Moderate | 4 = H = Major | 5 = VH = Catastrophic |

Escalation

Sign-off

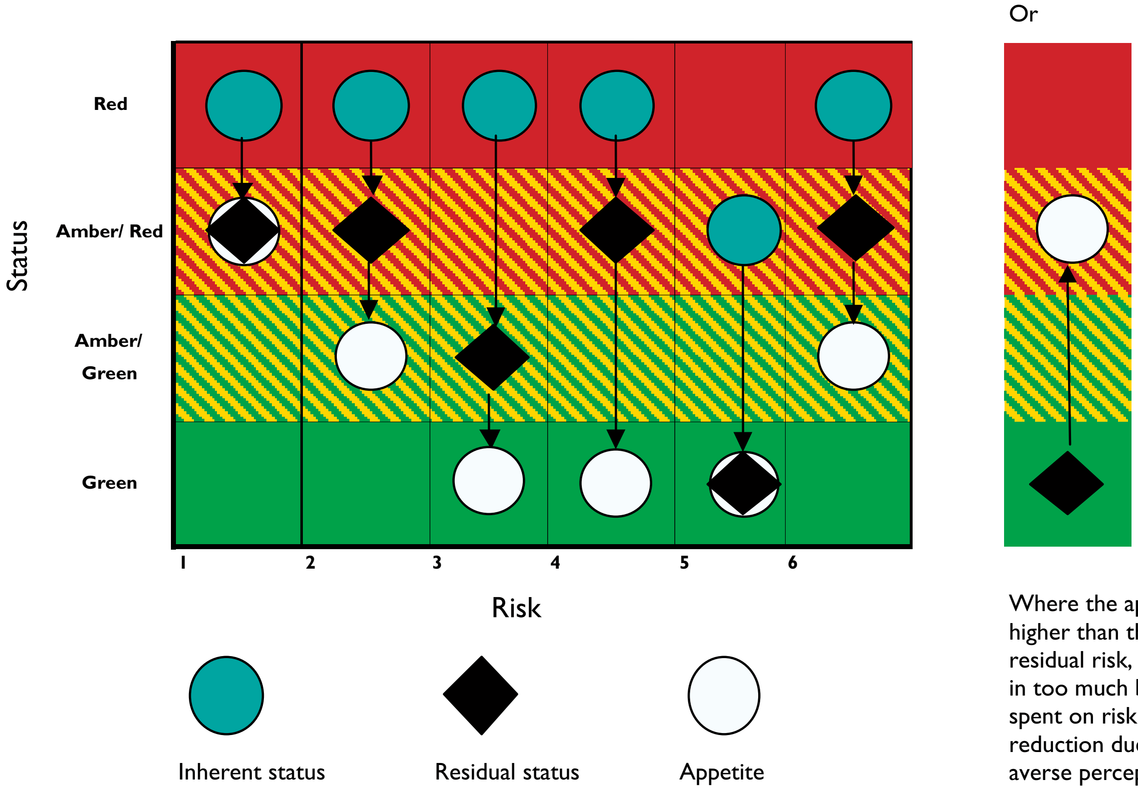
**Project-level**

<= Tolerability Level

| Likelihood | | | | | |
|---|---|---|---|---|---|
| 5 = VH = Almost Certain | M | M | H | VH | VH |
| 4 = H = Probable | M | M | H | H | VH |
| 3 = M = Possible | L | M | M | H | H |
| 2 = L = Unlikely | VL | L | M | M | M |
| 1 = VL = Rare | VL | VL | L | M | M |
| IMPACT | 1 = VL = Insignificant | 2 = L = Minor | 3 = M = Moderate | 4 = H = Major | 5 = VH = Catastrophic |

# E OGC's Risk Dashboard

OGC's Risk Dashboard provides a pictorial representation of risks – individually or in portfolio – showing the appetite for each and their relationship to the risk status inherently [ie before management actions taken to control / mitigate the risk(s)] and residually [ie after management actions have been implemented].



