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THE PUBLIC RISK MANAGEMENT ASSOCIATION

Alarm Opportunity Risk Management Guide

Acknowledgement

This Opportunity Risk Management Guide was prepared by Peter Simon.

Peter Simon is co-founder and Director of Lucidus Consulting Limited, a company that specialises in creating value by shedding light on managed change. Peter has over 30 years of project and programme experience across many industries and business sectors. He has extensive experience in the area of risk management in particular the development of individual and organisational capability.

Peter can be contacted via email - peter@lucidusconsulting.com

Alarm would like to thank Peter for allowing the Guide to be reproduced for our members as a contribution to the on-going debate about the use of opportunity risk within public sector risk management.

Contents

1. Purpose

The purpose of this document is to provide practical and useful guidance for professional risk managers regarding the application of opportunity risk management. The risk management methodology used in this guide is based on the OGC's M_o_R®[1] approach gives due regard to the principles therein.

It is intended that this guide will help risk managers to understand and apply the risk techniques outlined in the four M_o_R® perspectives - strategic, programme, project and operational.

2. What is opportunity risk?

M_o_R defines a risk as "An uncertain event or set of events that, should it occur, will have an effect on the achievement of objectives. A risk is measured by a combination of a perceived threat [risk] or opportunity [risk] and the magnitude of its impact on objectives". Many people find the concept of opportunity (upside or positive) risk difficult to grasp. This is for many reasons not least the overriding traditional belief that risk is bad; as embedded in such disciplines as health & safety and engineering e.g. there is a chance that something might happen to harm someone or to cause a failure in a piece of equipment. M_o_R is not the only publication that suggests that risk can be both good and bad. Most internationally recognised project and programme management standards and methods e.g. APM PRAM, PMI PMBOK®, Managing Successful Programmes (MSP®[2]) and PRINCE2®[3] concur with M_o_R. See Appendix A for a list of current standards. This is because philosophically there must be a chance that things can always get better e.g. something might happen that would enable a project to be delivered early or that would increase the benefits delivered by a programme. Having said this many still find this all too difficult and remain unconvinced that risk management is anything other than the prevention of bad things.

The very word opportunity is part of this problem. In the context of this document opportunity risk is used to describe something that might happen that would improve things in relation to any of the four M_o_R perspective i.e. strategic, programme, project and operational. Unfortunately the term/word opportunity has a far wider meaning including a general expression of an opportunity to do something e.g. there is an opportunity to win some new work, reduce costs in the organisation or to improve customer service. In addition in many organisations opportunities are the pre-cursor to projects and programmes and refers to ideas still to be formulated; perhaps prior to the formal creation of a business case.

It is because of this confusion that some people and organisations prefer to use a different set of risk management related words. Rather than opportunity risk the term upside or positive risk is used for good things that might happen and threat, downside or negative risk used for bad things that might happen. This is then brought together under the all-embracing but more general heading of uncertainty management. For the purpose of this guide the term **opportunity risk** will be used for good things that might happened and threat risk for bad things that might happen.

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[1] M_o_R is a Registered Trade Mark of the Office of Government Commerce in the United Kingdom and other countries.

[2] MSP is a Registered Trade Mark of the Office of Government Commerce in the United Kingdom and other countries.
[3] PRINCE2 is a Registered Trade Mark of the Office of Government Commerce in the United Kingdom and other countries.

3. What are the benefits of opportunity risk management?

The following statement has encouraged many organisations to start proactively managing opportunity risk:

If only threat risks are managed i.e. the things might make the situation worse or go negatively to plan, then the best outcome that can be expected is to meet the promised objectives but never to improve upon them.

What is being said in this statement is that if only the risks for example that will disrupt day-to-day operations, delay projects, erode programme benefits or damage organisational reputation are managed then unless other factors come into play, such as good luck, no improvement in any of these will occur. If an organisation wants to improve day-to-day operations beyond good luck it must look for things that might do this. Likewise if an organisation wants to deliver projects early or under budget or increase programme benefits then it must search for the opportunity risks; that is the things that will, if they occur, make things better.

4. What are the main arguments for senior management to adopt both a threat risk management and opportunity risk management approach?

