**GUIDELINE**

Project Risk Management

**TABLE OF CONTENTS**

[PURPOSE OF THE DOCUMENT 2](#_Toc146546919)

[RISK MANAGEMENT PRACTISE 3](#_Toc146546920)

[1. Overview 3](#_Toc146546921)

[2. Introduction to project risks 3](#_Toc146546922)

[3. Risk management process 4](#_Toc146546923)

[4. Risk categories 6](#_Toc146546924)

[5. Responses 7](#_Toc146546925)

[6. Roles 7](#_Toc146546926)

[7. Risk register and other data 7](#_Toc146546927)

[APPENDIX 1 – OPPORTUNITIES 9](#_Toc146546928)

[APPENDIX 2 – PROJECT RISK SUB-CATEGORIES 11](#_Toc146546929)

PURPOSE OF THE DOCUMENT

Risks are potential future events which may impact a project’s ability to deliver its outputs to the plans, altering the project in a positive or negative manner.

This guideline defines how risk management is carried out in projects, including the key roles and where the relevant registers or data should be maintained in a typical project.

RISK MANAGEMENT PRACTISE

1. Overview

Risk management in projects follows the practice set out in the [ACU Risk Management Procedure](https://policies.acu.edu.au/risk_management/risk_management_procedure)[[1]](#footnote-1). The procedure defines the practices for threats (adverse events) but projects can enhance the practice by applying a similar approach also to opportunities (positive events).

This document follows the procedure by referring to threats only and using the word ‘risk’ to denote ‘threats’. Opportunities are discussed in Appendix 1.

All identified risks are recorded, assessed and assigned an owner. All items rated ‘high’ have an exploitation or mitigation plan developed and actively managed by the risk owner in liaison with the Project Manager.

All stakeholders can raise new risks in the project and assist in the assessment and mitigation of risks, as requested by the Project Manager. The information related to a risk is added to the Risk Register and the Project Manager is notified.

The Project Manager reviews the currently open risks as part of the weekly review of the project controls. The risks rated ‘high’ are included in the milestone reporting.

1. Introduction to project risks

All projects start off with a good promise. Yet, some are destined for failure from their very inception, whilst others struggle later on. Yet others reach the finish line with success, carrying with them a few scars from battles faced and overcome. Therefore, in order to minimize project failure, it is prudent to identify the main factors that contribute to project risk.

The three main constraints on projects can be classified as scope, schedule and resources. The mishandling of each can cause a ripple effect on the project, which would then face imminent difficulties.

**Scope Risk**

Defining what is required is not always easy. However, to ensure that scope risk is minimized, the objectives, deliverables, the project plans and the scope need to be clearly defined.

All scope risks, be they quantifiable or not, need to recognized. Scope creep, hardware or software defects, an insufficiently defined scope, unexpected changes in the legal or regulatory framework and integration defects, can all increase the risk to the scope.

There are a variety of methods that help stakeholders identify the scope of the project. The key stakeholders and specialists should analyse the project's dependency on technology and the market, and then assess how changes in each would affect the outcome of the project.

A work breakdown structure, commonly abbreviated as WBS, can also reveal potential risks if the project or scope are poorly defined, and where the stated objectives are ambiguous.

Scope risks can be minimized and managed, with good planning. Defining the project clearly, managing the changes in scope throughout the duration of the project, making use of risk registers to better manage risks, identifying the causative factors, and the appropriate responses to risky situations and developing greater risk tolerance in collaboration with the business, can pay great dividends in the long run.

**Schedule Risk**

Keeping to timelines and agreed critical paths is one of the most difficult situations that project managers face.

An extensive reliance on external parties whose output is not within the project's control, estimation errors which most often are too optimistic, hardware delays and putting off decision making, all tend to delay the project at hand.

To minimize schedule risks there are a few methods that can be put to good use. The process flow of the project should be broken down into small, clearly defined components where the allocated time frame for each process is relatively short in duration (this makes it easy to identify things when tasks veer off schedule, at its earliest).

Be wary of team members or external parties who hesitate to give estimates, or whose estimates seem unrealistic based on historical data and previous experience.

When formulating the critical path, ensure that any potential holidays are in-built into the equation, so that realistic expectations are created, right from inception. Defining re-work loops too, is also recommended, wherever possible (e.g. for re-testing software or re-training teams).

