

Project Risk Analysis toolkit

MMU has a corporate Risk Management framework that describes the standard for risk management within the university. However projects are different from business as usual activities, so project risk needs to be handled in a slightly different way. This toolkit describes how project risk can be managed: it is consistent with the University framework, but differs in some of the detail.

1. What is project risk management?

Project risk management is the flexible application of a systematic process to improve the likelihood of a project achieving its pre-determined objectives. It is crucial to project performance. The objectives of project risk management are to inform decision-making during project selection and definition, and to improve project performance during design and delivery so that completed projects lead to enhanced organisational performance.

2. Why is risk management important?

Risk is not a bad thing! A certain amount of risk taking is inevitable if we want to achieve our aims and objectives. But the key to encouraging innovation and improving performance lies in the effective management of risk, which can be either negative (a threat) or positive (an opportunity). If you know what the potential threats are, then you can plan to avoid or at least manage them, and knowing the opportunities allows you to plan to take advantage of them. The absence of risk management leads to reactive, fire-fighting activity and potentially, project failure.

3. Roles and responsibilities for risk management

Risk management only works effectively if the roles and responsibilities are clearly understood and accepted: risk management is not just the responsibility of the project manager!

Project Role	Risk Management Role
Project Board	<ul style="list-style-type: none">Ensures adherence with the University's Policy and StrategyDefines the overall risk appetite for the project investment decisionReviews the project risk management plan (for Major projects only)Approves funding for project risk managementMonitors the overall project risk profileAssures clarity of the sponsor's management of risk accountabilitiesAssists with assessing the risk context for the projectMonitors and acts on risks escalated up by the project manager under the direction of the sponsorSenior Users generally to take responsibility for business change threats and opportunitiesSenior Suppliers generally to take responsibility for technical implementation threats and opportunities

Project Role	Risk Management Role
Project Sponsor	<ul style="list-style-type: none"> ▪ Ensures that risk management structures and processes are in place for the project ▪ Ensures that a project RM Plan exists (Major projects) ▪ Monitors and assesses the balance within the set of project risks (threats and opportunities) ▪ Owns and manages risks escalated up from project manager ▪ Agrees when reviews of risk management are required ▪ Approves risk management review and assurance reports ▪ Assists the project manager in embedding the necessary risk management practices ▪ Assists with stakeholder management when appropriate to adequately identify stakeholder risks ▪ Receives and reviews risk progress reports (part of highlight reporting)
Project Manager	<ul style="list-style-type: none"> ▪ Ensures that risk logs, a risk review, and escalation processes are in place ▪ Ensures that the sponsor is made aware of adequate risk management resource / support requirements ▪ Validates risk assessments ▪ Identifies the need for investment to fund project risks ▪ Owns individual project risks (as delegated by the sponsor) ▪ Ensures participation in risk management duties by other team members ▪ Agrees the timing and content of risk progress reports (part of highlight reporting) ▪ Agrees the involvement of risk specialists e.g. at feasibility study, assessment of options, etc ▪ Establishes how risk management will be integrated with change control, performance management, etc
Project team members	<ul style="list-style-type: none"> ▪ Participate (as appropriate) in the identification, assessment, planning and management of identified threats and opportunities ▪ Ensure a thorough understanding of the individual risk management responsibilities within the team ▪ Escalate risks to the project manager in accordance with agreed procedures
RM and other specialist resources (e.g. audit)	<p><i>NB: This role is only likely to be needed in the most critical of Major projects</i></p> <ul style="list-style-type: none"> ▪ Allocate resources to inform the identification and assessment of risks ▪ Support in facilitation of risk identification and assessment ▪ Provide a broad perspective ▪ Advise on controls and risk treatment options ▪ Advise in specialist areas such as partnership risks, business continuity management, insurance, legal, financial, etc

4. The timing of RM activity

Risk Management takes place continuously throughout the project, and can be characterised as follows.

Stage	Activity
Project Mandate	The period of conception is the period ranging from the emergence of an idea for a project to an initial formal statement outlining the needs of project users or sponsors. At this stage the wider strategic and financial risks should be considered, applied to the feasibility stage and form part of the formal statement regarding business needs.