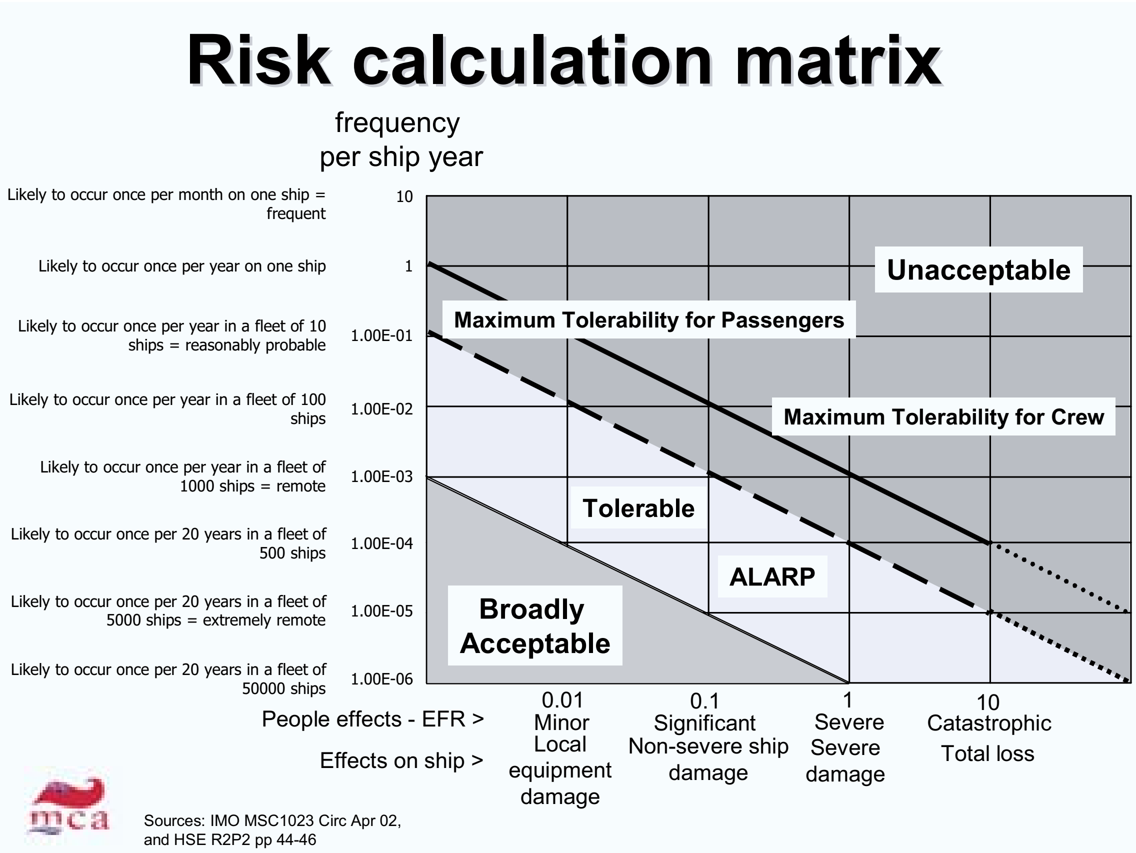

Where the appetite is higher than the residual risk, resulting in too much being spent on risk reduction due to averse perception,

# F MCA RISK MATRIX

The Maritime and Coastguard Agency (MCA) is an executive agency of the Department for Transport and is responsible for implementing the government's maritime safety and environmental protection policy. The MCA is also responsible for co-ordinating search and rescue at sea through Her Majesty's Coastguard, and checking that ships meet UK and international safety rules.

In undertaking assessments of risk for technical maritime safety risk in the commercial shipping sector the MCA follows good practice in the maritime sector. Other approaches are currently used for assessing risk against appetite for cargo losses and environmental harm.