**Resource Risk**

People and funds are any project's main resource base. If the people are not sufficiently skilled to perform the task at hand, if the project is under-staffed, or if key project members come onboard far after the inception of the project, there is an obvious project risk that has poorly planned or resourced team structure as its base.

Similarly, from a financial perspective, if insufficient funds are provided to carry out the necessary tasks, be it relevant process work or training programs for the people in question, inadequate investments in technology, or similar; the project is severely challenged from inception.

Estimating project costs accurately, allocating a suitable budget to meet these costs, not placing undue expectations on the capacity of the staff in question and avoiding burn-out at a later date, are all factors that help minimize the project resource risk.

Outsourced functions merit even more attention to detail, as it is for the most part, it is away from the direct control of the project manager. Clearly defined contracts and continuous monitoring will lessen this risk substantially.

Conflict management, which generally occurs with the progression of a project, should also be handled in a skilful manner, so that the project has a smooth run, throughout its entire duration.

**Conclusion**

As is readily apparent, all projects do run the risk of failure, due to unplanned contingencies and inaccurate estimates.

Yet, careful planning, constraint management, successful recovery from mistakes – if and when they do arise – will minimize most risks. Luck, too, can play a part in the success of a project but hard work and good management practices will override most such difficulties.

1. Risk management process

Risk management follows an incremental process which and should involve all the relevant stakeholders.

**Identify**

In this step, you name and articulate the risk.

The Project Manager, team members, stakeholders, Executive Sponsor, and subject matter expert(s) may all participate in determining which risks might affect the project and documenting each risk's characteristics. This effort can start in the Initiate processes when a Business Case is developed, is further detailed in the Planning process, and can happen any time throughout the remainder of the project.

Techniques for identifying risks may include brainstorming, soliciting a number of experts for their opinions (DELPHI technique), interviewing an expert, SWOT (strengths, weaknesses, opportunities, and threats) analysis, or any other method which best suits the group or individuals.

For each risk:

* Select the applicable risk category;
* Provide a description;
* Note the source of the risk (individual, team meeting, interview, data source, etc.).

**Assess**

In this step, you analyse the risk to see how it can impact the project.

Each risk needs to be assessed. This allows the project and stakeholders to understand the severity rating of each risk and start planning accordingly. A part of the assessment is specifying the risk triggers (what will cause the risk to eventuate) and potential timing (e.g. it can happen only after… or the risk goes away when…).

When assessing risks, you should also nominate the ‘**Risk Owner**’ for each of them. The risk owner oversees the planning and controls for the risk, and opens doors, releases resources and effects change, if needed. The risk owners are always at the management or executive levels in the organisation. The Project Manager or any of the project team members can never be effective risk owners, thus they should not be nominated (unless a risk is directly and fully within their sphere of influence).

While the identification of a risk can happen by an individual person, the assessment is best done together with the key specialists and stakeholders. This allows a comprehensive and robust view to be formed, which is important especially for the most significant risks.

**Plan**

For each risk, you need to decide on two aspects:

1. How to prevent the risk from happening, and
2. How to respond if the risk happens?

It often is difficult to completely prevent a risk from happening (eliminate a risk). However, you can usually try to reduce the likelihood or consequence (mitigate a risk) or transfer a risk, leading to a lower level of residual risk.

When planning for both the prevention and response, you should be mindful of the cost and effort involved in relation to the damage a risk can cause.

* E.g., if the impact of a risk with likelihood ‘possible’ is an additional $5,000 cost to the project but it’d cost $3,000 and a full week worth of work at a HEW 8 level (approximately $2,800 with oncosts) to mitigate, it’d be more affordable to just wear the risk as is. But if the same cost and effort reduces a $50,000 ‘likely’ risk down to a $10,000 ‘unlikely’ risk, it’s money well spent.

The responses should be planned for each risk rated medium or high. It is good practice to plan also for the ‘low’ rated risks, but they are often smaller in impact and the plans can also be made only as needed.

**Control**

Controlling focuses on implementing the plans made for preventing, mitigating or transferring the risk.

You also need to continuously re-assess the risk to see if the likelihood or consequence would have shifted recently due to external events or changes in the project. This should be done together with the respective risk owners. Any changes would trigger a review of the plans you have for the risk.

While you review and re-assess the project environment for any changes, you may identify new risks. They would be recorded, assessed and planned for, similarly to any of the earlier risks.