The two phrases “failure to identify a risk means you have taken it” and “a risk identified is a risk that can be managed” are often applied to threat risk management but apply equally to opportunity risk. What the first of these phrases means, in the context of opportunity risk, is that if you don’t look for good things that might happen then any benefit to be gained from their existence will be left purely to chance or good luck (see 3 above). The second phrase suggests that if you identify an opportunity risk then you can do something about it to either make it definitely happen or alternatively increase its likelihood (probability) or impact or both. Put the two together and you have the beginning of a compelling argument for undertaking opportunity risk management.

In addition risk practitioners would argue that the same risk management process applies to both the management of threat risks and the management of opportunity risks and that using a common process has many benefits, including:

- ***Maximum efficiency***, as there is no need to develop, introduce, and maintain a separate opportunity risk management process (see 5 below)
- ***Cost-effectiveness*** from using a single process to achieve proactive management of both types of risk, resulting in the avoidance or minimisation of problems and the exploitation and maximisation of benefits
- ***Familiar techniques***, requiring only minor changes to current techniques used in managing threat risks so that organisations can deal with opportunity risks
- ***Minimal additional training***, because the common process uses familiar processes, tools and techniques
- ***Proactive opportunity risk management***, so that opportunity risks that night have been missed are addressed
- ***More realistic budgetary and schedule contingency management***, by including potential upside impacts as well as downside impacts, taking into account both “overs and unders”

- ***Increased team motivation***, by encouraging people to think creatively about ways to work better, simpler, faster, more effectively etc.
- ***Improved chances of success***, because opportunity risks are identified and captured, producing benefits for the organisation that might otherwise have been overlooked
- ***Removing the negative perception of risk management***, and then making risk management more fun by removing the belief that risk management is just scaremongering and only gloom and doom

5. Is there a difference between threat risk management and opportunity risk management?

Essentially there is no difference between threat risk management and opportunity risk management. The same processes, tool and techniques apply (see 4 above) although there are some existing and some additional tools and techniques that are of particular benefit to the identification of opportunity risks – see 8 below. However it would appear that one of the main considerations/complications when adopting opportunity risk management has to be individual perceptions and mindsets. As stated earlier risk has had negative connotations for so long that changing the paradigm to conceive risk as being good will not be easy.

6. How and when can identifying threat risks and opportunity risks be used together within the strategic, programme, project and operational perspectives?

Practitioner experience suggests that most benefit will be gained from adopting proactive opportunity risk management when it is applied in the early planning stages of any operational activity, project or programme or in strategy formulation. This will often result in the preparation of plans that take into account decisions made to exploit opportunity risks perhaps by adopting a change in overriding strategy or by a change in tactics at operational or project level. Again what practitioner experience suggests is that once plans have been accepted then it would appear that there are far fewer opportunity risks to exploit or enhance – see 10 below – when compared to threat risks to avoid or reduce. This does not mean that the possibility of identifying opportunity risks during implementation stages should be ignored but it should be recognised that it may become more difficult.

7. How should opportunity risks be articulated?

The same structured description (metalanguage) technique as applied to threat risks should also be applied to opportunity risks i.e. cause – risk event – consequence or effect.

However care should be taken to avoid falling into the trap of describing “things we may do” rather than “things that may happen by chance”. All too often opportunity risks are described effectively as choices or responses to other risk events, so describing an action that you may take for example:

- ***Cause* –** Due to an increase in national awareness for recycling
- ***Risk Event* –** The council may decide to encourage local resident to recycle more
- ***Consequence* –** Leading to a reduction in landfill requirements.

In this example the only response is to build the recycling centres (or not); it is a binary decision.

If this risk had been described/articulated differently, perhaps as follows:

- ***Cause*** **–** Due to an increase in national awareness for recycling
- ***Risk Event*** **–** Local residents may respond to positively to recycling
- ***Consequence*** **–** Leading to a reduction in landfill requirements

Using the structured metalanguage can be further improved by expanding the risk description as illustrated below using the opportunity risk described in 'short-form' above.

Cause:

Due to a national desire to promote recycling and to reduce waste to landfill central government is mandating local councils to run more frequent recycling rounds, is also increasing consumer advertising on environmental issues and is raising landfill tax

Risk Event:

The level of recycling by local residents may exceed forecasts

Consequence:

The use and costs of landfill would decrease more than expected and net revenue from recycled materials would increase more than expected. The council's reputation would also be enhanced.