One broadly acceptable measure is the equivalent fatality rate (EFR). This uses the computation that 100 minor injuries and 10 major injuries are each equivalent to a single fatality. The notion of an equivalent fatality rate is drawn from the 'value of preventing a fatality' (VPF) and 'willingness to pay' (WTP), concepts which underpin the economic evaluation of casualties in the UK. Coupling EFR with the As Low As Reasonably Practicable (ALARP) and tolerability principles expounded by the Health and Safety Executive, and the Formal Safety Assessment principles agreed by the International Maritime Organization, provides a framework to explore the MCA's risk appetite for commercial shipping, that is, whether a particular position on risk is acceptable. As such the framework is also a useful tool for communication and discussion with stakeholder groups. The framework is illustrated below.



## MCA'S 'COST, PERFORMANCE, REPUTATION, PROBABILITY CRITERIA

### Financial impact (In a given Financial Year)

| Low 1 | Medium 2 | High 3 |
|---|---|---|
| **Costing <£100k (as a guide)**<br><br>It is likely to cost this much to manage this risk/gain as much as this from the opportunity compared with similar projects or programmes.<br><br>Significant stakeholder interest in the level of loss/gain.<br><br>Impact on/improvement to service delivery in other areas to due to financial impact of this occurrence.<br><br>It is very likely that the MCA Executive Board will wish to exercise management of this risk until its financial impact is reduced to medium or below. The head of Finance and Contracts is to be alerted when a risk reaches cost impact 3. | **Costing £100k to £1m (as a guide)**<br><br>It has often cost around this sum to manage this risk/ gain as much as this from the opportunity in similar projects or programmes.<br><br>Moderate stakeholder concern.<br><br>Some impact on/improvement to service delivery in other areas due to the financial impact of this occurrence. The Head of Finance and Contracts is to be alerted when a risk reaches Cost Impact Level 2. | **Costing > £1m (as a guide)**<br><br>It is likely to cost about this much to manage an occurrence of this risk/we might gain as much as this from the opportunity.<br><br>Little stakeholder concern and can normally be managed in the directorate/division/branch concerned, with normal reporting to the Head of Finance.<br><br>Little impact on/improvement to service delivery in other areas due to the financial impact of this occurrence. |

### Performance impact

| | **Performance** | |
|---|---|---|
| **Low 1** | **Medium 2** | **High 3** |
| Has a low level impact on the ability of the Agency to deliver key services.<br><br>Not the end of the world…<br><br>The impact would be significant at the branch or area level, but would be controllable and would not affect the wider Agency.<br><br>An aspect of a Ministerial Target may be affected but the overall target is likely to remain unaffected. | Has a medium level impact on the ability of the Agency to deliver key services.<br><br>Minor legislative or policy requirement may not be transposed/delivered.<br><br>Key milestones to major project or initiative slip.<br><br>Would have a significant impact at the directorate or regional level that may lead to a wider Agency impact. | Has a high level impact on the ability of the Agency to deliver key services.<br><br>Major legislative requirement is not delivered with potentially serious implications.<br><br>Major failing in the delivery of a key project or initiative.<br><br>Significant impact on the delivery of Agency major projects and initiatives. |

## REPUTATION IMPACT (FORMERLY TIME IMPACT)

### Likelihood

| Performance | | |
|---|---|---|
| **Low 1** | **Medium 2** | **High 3** |
| **Negligible criticism/negativity.**<br><br>A low level interest in a particular activity of the Agency.<br><br>A sideline in specialist press.<br><br>Managed situation, with the Department and the Minister informed with briefings. | **Medium level criticism/negativity.**<br><br>Some national public or media criticism lasting a week.<br><br>Sustained criticism over 3-4 months amongst local press and public and/or specialist press e.g. Lloyds List or NAUTILIS Telegraph.<br><br>Could take up to 3 months to restore credibility with parent department or external stakeholder such as shipping companies.<br><br>Reputation tarnished in the longer term, the Minister maybe criticised for actions undertaken by the Agency. | **High level criticism/negativity.**<br><br>Widespread criticism originating from all quarters of the press, the General Public and other Ministers in Government.<br><br>It will take more than 6 months to restore creditability amongst stakeholders and the parent department.<br><br>Reputation is irreparably damaged. A massive downturn in flagging-in and confidence amongst existing stakeholders for future decisions we take.<br><br>The future of the Agency could be at stake. |