**Respond**

If a risk eventuates, it becomes an active issue and you need to respond to it. The Risk Owner leads the response and uses the plans you had made to guide the action taken.

In projects, whichever stakeholder or team member notices a risk event happening, they notify the Project Manager. The Project Manager will liaise with the Risk Owner for the response.

1. Risk categories

The following risk categories are used in ACU. They are approved by The Senate in 2021 as a part of the ACU Risk Appetite Statement for organisational risks. This project uses the categories as the top-level hierarchy for risks. The category ‘Project’ is further broken down into sub-categories to assist in more granular management of risks.

|  |  |  |
| --- | --- | --- |
| **CATEGORY** | **SUMMARY** | |
| 1. Values and Culture | Events which challenge ACU’s commitment to its Catholic traditions as they underpin ACU’s mission, vision and strategic priorities | |
| 1. Governance | Events which may cause ACU to breach a statute, external legislation or regulation, a professional standard, research or medical ethics, a contract, or involve fraud or bribery. Compliance with internal policy and procedures is mandatory. | |
| 1. Community Wellbeing | Events which may impact ACU as a safe working and learning environment for all staff, students, contractors and visitors. and its commitment to social justice, sustainable development and the protection of the ecological systems that enable human life. | |
| 1. Reputation | Events which impact ACU’s good name and standing among its many stakeholders. | |
| 1. Strategic | Events which fundamentally challenge ACU ability to pursue and achieve its goals, either in aggregate or at a whole of institutional level.  They may be triggered by changes in politics, regulation or technological advancements, developments in market and competitor conditions or the way ACU engages or interacts with key partners. | |
| 1. Financial | Events which challenge ACUs long term fiscal sustainability and ethical stewardship of financial and non-financial resources including revenue, budgets, capital expenditure, borrowings, changes in interest or foreign exchange rates, credit ratings, cash flow and liquidity for example. | |
| 1. Operational | Events which typically result from inadequate or failed internal processes, people and systems, or from external events. They can jeopardise ACU’s standards of operation or could lead to a loss of confidence within its communities, regulators, or other key stakeholders.  They may also include a breach of legislation, regulation, standard, policy or a procedure related to safety and health. | |
| 1. Educational | Events which challenge ACU’s ability to deliver a distinctively Catholic, inclusive, dynamic and quality student-centred education. | |
| 1. Research | Events which challenge ACU’s responsibility as a Catholic university to promote the common good, support human need and uphold human dignity through its focus on the entire ecosystem of research-related activity. | |
| 1. Project, Innovation and Transformation | Events which impact a project’s ability to deliver the services, products and value described in the Business Case (or equivalent). Most commonly, project risks impact the timeliness, cost or quality of the delivery.  In ACU, project risks are broken down into sub-categories, as listed below. The sub-categories are explained in Appendix 1. | |
|  | * Cost * Time * Quality / acceptance * Scope * Project Management * Business change * Process | * Governance * Resources * Commercial, contractual * Technical * Operating environment * Organisational |

1. Responses

The applicable responses to risks (threats) are presented below.

|  |  |
| --- | --- |
| Accept | **Acknowledge** the potential event but take no direct action.  E.g. Contingency funds, time or resources (“risk contingency”). |
| Escalate | Event **outside** of the project’s “sphere of influence”.  E.g. Transfer the risk to outside of the project (to program, elsewhere). |
| Transfer | **Transfer** the ownership to a 3rd party to bear the impact.  E.g. Warranty / guarantee, outsourcing, insurance. |
| Mitigate | **Reduce** the likelihood and/or consequence.  E.g. Simplify, test / prototype, selection of vendors. |
| Avoid | **Eliminate** the threat (likelihood ↓)  E.g. Change plans (schedule, scope). Clarify requirements. |

1. Roles

The key roles for risk management in projects are listed below. The relevant committees and other roles for organisational or university risks are listed in the [ACU Risk Management Procedure](https://policies.acu.edu.au/risk_management/risk_management_procedure) (section 9 Roles and Responsibilities).