Pre-condition to secure benefits of 'opportunity' risk:

Recycling rounds and amenities would need to be able to cope with increased volumes (otherwise the recycled materials would have to be redirected to landfills).

Enhancing Actions:

Recycling rounds will be made convenient, promoted locally and cover a wide range of materials

Then one of the many possible further responses would be to build local recycling centres but there could also be others like introduce penalties for non-recycling of certain waste.

The examples above are an attempt to describe "real opportunity risks" and not just the flipside of threat risks. It goes without saying that most threat risks could be flipped around to become opportunity risks; this especially applies to risks associated with project and programmes. For example the threat risk *"As a result of a fluctuating work environment we might find it difficult to obtain skilled resources leading to a reduction in the quality of work performed and consequent delays due to re-work"* could become *"As a result of a fluctuating work environment we might find it easier to obtain skilled resources leading to an improvement in the quality of work performed and consequent reduced time spent due to less re-work".* Both of these could be valid but their validity depends on what is in the base case or base plan; perhaps as included in a programme's business case or a project's Project Initiation Documents (PID). If the 'base case' assumes that resources would be easy to find then the threat risk applies. If the 'base case' assumes that resources will be difficult to find then the opportunity risk applies and so on. It is therefore important to understand what has been included (i.e. what assumptions have been made) in any plans before any risks can be identified.

The 'flipping' of threat risks to become opportunity risks is something that can help to stimulate positive rather than negative thinking. Rather than just focussing on threat risks such as “local residents may object…” it can help to flip this i.e. “local residents may not object…” and then to focus on what can be done to manage this (increase the probability or impact or both).

A further thought here relates to the inclusion or not of threat risks in the ‘base case’ (or plan). It has been suggested that threat risks with a very high probability, perhaps in excess of 90%, should be included in the base case and then the opportunity risk that the situation might improve included in the risk register at which time it will be monitored and managed appropriately.

8. What techniques can be used to identify opportunity risks?

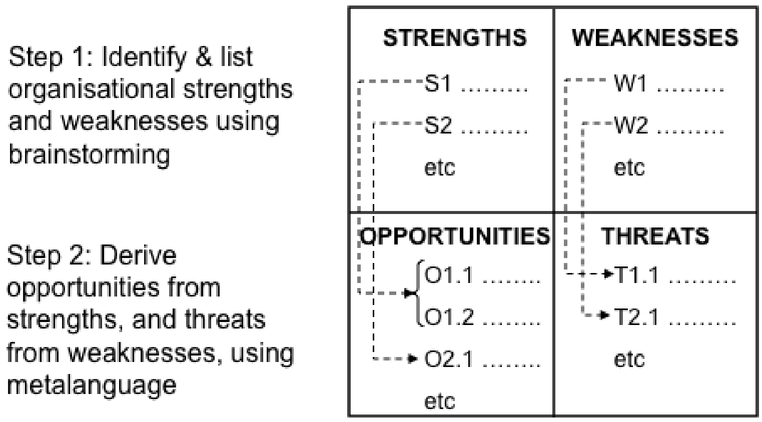
In addition to the standard risk identification techniques such as checklists, prompt lists (including risk breakdown structures), lessons learned logs, workshops/brainstorming, cause & effect diagrams and assumptions analysis; two particular risk identification techniques can be useful:

SWOT (strengths, weaknesses, opportunities and threats) analysis.
A normal workshop format is used but the workshop is structured into four sessions, two of which explicitly seek to expose positive aspects (organisational strengths and opportunities associated with any of the four perspectives). The order of identification (strengths before weaknesses, opportunities before threats) also helps to overcome the natural tendency to focus on the negative.

Definition of SWOT

- **Strength:** a characteristic, resource, or capacity the organisation can use effectively to achieve its objectives e.g. the organisation has considerable expertise in the management of major infrastructure programmes and projects.
- **Weakness:** a limitation, fault, or defect in the organisation that will keep it from achieving its objectives e.g. the organisation is finding great difficulty in recruiting experienced social workers.
- **Opportunity (Risk):** an uncertain beneficial event or condition that, if it occurs, results in favourable outcomes e.g. it might be possible to negotiate better prices with contractors.
- **Threat (Risk):** an uncertain adverse event or condition that, if it occurs, results in unfavourable outcomes e.g. key positions may be left unfilled.