## Probability

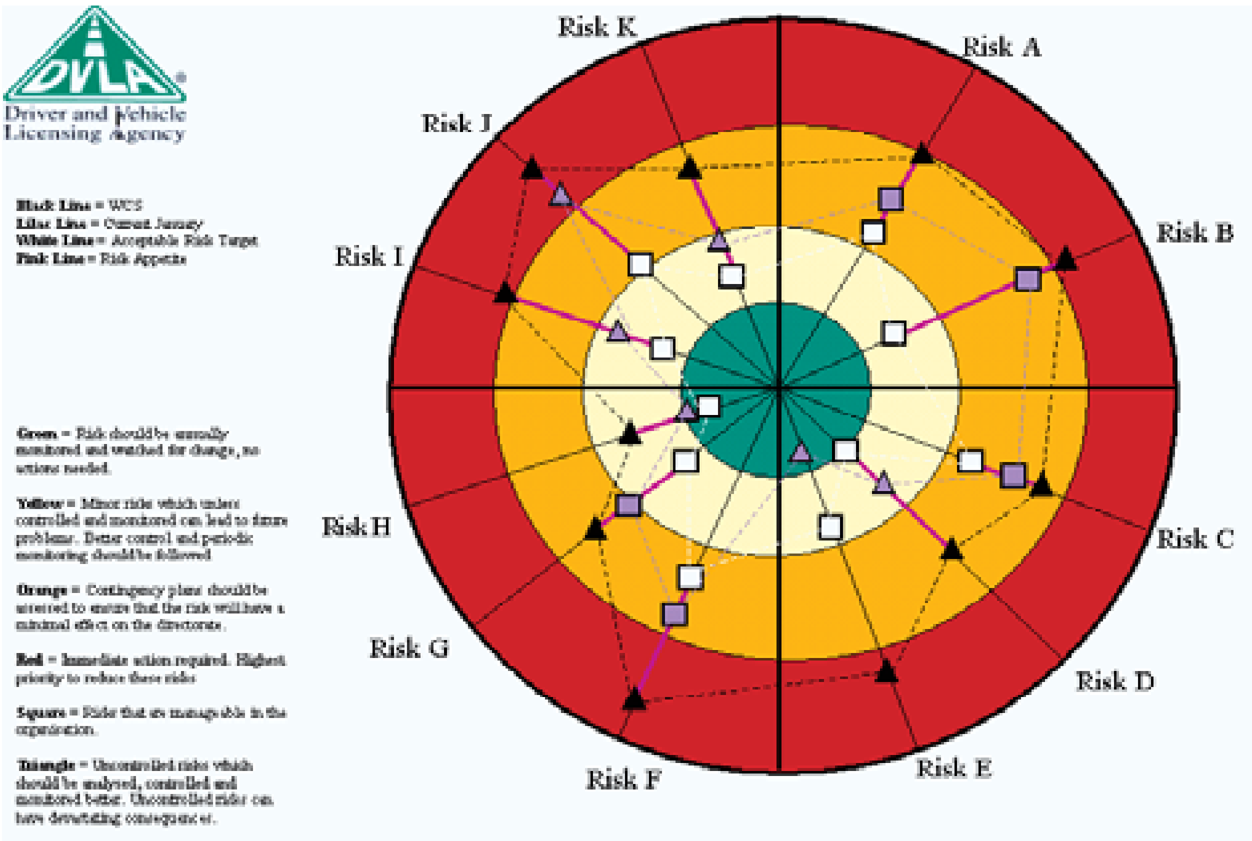
| | | |
|---|---|---|
| **3** | There is more than a 50% chance of this risk occurring. | It is highly likely that the risk will materialise.<br><br>This occurrence is known to occur in similar projects and programmes. It happens frequently in other Government Departments. There is a strong and public history of occurrence. It has happened before in the MCA. It is likely to happen more than once in the financial year. It has happened recently and publicly. It is more likely to occur than not to occur.<br><br>Should have seen it coming.<br><br>The occurrence of this risk could be associated with poor management and failure to judge the likelihood of it happening despite strong and public evidence of its existence and the rate of incidence. Alternately, this might be a risk that is completely unavoidable despite all management intervention; effort is directed to minimising its impacts rather than its likelihood of occurrence.<br><br>The emergence of this opportunity is associated with good management and is an example of best practice and the ability to learn from past programmes and to apply a careful analysis of the potential outcomes. There was a clear opportunity that can be relied upon with reasonable certainty. It has taken considerable work to accrue the benefits. |
| **2** | There is between 25-50% likelihood of this risk occurring. | It is reasonably likely to occur.<br><br>More likely not to occur than to occur. Much less public history of occurrence. Does not often occur in the MCA. Not normally associated with these types of programmes and projects. It sometimes happens in other government departments.<br><br>Might have seen it coming. No data and very difficult to predict.<br><br>This could have turned out to be a risk or an opportunity depending on many other factors. |
| **1** | There is below 25% likelihood that this risk will occur. | This has never occurred and it is very unlikely to occur.<br><br>Has not occurred in the MCA. Unlikely to occur. Not associated with this type of programme and project. Little public history of occurrence. It does not often happen in other government departments.<br><br>Could not have seen it coming.<br><br>Most unfortunate if this risk occurs despite analysis and strong evidence of it being very unlikely. Nasty shock.<br><br>Very lucky to have this opportunity emerge from a situation where there was little expectation of such a favourable outcome. Nice surprise. Alternately this could be an opportunity that is definitely there, but where there is a low chance of reaping the benefits in full, or an opportunity that cannot be clearly defined at this stage. |