|  |  |
| --- | --- |
| **ROLE** | **DEFINITION** |
| Project Manager | Project Manager is a role which is responsible for the day-to-day management and delivery of a project. They plan, direct and control the work done and resources used within their project. The role operates in close collaboration with the Executive Sponsor.  The role commences on approval of the respective Business Case, though a candidate Project Manager is sometimes used to assist the Executive Sponsor in developing the Business Case. The role ends at the closure of the project as the responsibility for the use of the project outputs shifts to the Executive Sponsor. |
| Risk Owner | The person who takes responsibility for the risk and ensures that the risk is effectively managed. Project risks can be owned also by members of Senior Management.  They ensure risks are appropriately identified, captured, and assessed based on ACU’s Risk Appetite Statement, Risk Matrix and Likelihood and Consequence Baselines. They also design and implement actions within appropriate timeframes, that will effectively mitigate risks where required, and ensure that risks are recorded and managed in risk registers. |

1. Risk register and other data

Project risks are listed and managed in the PPM System or an offline Risk Register (a part of the Project Controls Workbook[[2]](#footnote-2)). Both of these registers are project-specific.

If the project identifies any organisational or university-level risks, they need to be entered into ACU’s Enterprise Risk Management System (CARM).

The information expected for each project risk is itemised in the table below. Some risk registers have only a subset of the fields available but where possible, the project should use as many of them, as possible.

|  |  |
| --- | --- |
| **IDENTIFY** | * **Risk ID** – A unique running number for the risk. A prefix can be added to e.g. identify the project in a program (e.g. "TT-R08"). * **Category** – Which aspect of the project will be impacted if the risk eventuates? * **Title** – The name of the risk in one short sentence. Any reasons and explanations are given in the Description field. E.g. "Equipment installations delayed" or "Consultancy costs significantly higher than expected". * **Description** – A brief description of the risk event giving the key reason or background for it.   + In Sensei IQ PPM System this information is in two fields: Risk event, Causes. * **Date Raised** – When was this entry added, i.e. the risk identified and added to the register? * **Source** – Where or by whom was the risk identified? This can be any individual, a meeting / workshop, specific event in the project environment, message or document, etc. |
| **ASSESS** | * **Impact** – What will happen to the project if the risk eventuates but is not responded to? A short paragraph with one or two key impacts. * **Status** – Status of the risk in the lifecycle as of now (see the list below). * **Likelihood** – How likely is it that the opportunity or threat will happen? * **Consequence** – How big will the consequences be if the risk eventuates? * **Risk Rating** - Resulting rating (automatically calculated, [likelihood \* consequence]). Use this to prioritise your attention and project team's efforts to help or protect the project. * **Risk timing** – When does the risk event become active (in calendar time or project event). * **Owner** – Who owns this risk? This person is typically in a senior position and can prioritise and direct staff time and ACU resources to work on the risk when needed. |
| **PLAN** | * **Response** – How is the project going to act with this risk (choose a category)? * **Response Plan** – A brief description (free-text) of the action to be taken. * **Residual risk rating** - Rating [likelihood \* consequence] after the controls to prevent the risk have been implemented. |
| **CONTROL** | * **Action taken / comments** – A log / diary of the actions taken. All entries should be dated and have name or initials (e.g. "15/10/24 WG"). * **Date Closed** – When was this risk entry closed, i.e. the monitoring of it or work on it was completed or stopped? |

The possible risk status states are listed below. When a new risk is identified, the status is set to ‘New’ until the risk is assessed.

|  |  |
| --- | --- |
| **STATUS** | **DEFINITION** |
| New | A new risk which has just been identified. Work to assess it is yet to commence. |
| Assigned | The risk has been assessed and assigned to the Risk Owner. |
| In progress | The planning or control of the risk is active, led or overseen by the Risk Owner. |
| Pending | The monitoring or control of the risk is temporarily on hold. This status usually occurs only rarely. |
| Completed | The response to the risk has completed, Alternatively, the control of the risk has ended. This usually happens when the risk is active only during a certain period of time (e.g. risks related to equipment supply cease after the last successful and complete receipt of goods). |
| Rejected | The risk has been cancelled or the assessment has deemed the event to not be a genuine risk in the project. |

APPENDIX 1 – OPPORTUNITIES

Opportunities are positive events in the project. At this moment, they are uncertain but, if they happen, they will boost the project. The result can be a faster or cheaper delivery, better quality or a lower risk position. Your core focus should be in maximising the chances of opportunities to happen.