Stage	Activity
Startup and initiation	This is the stage where a Business Case justifying why the project should take place is developed. It is a key stage for the establishment of the project risk management regime. In addition to an initial consideration of project risks, the status of existing projects and capacity within the University should be assessed as well as the resources needed for risk management.
Running the project	This is the phase during which the project is undertaken. Attention should be paid to explicitly defining project benefits against which project performance can be measured. In addition, a projects benefits realisation plan should be designed and introduced, as a mechanism for monitoring both the performance of individual or collective risk issues over time, and the effectiveness and appropriateness of selected risk mitigation mechanisms. This helps to demonstrate that investment in risk mitigation techniques is effective, and can be tailored as project needs arise.
Closure	When a project is formally closed, the outputs from the project must be formally evaluated even though the benefits may not be established yet. This includes whether cost and timescales have been met, and also whether the products meet the acceptance criteria. The role of RM at this stage should include considerations about transfer into operational use, whether indeed the product is still required, and what to do about issues that were set aside as beyond project scope. Lessons learned should also be generated, and risks should be considered here as well. A project review should be planned, and RM should also be included within that.
Delivering the service	After project closure the products produced by the project become part of the operational (i.e. day to day) use. Risk management does not end at project closure because normally benefits are not realised until some time after the project is finished. Thus risk monitoring and management should continue alongside benefits realisation, and it is important that resources are provided for this within the operational environment as project resources will have been reallocated elsewhere.

5. Risk Identification

5.1 Risk categories

Risks can be grouped into Strategic and Operational Risks: the following list is not exhaustive but should give a good overview of the range of categories that can be considered within a risk analysis.

Strategic Risk Categories:

- Strategic Fit
- Relationships
- External Political
 - Trade regulations and tariffs
 - Social welfare policies
 - EU bodies (inc. funding opportunities)
- Organisational Impact / Reputation
- Economic Case
 - Interest rates
 - Money supply
 - Inflation
 - Energy cost / Green agenda

- International issues

Operational Risk Categories:

- Technical and Operations
 - Technological change
 - Innovation (opportunity)
 - Research, Enterprise and 3rd Stream activities
 - Estates and infrastructure
- Internal Political
 - Stakeholder interest
 - Student relationships
 - Unions
- Financial viability
- Organisational management and human resources
- Legal
 - Legislation
 - Environment protection
 - Employment law
- Procurement
- Commercial
- Environmental
 - Waste
 - Green credentials of suppliers
 - Activist activities

5.2 Critical Success Factors (CSFs)

These are the key areas that, for the University, carry a high degree of importance in helping to assure the success of the organisation. They are

- a. Student experience
- b. Securing and diversifying income
- c. Employee engagement
- d. Capital programmes
- e. Brand, image and reputation

5.3 How to identify Risk

The list above provides a useful framework for risk identification, but your task, as project manager, is to identify specific risks. However this is not, indeed must not be, a single person activity.

The best mechanism for identifying risk is a workshop involving a range of stakeholders including those with management and operational interests, as well as customers.

When identifying the risk it is important to be specific and relate the risk to the project directly. Also remember that risks can be threats or opportunities, so you should be clear about which it is, for example:

Lack of staff skills in new technology means that:
Threat: project implementation could be delayed
Opportunity: training to provide new skills enhances morale

5.4 Risk score

As each risk is identified, you should decide how likely it is and what its impact could be upon the project. You should also identify what can be done to manage the risk and who owns it. Finally, you should also link it to one or more of the CSFs noted in section 5.2

Initial project risk assessment (Project Brief)

At the project brief stage it is usually impossible to carry a detailed risk assessment. However you should use the MMU Assessment matrix at this stage, and for that a Low-Medium-High risk assessment is sufficient. Use the checklist in section 5.1 and determine the overall risk using the following criteria:

- **Low risk:** although there is a level of riskiness in doing this project, you are reasonably confident it can be delivered on time, within budget and to the desired level of quality.
- **Medium risk:** you are confident that the project can be delivered to the agreed level of quality, but there is a distinct possibility the project could over-run in terms of time and/or cost.
- **High risk:** there is a distinct possibility that the project could fail to delivered the desired quality outcomes, e.g. because the amount of culture change required is very significant.
- Note that **quality** includes the area of adoption – so just delivering a successful product isn't good enough if it isn't used properly. You should consider this aspect as part of the quality dimension, i.e. how easy will it be for the product to be used effectively.

Minor Project risks

For minor projects, impact and likelihood can be rated as low-medium high (see above), and a typical risk management plan will use the following table:

Ref	Description	Impact	Likelihood	Mitigation	CSF	Owner
R01	Lack of staff skills in new technology means that project implementation could be delayed (threat)	Medium	High	<ul style="list-style-type: none"> • Training to provide new skills (Opportunity: enhances morale) • Bring in external expertise 	a, c	Project Manager
R02	New system may be opposed by staff (threat)	High	Medium	<ul style="list-style-type: none"> • Regular communication about project goals and progress • Consult with staff on how to implement system 	a, c	Senior User

Note that the above table does not include an Action taken or Status column: these should be added once the project commences so that dated actions can be added as risk status changes.