# G DVLA's Dartboard

This is a prototype diagram that DVLA are currently looking to trial. Whilst this looks complex hopefully the explanation will reveal how simple this is!

Think of the circle as a classic risk management traffic light (but with 2 ambers!!) each of the lines relates to a specific risk off the corporate risk register, the 3 markers relate to, 1. The worst case scenario- the black triangle is the inherent risk, 2.the white square is the best case scenario – think of this as minimising the residual risk, and the purple symbol, gives the current position.

So to take specific examples, is risk E being over managed as the activity, purple symbol, is being managed down to a target that may exceed the organisations requirement. Similarly, for risk J do we want to manage this more aggressively, or perhaps be more realistic on how much risk to accept?



# H QUANTIFICATIONS AND ILLUSTRATIONS

**H.1** Monetary quantification is not always possible or desirable. However, if you would like to refine the judgements that you have made through following the Practitioner Guide (Chapter 2) it is possible to rate or rank those judgments according to the likelihood that the risk will occur, and the impact that it will then have on your business.

**H.2** The preliminary considerations that you will need to take into account prior to attaching numerical values to risk appetite are:

## 1. How do you describe the likelihood that a risk will occur?

For example:

| Rank | Rating | Description |
|---|---|---|
| 1 | Rare | <W% (say less than 5%) likelihood of impact happening |
| 2 | Unlikely | W% to X% (say 5 to 20%) likelihood of occurrence |
| 3 | Possible | X% to Y% (say 20% to 50%) likelihood of occurrence |
| 4 | Likely | Y% to Z% (say 50% to 80%) likelihood of occurrence |
| 5 | Almost Certain | >Z% (say over 80%) likelihood of impact happening |

## 2. How do you describe the impact of the risks on your business?

For example:

| Rank | Rating |
|---|---|
| 1 | Insignificant |
| 2 | Minor |
| 3 | Moderate |
| 4 | Major |
| 5 | Catastrophic |