The basic process is identical to threats:

**Identify**

Name and articulate the opportunity. Determine which opportunities might affect the project and document each opportunity’s characteristics. This effort can start in the Initiate processes when a Business Case is developed, is further detailed in the Planning process, and can happen any time throughout the remainder of the project.

For each opportunity:

* Select the applicable category;
* Provide a description;
* Note the source of the opportunity (individual, team meeting, interview, data source, etc.).

**Assess**

Analyse the opportunity to see how it can impact the project.

Each opportunity needs to be assessed. This allows the project and stakeholders to understand the severity rating and start planning accordingly. A part of the assessment is specifying the triggers (what will cause the opportunity to eventuate) and potential timing (e.g. it can happen only after… or the opportunity expires when…).

**Plan**

For each opportunity, you need to decide on two aspects:

1. How to enable the opportunity to happen, and
2. How to respond and take advantage if it happens?

It often is difficult to guarantee that an opportunity will happen. However, you can usually try to increase the likelihood or consequence of an opportunity.

When planning for both the enabling and response, you should be mindful of the cost and effort involved in relation to the benefit from an opportunity.

* E.g., if the benefit with likelihood ‘possible’ would be a $5,000 cost saving to the project but it’d cost $3,000 and a full week worth of work at a HEW 8 level (approximately $2,800 with oncosts) to make happen, it’d be more affordable to ignore the opportunity (or let it eventuate on its own, if it is to happen). But if the same cost and effort increases a $10,000 ‘unlikely’ benefit to a $50,000 ‘likely’ value, it will be money well spent.

**Control**

Controlling focuses on implementing the plans made for enabling the opportunities.

You also need to continuously re-assess the opportunities to see if the likelihood or consequence would have shifted recently due to external events or changes in the project. This should be done together with the respective risk owners. Any changes would trigger a review of the plans you have for the opportunities.

**Respond**

If an opportunity eventuates, you need to respond to it. The Risk Owner leads the response and uses the plans you had made to guide the action taken.

The applicable response categories for opportunities are:

|  |  |
| --- | --- |
| Exploit | **Maximise** the chance the opportunity can happen (likelihood ↑).  E.g. Use of technology, project team composition, extra funding. |
| Enhance | **Increase** the likelihood and/or consequence.  E.g. Target root causes (ask 5 Why’s) and try to make that happen, or increase size of the result. |
| Share | **Transfer** the ownership to a 3rd party or share benefits with them.  E.g. Joint profit-sharing or cost-saving arrangements. |
| Accept | **Acknowledge** the potential event but take no direct action. |
| Escalate | Event **outside** of the project’s “sphere of influence”.  E.g. Transfer the opportunity to outside of the project (to program, elsewhere) for potential action. |

APPENDIX 2 – PROJECT RISK SUB-CATEGORIES

The project risks are divided into subcategories, as follows. The list below provides examples of each subcategory. The Project Manager should use their professional judgement and recategorise risks in cases where the examples below and the actual risks in the project would better fit a different category.