Medium and Major Project risks

For Medium and Major projects the difference is a fine grained likelihood and impact scoring plus the use of a risk matrix to plot the risks so that the key ones can be focussed upon (because Medium and Major projects are likely to have a greater number of risks). Also initial and residual risks should be estimated for the project. The initial risk will remain static, but residual risks should be regularly reviewed and updated throughout the life of the project.

The likelihood and impact ratings are as follows:

Impact

Severity	Description	Possible consequences
1 - Insignificant	Negative outcomes from risks or lost opportunities that might have some effect on a small part of the project	<ul style="list-style-type: none"> • Won't affect the outcome of the project

Severity	Description	Possible consequences
2 - Minor	Negative outcomes from risks or lost opportunities that are unlikely to have a significant effect on the project	<ul style="list-style-type: none"> • Less than 1% overspend • No regulatory consequence • Minor adverse publicity • Less than 5% over schedule
3 – Moderate	Negative outcomes from risks or lost opportunities that will have a significant impact on the project but can be managed	<ul style="list-style-type: none"> • Between 1 and 5% overspend • Limited regulatory consequence • Local adverse publicity • Between 5% and 15% over schedule
4 - Serious	Negative outcomes from risks or lost opportunities with a significant effect that will require major effort to manage and resolve but do not actually threaten the project's overall viability	<ul style="list-style-type: none"> • Between 6% and 25% overspend • Significant regulatory consequence • Negative headlines in the national press • Between 16% and 50% over schedule
5 – Very serious	Negative outcomes from risks or lost opportunities which if not resolved will result in the failure of the project	<ul style="list-style-type: none"> • 26% or more overspend • Substantial regulatory consequence • Sustained negative headlines in the national press • Failure of major part of business • More than 50% over schedule

Likelihood

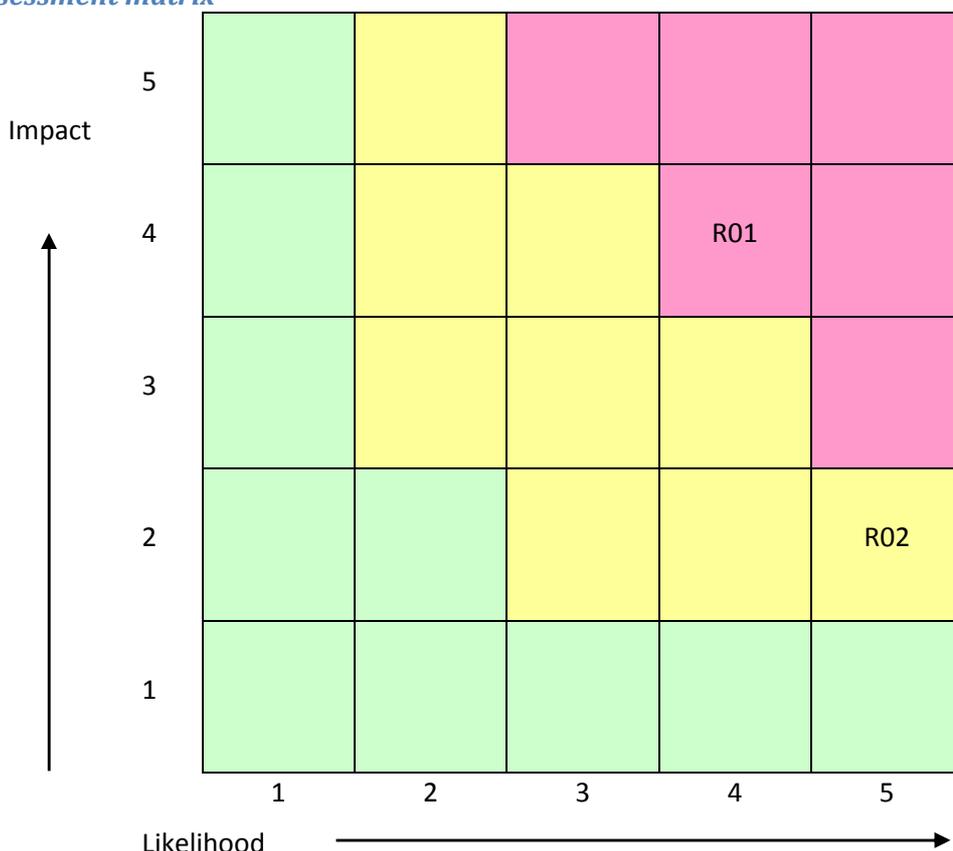
Descriptor	Likelihood
1 – Very low	It probably won't happen during the life of the project
2 – Low	it might just happen during the life of the project
3 – Medium	it could well happen during the life of the project
4 – High	it's fairly likely to happen during the life of the project
5 – Very high	it's almost certain to happen during the life of the project