SWOT analysis for risk identification has a different focus from the use of this technique for strategic decision-making. The first element of this version of SWOT analysis is a facilitated brainstorming process that identifies organisational strengths and weaknesses as they relate to the perpsective, usually limiting this to about ten. The second element is identifying opportunities and threats that might affect achievement of the objectives, using the identified strengths and weaknesses as a starting point, as illustrated in the figure below.



Identifying opportunity risks and threat risk using SWOT Analysis
with permission Hillson and Simon 2007 Practical Project Risk Management – The ATOM Methodology

The risk metalanguage – see 7 above – offers a mechanism for deriving opportunities from organisational strengths, and for finding threat risks that arise from weaknesses, using structured risk statements such as:

- As a result of <strength>, <opportunity risk> may occur, which would lead to <benefit>
- As a result of <weakness>, <threat risk> may occur, which would lead to <problem>

Several opportunities often arise from a single strength, and several threats might come from one weakness, so the workshop facilitator ensures that all options are considered during the workshop.

Constraints analysis, similar to assumptions analysis, which is often used to identify threat risks. According to standard project and programme methods i.e. PRINCE2 and MSP, constraints should be identified and included in the business case or PID. Constraints analysis tests whether these stated constraints might be relaxed, in which case an opportunity risk might be identified that will increase the probability of achieving objectives. Constraints are varied and could include things like; the requirement to use only certain suppliers, a specific software application, a specific working practice or to carry out an activity at a certain time of year. If any of these constraints can be relieved or adjusted in any way then it is possible that desired objectives will be improved e.g. Due to a relaxation in supplier selection criteria the council may be able to identify alternative, suitable suppliers resulting in reduced costs.

A further consideration when attempting to identify opportunity risks is that it can become very difficult to do this once threat risks have started to be identified. It would appear that there is something in the human mind that once we have started to think “gloom and doom” it is difficult to break out of this mindset. One way of avoiding this is to either start any risk identification session with a focus on opportunity risks and leave threat risks to later, or alternatively carry out opportunity risk identification sessions in isolation. See Appendix B for further opportunity risk identification techniques.

9. Examples of opportunity risks from a strategic, programme, project and operational perspective (note each of the examples are totally fictitious and any similarity to reality is coincidental).

Strategic (concerned with ensuring overall business success, vitality and viability)

i. As a result of the improved economic climate other recycling companies may offer their services in the county thus improving competition and reducing costs.
ii. Because of the improved availability of lottery funding private investors may offer to partner with the council to build additional local youth amenities with a consequent reduction in youth crime.
iii. Due to the geographical closeness of the 2012 Olympic Park and other sporting arenas there may be an increased uptake in athletics and other sports leading improved welfare of local residents.
iv. As a result of recent government legislation regarding death tax further funds may be available allowing the council to offer elderly care at reduced net cost.
v. Because of the increased number of available teaching graduates the standard recruitment budget may be reduced and as a result the savings could be re-deployed elsewhere.

Programme (concerned with transforming business strategy into new ways of working that deliver measurable benefits to the organisation)

i. As a result of several road projects taking place within the same timeframe it may be possible to create synergies between suppliers thus reducing overall costs and improving financial benefits.
ii. Because of the decision to use a common IT database, software design effort might be reduced across the portfolio of projects leading to earlier delivery of benefits and reduced costs.
iii. Due to recent media attention to the problem of adult illiteracy it may be possible to enhance client uptake of services resulting in increased benefits.
iv. As a result of the planned reorganisation of the council it may be possible to combine some of the infrastructure projects with a consequent reduction in costs.
v. Because the major construction phase of the programme takes place in 2012 and 2013 (after the Olympics) specialist construction labour might be encouraged to stay in the local area resulting in the ability to deliver key projects earlier.

Project (concerned with delivering defined outputs to an appropriate level of quality within agreed time, cost and scope constraints)

i. As a result of a recent reduction in specification it may be possible to procure critical equipment earlier than planned resulting in an earlier project completion.
ii. Because of the predicted early completion of a similar project key resources may become available leading to improved productivity, less re-work and reduced costs.
iii. Due to the willingness of local residents to participate it may be possible to reduce start-up times with a resulting earlier completion.
iv. As a result of recently improved technology it may be possible to increase construction productivity and as a result complete the project earlier.
v. Because of the decision to emphasise the re-use of IT code man-hour estimates might be reduced with a consequent reduction in required effort and costs.