|  |  |
| --- | --- |
| Benefit | * Project is not based on sound business case. * Project benefit measurements ambiguous or complex to execute. * Benefit measurement data sources or methods undefined. * A change in the project delivery dilutes a benefit. * Project goals are unclearly defined and communicated. |
| Cost | * Project funding is not approved, committed or secure. * Effort estimates (cost) are not correct. * No historic information available for project estimates. * Budget is set before all costs are identified and estimated. * Entire project budgeted at the outset with no estimate range for later phases (potential under-funding of later phases). * Maintenance is under-funded. ACU is unprepared for or does not budget for on-going maintenance, licensing or subscription. * Funding model excludes staff time consumed in delivery or maintenance or the outputs. * Exchange rate fluctuation. * Market developments will adversely affect plans or pricing. * Increased dismantling / decommissioning costs |
| Time | * Target date dictated by external entity. * Setting target date / budget with little or no regard to expected work effort and resource availability (artificial deadlines). * Project duration has not been clearly defined. |
| Quality / acceptance | * Acceptance criteria for project deliverables or each business requirement not defined & documented (lacking specification of when is a deliverable ready). * Documentation inadequate for support organisation's needs (team internal support, Service Central, IT, etc). * Externally set quality constraints. * Aggressive quality requirement(s). * Project not using proven methodologies. |
| Scope | * Scope is set without regard for resource, budget, and / or time constraints. * Scope not clearly defined before project work is estimated and/or started. * Scope ‘creep’. * Expectations or deliverables have not been clearly defined. * Specifications are preliminary and lack sufficient detail. * Scope definition not approved by key stakeholders - lack of commitment to scope. * Scope encompasses multiple environments - software, hardware, processes, services, etc, or both student and staff facing systems. * Business is in discovery-mode - not sure of what they want and / or not sure what the business process should be. * Planned scope will not be adequate to produce the desired product. * Unwritten requirements / expectations exist. * Requirements will be technically difficult to implement. * Scope includes complex algorithms. * New / unfamiliar subject matter for business and / or developers. * Requirements are ambiguous and may be misinterpreted. * No requirements sign-off by the Executive Sponsor. * Requirements are not stable. * Lack of an effective scope management or project change control. * Lack of agreement / commitment to scope management or change control. * Project Manager does not have good knowledge of the project scope. |
| Project Management | * Project Manager lacks sufficient capacity. * Lack of effective project management skills in relation to the nature of the project. * Business’s product owner or project management capabilities / experience level ineffective in relation to the nature of the project. * Stakeholders do not agree with or approve project plans. * Lacking or inadequate definition of roles and responsibilities or definitions not accepted. * Lacking working relationship between Project Manager and Executive Sponsor. * Project Manager lacks knowledge of the business. * Project team is not clearly defined. * Management authority and responsibilities have not been accepted - Project Manager has no "authority" over project team members. * Failure to manage end user expectations - growing sophistication of users leads to higher expectations. * Lack of people skills in project leadership. * Lack of effective project management methodology or tools. * Poor or non-existent controls or governance - no sign-offs / approvals. * Poor risk management. * Poor or vague project communications - status, plans, updates, etc. * Project Manager not familiar with the development methodology. * Failure to source and utilise lessons learned. * Lack historic data on past similar projects. * Multiple constraints for the project (time, cost, quality). * Inadequate planning – an attitude that planning is unimportant or impractical. * Task duration and / or work effort estimates made by someone other than the resources that will do the work. * No planning for potential failure modes / risk management. * Plans were made, but not updated / managed. |
| Business change | * Executive Sponsor change is likely. * High number of people or groups who will be affected by the project outcome (more people / groups = more risk). * Multiple organisational units involved - number of organisational boundaries to be crossed. * Stakeholders have the desire and / or ability to resist the project's deliverables. * An un-optimal number of key stakeholders - none is bad; too many is bad. * Not managing business and technical changes properly - no Business Change Plan for complex projects or the plan is not followed. * Change targets are experiencing / will be experiencing lots of other change at the same time this project 's deliverables are deployed. * Not all stakeholders are identified and engaged. * Multiple relationships with stakeholders - stakeholder is both a partner and a customer (on different projects). * Business, management or end users not engaged and supportive of project's deliverables. * Business does not understand the end user impact. * Little or no work planned for user support (training, documentation, communication, etc.) or they are only an afterthought. * Change targets are unwilling or unable to make changes necessary for the successful deployment of the project. * Plans are not in place to provide necessary communications and training, and motivation / incentives to impacted staff and students. * Training forum / media doesn’t meet impacted users’ needs. * Impacted users are not enrolled or committed to take the provided training. * Upper management approval / commitment is lacking. * Not all involved managers communicate in a timely and effective manner, both up and down the organisational structure. * A high level of PR or communications effort must be expended to address concerns. * Not all stakeholders give the project the same priority. |
| Process | * Performance failure * Mismatch between company culture and required business process changes required for the solution. * Lack of clarity over roles and responsibilities * Inadequate or inaccurate information * Poor business process - attempting to develop a solution where business process is not defined / stable. * Business does not understand current business processes. |