## 3. How do you illustrate your Risk?

For example, pictured as black, red, amber/red, amber/green, or green

Before controls, the risk is classed as inherent. After controls/management actions the risk is classed as residual. The inherent risk will determine the original status of the risk, as below: (first rating is impact; the second is likelihood)

| Colour (Status) | Rating [impact / likelihood] |
|---|---|
| Black | 5/5, 5/4, 4/5 |
| Red | 5/3, 3/5, 4/4, 4/3, ¾ |
| Amber/Red | 5/2, 4/2, 3/2, 3/3, 2/3 2/4, 2/5 |
| Amber/Green | 5/1, 4/1, 2/2, 1/4, 1/5 |
| Green | 3/1, 2/1, 1/1, 1/2, 1/3 |

Risk Owners need to use this to assess whether their current exposure is reasonable or is in need of attention - eg is "green" or "amber/green" acceptable? – and if so for how long?

If the Residual Risk following management actions remains higher than the Organisation's Risk Appetite, it indicates that further actions are required.

# Numerical Diagnosis - Overview

### 1. Assessment:

Some types of risk lend themselves to a numerical diagnosis – particularly financial risk. For other risks - for example reputational risk - a much more subjective view is all that is possible. In this sense risk assessment is more of an art than a science. It will be necessary, however, to develop some framework for assessing risks. The assessment should draw as much as possible on unbiased independent evidence, consider the perspectives of the whole range of stakeholders affected by the risk, and avoid confusing objective assessment of the risk with judgement about the acceptability of the risk.

This assessment needs to be done by evaluating both the **likelihood** of the risk being realised, and of the **impact** if the risk is realised. A categorization of high / medium / low in respect of each may be sufficient, and should be the minimum level of categorisation – this results in a "3x3" risk matrix. A more detailed analytical scale may be appropriate, especially if clear quantitative evaluation can be applied to the particular risk - "5x5" matrices are often used, with impact on a scale of "insignificant / minor / moderate/ major/ catastrophic" and likelihood on a scale of "rare / unlikely / possible / likely / almost certain". There is no absolute standard for the scale of risk matrices - the organisation should reach a judgement about the level of analysis that it finds most practicable for its circumstances.

### 2. Risk Impact & Scoring:

It is important to assess the potential consequences if the risks were to materialise (ie occur). The assessment needs to be both in terms of likelihood (ie the probability that it will happen) and impact. Impact needs to consider both financial and non-financial consequences.

Each risk needs to be scored for both impact, probability and product (ie impact score x probability score). The rating is ranked as appropriate for the organisation and can be numerical and/or descriptive (eg broadened to range from 'very low'/1 through to 'very high'/5; or simplified to high/medium/low). An example is illustrated in boxes 7,8 & 9 above.

### 3. Impact Criteria.

(The effect the risk would have if it occurred)

| Score | Range | Description (in period) |
|---|---|---|
| 5 | V.high | Severe |
| 4 | High | Significant |
| 3 | Medium | Moderate |
| 2 | Low | Minor |
| 1 | V. Low | Insignificant |

### 4. Likelihood Criteria.

(The chances of a risk occurring)

| Score | Range | Description (in period) |
|---|---|---|
| 5 | V.high | Almost certain |
| 4 | High | Likely |
| 3 | Medium | Possible |
| 2 | Low | Unlikely |
| 1 | V. Low | Rare |

### 5. Product Score.

The product is the value of:
(Impact Score x Likelihood Score)
Use the 'product' value to determine the overall risk value / risk status.

| Range | Description |
|---|---|
| 17-25 | V. High |
| 11-16 | High |
| 5-10 | Medium |
| 3-4 | Low |
| 1-2 | V. Low |

### 6. Risk Matrix

A simple way of recording and summarising the scores is to use a risk matrix, which can be limited to specific policies/projects, or segmented across business units / areas of work.

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