Operational (concerned with maintaining appropriate levels of business services to existing and new customers)

i. As a result of improved energy efficiency in engines and motors transport fleet operating costs may be reduced leading to reduced expenditure.
ii. Because the council is seen as a preferred employer staff turnover may be reduced with a consequent reduction in recruitment costs.
iii. Due to very high availability and take up of internet broadband the need for printing and distribution of leaflets may be reduced with a consequent reduction in its communication budget
iv. As a result of the increased awareness of the importance of social work it may be possible to recruit better quality staff and as a result improve standards.
v. Because of a change in anticipated population density demands for school places might change leading to a reduction in the schools transportation budget.

10. How should opportunities be assessed, rated and presented? What are the appropriate responses for rated opportunities?

As in threat risk management all identified risks need to be qualitatively assessed in order to determine which ones need to be responded to or managed first. The standard process of using likelihood and impact to position a risk on a risk-scoring matrix still applies. However this is sometimes visualised as a double matrix as illustrated in the diagram below:

Likelihood	Negligable (1)	Low (2)	Medium (4)	High (8)	Very High (16)	Very High (16)	High (8)	Medium (4)	Low (2)	Negligable (1)
Almost certain (5)	5	10	20	40	80	80	40	20	10	5
Likely (4)	4	8	16	32	64	64	32	16	8	4
Possible (3)	3	6	12	24	48	48	24	12	6	3
Unlikely (2)	2	4	8	16	32	32	16	8	4	2
Rare (1)	1	2	4	8	16	16	8	4	2	1

Impact - Threats **Impact - Opportunities**

As can be seen the double matrix has been created by using a mirror image of the standard matrix as used for assessing threat risks. The red section in the middle is therefore the area that depicts which risks, threats or opportunities, need to be responded to first. Note by using this visualisation a red opportunity risk is ‘good’ and the aim of opportunity risk management is to move opportunity risks towards the red area if they cannot be immediately realised or exploited.

The same likelihood scale as documented in the document ‘Risk Management Process – A Risk Champion Guide’ can be used for both types of risk but this is not necessarily the same for impact. It may be possible to simply reverse the impact scales applied to threat risks e.g. ‘Financial loss under £5k’ could become ‘Financial benefit of up to £5k’ but this is not the case in areas related to health & safety, litigation or reputation. In these cases specific scales should be developed. An example of a positive reputation scale might be:

Impact score	Impact title	Example description
1	Negligible	Telephone call or letter of thanks received from local resident
2	Low	Multiple telephone calls or letter of thanks received from local resident or local groups
4	Medium	Positive local media coverage
8	High	Positive national media coverage
16	Very High	Extensive positive national media coverage or winning or prestigious award(s)

Once assessed, just like threat risks, opportunity risks need to be responded to or acted upon. Common response language focuses on how to avoid or reduce the chance of a risk occurring or reduce its impact. This language is not applicable to opportunity risk and as such an alternative set of responses has been suggested as follows:

- ***Realise (Exploit)***, the realisation of an opportunity ensures that potential improvements to an organisational are delivered.
- ***Enhance***, the enhancement of an opportunity means that action is taken to increase the likelihood, impact or both.
- ***Share***, risks in the supply chain are shared on a pain/gain share basis (equally applicable to threat risks).
- ***Accept***, note this has multiple meanings including; do absolutely nothing and accept the risk and its full impact should it occur incurring no costs at all; prepare for the risk – no investment in action now, but investment in preparing for action should the risk become a greater priority or the situation changes (this may be seen as a contingent response).

11. How and when should opportunity risks be monitored and reviewed in the four perspectives?

The simple answer is at the same frequency of all other risks; why would it be any different? In addition if the same risk management process is applied to both threat risks and opportunity risks – see 4 above – then dealing with opportunity risks differently would reduce the benefits to be gained from this same application. Having said this there is an argument that more emphasis should be placed on opportunity risk management, perhaps for a short period of time, or at least until it becomes accepted as a standard practice.

A short case study where both threat risks and opportunity risks can be identified, assessed and responded to (actions created).