| Governance | * Project or product causes appearance of an illegal situation (contractual issues when procurement is part of the project). * Other projects depend on this project. |
| Resources | * Resource requirements not estimated - resource usage not managed. * Not enough resources to meet desired target date. * Resource availability not as high as planned into the schedule. * Resource usage planned at too high a level (85 - 100%). * Resources not committed to project or the workplan does not cover all of the resources' work. * Project team has little or no buy-in to the project schedule. * Resources with required skills not available. * Key resources not available when needed. * Using untrained / inexperienced resources. * Project team has members unfamiliar with the subject matter. * Resources not motivated to create a quality product. * Project lead not familiar with team. * Team members have not worked together before. * A high number of resources involved (more resources = more risk). * Resources located in multiple geographic locations - more risk with different countries/cultures, languages, and time zones. * Facilities / infrastructure are not suitable for developing / delivering the required product. * Likelihood of resource changes. * Lack of adequate business / user (representative) involvement. * Excessive use of outside consultants. * Poor team relationships due to such things as burnout or conflicting egos / attitudes. * Human error / incompetence |
| Commercial, contractual | * Complex contract which may cause delay in sign-off or impact duration, costs, and / or benefits achieved. * Failure of suppliers to meet contractual commitments or significant under-performance. This could be in terms of quality, quantity, timescales or their own exposure to risk. * Lack of control over consultants, vendors, and sub-contractors. * Collapse of contractors. * Insolvency of promoter. * Market fluctuations. * Partnerships failing to deliver the desired outcome. * Lack of availability of capital investment. * Failure to achieve satisfactory contractual arrangements. * Changes in tax or tariff structure. * Professional negligence |
| Technical | **Design**   * Requirements are difficult to design. * Design will be difficult to maintain. * Design is not stable. * Project includes multiple, interdependent, technology components provided / supported by different vendors. * Using new technology during important, highly visible project. * Using established technology in an unproven way. * Scope involves unproven technologies. * No suitable technology or other components available. * High number of interfaces and / or integration points. * Interfaces not known or well defined. * Multiple vendors, contractors, and / or consultants involved with project. * Technology infrastructure is not stable. * Have to modify (customise) software. * Stringent data security required. * Stringent physical security required (site, hardware, etc.). * Inadequate design * Infrastructure failure * Operation lifetime lower than expected * Residual maintenance problems * Breaches in security / information security * Lack or inadequacy of business continuity * Project team will "gold-plate" deliverables (provide more than what is required or go beyond requirements).   **Methodology, tools**   * High degree of innovation. * Development and/or hardware limits the ability to meet requirements. * Lack of effective process / methodology - can lead to quality problems, poor estimates, rigid designs, insufficient testing, etc. * Choosing an inappropriate development strategy. * Project team not familiar with development methodology. * Development methodology not being followed. * Fail to re-use available software components, where possible. * Failure to utilise lessons learned. * Inadequate software configuration management tool / process.   **Testing**   * Lacking ability or capacity to estimate and test performance prior to actual release - will the product meet required performance expectations. * Technology changes will occur during the development / testing / deployment phase(s). * Solution will be difficult to test. * Insufficient time allotted for the unit / system / product / user testing, or skipping testing. * Inadequate opportunities for integration testing. * Difficulty to develop realistic test scenarios and test data to demonstrate requirements are met. * Expected test results and potential tolerances not specified or are ambiguous. * No or poor regression testing. * Not using automated testing tools when available and appropriate. * Not performing end user developed tests. * Not conducting performance and stress testing, where appropriate. * All testing done by development team. |
| Operating environment | * New or changed legislation may invalidate assumptions made in the project. * Failure to obtain appropriate approval, for example, planning, consent. * Change of government or accreditation policy or requirements * Adverse public opinion / media intervention * Sponsor has hidden agenda. * Operating conditions are likely to change, impacting project scope. |
| Organisational | * Organisational structure inadequate for supporting the project. * Pre-emption by project with higher priority - management unable to resolve conflicting demands. * Climate or amount of change in the business and organisational environment creates instability in the project. * External pressures lead to project instability or becoming obsolete. * Conflict between user / client departments. * Management lacks competence in the specific domain * Inadequate or vague corporate policies * Key personnel have inadequate authority to fulfil their roles * Poor staff selection procedures (project team, etc) * Vested interests creating conflict and compromising the overall aims * Individual or group interests given unwarranted priority * Personality clashes * Indecision or inappropriate decision making * Lack of operational support * Health and safety constraints or being compromised * The number of different campuses involved. * Conflicting organisational objectives present. * Change in senior management or key staff. * Conflict between organisational units or stakeholders. |

1. Available at https://policies.acu.edu.au/risk\_management/risk\_management\_procedure. [↑](#footnote-ref-1)
2. Available from the [ACU Project Management Templates page](https://staff.acu.edu.au/our_university/projects/project_management_templates) in the staff intranet. [↑](#footnote-ref-2)