Example risk log entries:

Ref	Description	Impact	Likelihood	Mitigation	CSF	Owner
R01	Lack of staff skills in new technology means that project implementation could be delayed (threat)	Serious (4/5)	High (4/5)	<ul style="list-style-type: none"> • Training to provide new skills (Opportunity: enhances morale) • Bring in external expertise 	a, c	Project Manager
R02	New system may be opposed by staff (threat)	Very serious (5/5)	Low (2/5)	<ul style="list-style-type: none"> • Regular communication about project goals and progress • Consult with staff on how to implement system 	a, c	Senior User

Note that the above table does not include an Action taken or Status column: these should be added once the project commences so that dated actions can be added as risk status changes.

Risk assessment matrix



Risks in the red zone need frequent monitoring and should be actively managed and reported to the Project Board. Risks in the yellow zone should also be regularly reviewed, especially those that border on “red”. These need not be reported to the Project Board unless specific escalation issues arise. Risks in the green zone can be ignored if there isn’t capacity to manage all of the risks, but they ought to be reviewed at major milestone points.

Risk proximity

A refinement of the risk assessment tool is to add in proximity (how soon the risk might occur). This can help if there are a large number of risks as the management plan can focus on the important risks with closest proximity first.

Risk score

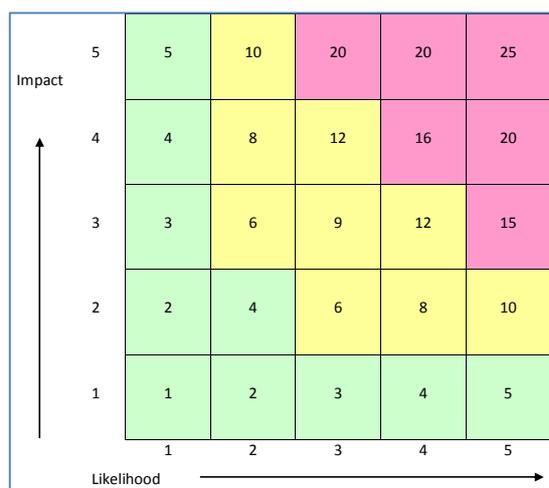
Another risk assessment mechanism is to calculate an overall risk score by multiplying the impact and likelihood scores, e.g. impact 3 and likelihood 4 gives a risk score of 12. These scores can be placed on the grid (below), and from this it can be seen that a score of:

1-5 = low risk (green)

6-12 = medium risk (amber)

15-25 = high risk (red)

Risk scores can be added to a risk log as an extra column.



5.6 Ongoing assessment

Once the initial risks have been assessed, in both risk log and risk matrix form as illustrated above, you must continue to review and revise the risks throughout the life of the project. As risks are altered, the new (residual) risk should be compared with the initial risk when first identified. The

movement between the two can be shown in terms of a risk score by deducting the initial risk score from the residual risk score.

In the example given above, Risk R01 has an impact of 4 and a likelihood of 4, so the score is $4 \times 4 = 16$ (out of a possible maximum of 25). When you review the risk, if you feel the likelihood has reduced to Medium (3), then the score becomes $3 \times 4 = 12$. So the movement would be $12 - 16 = -4$. A negative number indicates a reduced level of risk.

Updates to the risk log should show the movement value, as illustrated below Risk R01 has reduced by 4 and risk R02 has increased by 5. The table below gives an example. Note that an Action taken column and a Status column is also included: this should be added once the project commences so that dated actions can be added as risk status changes.

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December 2009 (v1); July 2010 (v2); March 2011 (v3)

July 2013 (v4); October 2015 (v5)

Ref	Description	Impact	Likelihood	Movement	Mitigation	CSF	Owner	Status	Action taken
R01	Lack of staff skills in new technology means that project implementation could be delayed (threat)	Serious (4/5)	Medium (3/5)	-4	<ul style="list-style-type: none"> • Training to provide new skills (Opportunity: enhances morale) • Bring in external expertise 	a, c	Project Manager	LIVE	1/05/2013 - Training was delayed due to illness of trainer so likelihood increased by 1 point. Action: follow up with training company and if necessary source alternative resources
R02	New system may be opposed by staff (threat)	Very serious (5/5)	Medium (3/5)	5	<ul style="list-style-type: none"> • Regular communication about project goals and progress • Consult with staff on how to implement system 	a, c	Senior User	LIVE	1/05/2013 – Consultation workshops well attended and reaction was positive, so likelihood reduced by 1 point. Action: run follow-up sessions in September 2013.