READING FOR ALL

The uptake of Internet broadband within the county has reached a position where it is estimated that over 75% of the population has access to fast (greater than 2mb) wireless download. Because of this a strategic initiative is being considered to make available Apple iPads to use as e-book readers and e-books to those who can justify a need e.g. the visually impaired, those with mobility difficulties who find it difficult to visit county libraries and the elderly in general. The aim of this initiative is to give access to both current and classic literature to those who would benefit the most while at the same time reducing the need to carry certain types of books in county libraries e.g. large print books. It would also reduce the need to carry multiple copies of popular titles. Anyone who partakes in the scheme would also be permitted to subscribe to other 'e' publications such as newspapers or magazines but this would be at their own costs.

Initial planning has suggested that a pilot project could be started within six months and assuming its success the whole initiative could be rolled with 18 months. A preliminary budget of £500,000 has been put forward with potentials savings of £250,000 per annum. Annual running costs are expected to be approximately £100,000.

Key assumptions

- The technology will not be a barrier to uptake of the service
- A mechanism can be found to avoid copyright infringement

Key constraints

- Requires broadband internet access
- Apple iPad to be used as an e-book reader specified

Identification

Threat risks *(these have not been assessed as part of this case study)*

1. Because a large percentage of the target population are elderly they might not buy-in to the new technology to the degree expected and as result not use the e-book reader to its full capability reducing ongoing benefits.
2. Some e-books are covered by copyright. Users of the capability may find a way to copy 'files' and distribute them illegally resulting in litigation.

Opportunity risks

1. Alternative, but expensive, 3G telephone connectivity is available in almost all areas; the cost of this service could fall allowing it to be used as an alternative to broadband, leading to greater uptake of the service.
2. There are alternative e-book readers such as Kindle available on the market; an alternative to iPad may be acceptable to users, resulting in cost savings and improved benefits.

Assessment *(opportunity risks only)*

1. Likelihood – 4 (likely) – Impact – 4 (medium) – financial gain of £50k – total 16 – amber opportunity risk.
2. Likelihood – 3 (possible) – Impact – 4 (medium) – financial gain of £50k – total 12 – amber opportunity

Responses (actions)

1. Enhance this by negotiation with 3G suppliers on a county-wide supply/service basis.
2. Realise by convincing users that other manufacturers products offer better functionality as an e-book reader.

Glossary of terms

Term	Definition
Term	**Definition**
Accept	Do absolutely nothing and accept the risk and its full impact should it occur incurring no costs at all; prepare for the risk – no investment in action now, but investment in preparing for action should the risk become a greater priority or the situation changes (this may be seen as a contingent response).
Assumption	Statements that will be taken for granted as fact and upon which plans will be based.
Constraint	Things that should be considered as fixed or must happen.
Enhance	The enhancement of an opportunity means that action is taken to increase the likelihood (probability), impact or both.
Exploit	- see Realise.
Opportunity risk	An uncertain event or set of events that, should it occur, will have a positive effect on the achievement of objectives.
Realise	The realisation of an opportunity to ensure that the potential improvements to an organisational are delivered.
Risk	An uncertain event or set of events that, should it occur, will have an effect on the achievement of objectives. A risk is measured by a combination of a perceived threat or opportunity and the magnitude of its impact on objectives – M_o_R – 2010.
Share	Risks in the supply chain are shared on a pain/gain share basis (equally applicable to threat risks).
Threat risk	An uncertain event or set of events that, should it occur, will have a negative effect on the achievement of objectives.

Appendix A: Comparison of risk management standards

with permission Hillson and Simon 2011 Practical Project Risk Management – The ATOM Methodology – Second Edition

	Definition of risk	Risk management process	Unique aspects and emphasis
Management of Risk – Guidance for Practitioners (M_o_R) Third edition (2010)	An uncertain event or set of events that, should it occur, will have an effect on the achievement of objectives. A risk is measured by a combination of the probability of a perceived threat or opportunity occurring and the magnitude of its impact on objectives.	Identify – context Identify – identify the risks Assess – estimate Assess – evaluate Plan Implement Embed and review Communicate	• Entire chapters on Management of risk principles and embedding and reviewing management of risk. • Applicable to strategic, programme, project and operational risk • Part of a larger suite of methods including Managing Successful Programmes and PRINCE2
ISO 31000:2009 Risk management – Principles and guidelines (2009)	Effect of uncertainty on objectives	Establishing the context Risk identification Risk analysis Risk evaluation Risk treatment Monitoring and review Communication and consultation	• Applicable to all levels of risk management • Includes risk principles and a risk management framework • Lists communication and consultation as distinct element of the process
PMI Practice Standard for Project Risk Management (2009)	An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.	Plan risk management Identify risks Perform qualitative risk analysis Perform quantitative risk analysis Plan risk responses Monitor and control risks	• Defines Critical Success Factors for each process step • Tools, techniques and templates provided in appendix
Guide to the Project Management Body of Knowledge [PMBoK®] - Fourth edition (2008)	An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.	Plan risk management Identify risks Perform qualitative risk analysis Perform quantitative risk analysis Plan risk responses Monitor and control risks	• Strong process orientation (inputs/tools and techniques/ outputs) • Addresses opportunities as well as threats
BS 31100:2008 Risk management – Code of practice (2008)	Effect of uncertainty on objectives	Risk context Risk identification Risk assessment Risk response Risk reporting Risk review	• Includes principles and framework, consistent with ISO 31000

	Definition of risk	Risk management process	Unique aspects and emphasis
Risk Analysis and Management for Projects [RAMP] – Second edition (2005)	A threat (or opportunity) which could affect adversely (or favourably) achievement of the objective's of an investment.	Process launch Plan and initiate risk review Identify risks Evaluate risks Devise measures for responding to risks Assess residual risks and decide whether to continue Plan responses to residual risks Communicate risk response strategy and response plan Implement strategy and plans Control risks Process close-down	• Considers opportunities as well as threats • Focus is on whole life assets, with emphasis on capital projects
Project Risk Analysis and Management [PRAM] Guide - Second edition (2004)	**Risk event** An uncertain event or set of circumstances that, should it or they occur, would have an effect on the achievement of one or more of the project's objectives. **Project risk** The exposure of stakeholders to the consequences of variations in outcome.	Initiate Identify Assess Plan responses Implement responses Manage process	• Includes chapters on benefits of managing risks (2), establishing a risk management organisation (5), behavioural aspects (6), and implementation/ application issues (7) • Addresses threats and opportunities • Defines risk at two levels; risk event and project risk
IRM/Alarm/ AIRMIC Risk Management Standard (2002)	The combination of the probability of an event and its consequences.	The organisation's strategic objectives Risk identification Risk description Risk estimation Risk evaluation Risk reporting Risk treatment Monitoring and review	• Applicable to business and projects • Link to organisation strategic management • Chapter (9) devoted to roles of various functions in the organisation
BS IEC 62198:2001 – Project risk management – Application guidelines (2002)	Combination of the probability of an event occurring and its consequences on project objectives.	Establishing the context Risk identifications Risk assessment Risk treatment Risk review and monitoring Post-project	• Originated as part of dependability standard • Focus on projects with technological content
BS6079-3:2000 – Project management – Part 3: Guide to the risk management of business related project risk (2000)	Uncertainty inherent in plans and the possibility of something happening (i.e. a contingency) that can affect the possibility of achieving business or project goals.	Context Risk identification Risk analysis Risk evaluation Risk treatment Communicate/monitor and review/update plans	• Focus on link to business objectives and strategy • Roles of perception and stakeholder analysis

Appendix B: Other opportunity risk identification techniques

Edward de Bono's Six Thinking Hats, this is one particular creative technique that helps in the identification of opportunity risks. The technique relies on users, potentially those attending a risk workshop, to adopt a mindset or persona of the hat they are wearing. The six hats are: **white** – 'unemotional data and questions about getting more data' – **black** – 'negative consequences, the worst things that could happen – **yellow** 'positive consequences, the best things that can happen' – **green** 'possibilities, alternatives, new ideas, off the wall creativity' – **red** 'emotions, what you really think in your heart and stomach' – **blue** 'process and procedure, managing and thinking'. It is not always necessary to use all six hats, but once the technique has been used the phrase "we need to put on our yellow hats" will become frequently heard.

Finally experience has shown that people can be provoked into thinking positively very easily; maybe by making them either physically wear yellow hats or believe/think like they are wearing one.

Rose tinted glasses, as an alternative to yellow hats it may help to have on hand a box of 'rose tinted glasses'. Although this is not to be taken totally seriously the light-hearted nature of this can stimulate positive thinking. Again it might not be necessary to actually wear the glasses, as the stimulus may be enough to change the mindset.