VIRGINIA
IT AGENCY

Project Risk Management

Barbara Bronson
PMD Consultant

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Housekeeping

- Logistics
- Timing
- Breaks
- Materials/Slides: Will be distributed after class
- For additional questions, check with your PMD consultant
- Name
- Agency and role

Agenda

- What is Risk
- Phases of Risk
  - Plan
  - Identification
  - Evaluate and Analyze
  - Document
  - Manage & Control
  - Report
- CTP walk-thru

Key Terms

- Expected Monetary Value (EMV): A decision-making tool that assigns a monetary value to each potential quantifiable risk of a project
- Probability Percentage: A calculation that takes the impact and the probability to assign a monetary value to a risk
- Impact: The consequences to the project if a risk occurs
- Probability: The chance that a risk will happen and create an impact on a project
- Qualitative: Assessing individual risks by evaluating the likelihood of each risk occurring and the potential impact of each risk on the project objectives
- Quantitative: Calculating the potential impact of risks on project objectives using current plans and information, considering all risks together

Why are we here?

Risk management is crucial in IT project management because it allows project managers to proactively identify, analyze, and plan responses to potential issues that could derail a project

- Increases the chances of successful delivery on time and within budget
- Minimize negative impacts and maximizing opportunities presented by unforeseen circumstances
- It helps to prevent problems from escalating and allows for more informed decision-making throughout the project lifecycle
- Commonwealth has an increased focus on managing risks to reduce loss of citizen dollars

What is Project Risk

Project risk is the possibility of an event that could negatively or positively impact a project's outcome. It can affect a project's budget, timelines, and deliverables, and if not managed properly, it could lead to the project's failure.

What are common risks on projects in the Commonwealth?

Risk Management Phases

Plan Risk Management

Develop Risk strategy
Determine plan execution

Risk Identification

Identify
Categorize

Evaluate & Analyze

Probability & Impact
Classification
Quantify

Document

Risk Responses
Triggers
Mitigations

Manage & Control

Response Plan
Track Risks
Evaluate New Risks

Report

Progress
Status
Issues

Plan Risk Management

- **Plan Risk Management:** The objectives is to develop a comprehensive risk management strategy for the project
- Define how risk management processes will be implemented and ensure integration with all other project management activities
- Determine the type and level of risk details required, and provide a risk register for documenting and recording risk-related information
- Specify the frequency that Risk Management processes should be applied

CTP Category	Minimum Frequency
1- High-Risk	Monthly
2	Monthly
3	Quarterly
4	Quarterly

Risk Categories

Risk categories should be identified before risk identification begins; these should include the most common risks that are typical to the agency. Risk categories help organize, rank, and isolate risks within the project.

Technical, quality, or performance risks:

- New, unproven, or complex technology being used on the project
- Changes to the technology during the project implementation can also be a risk
- Quality risks are the expectations impractical regarding quality and performance
- Changes to agency standards during the project can also be lumped into this category of risks

Project management risk:

- Faults in the management of the project
- Unsuccessful allocation of time, resources or scheduling

Risk Categories cont.

Organizational risks: The performing organization can contribute to the project's risks through:

- Unreasonable cost, time, and scope expectations
- Poor project prioritization; inadequate funding or the disruption of funding
- Competition with other projects for internal resources

External risks:

- Outside of the project but directly affect it
- Legislative, legal, weather, economic

Risk Identification

- **Risk Identification:** Risk identification begins early in the project to allow adequate time for planning risk responses
- Occurs throughout the life of the project
- The process starts with a list of potential risks that could impact the project's ability to achieve its objectives/cost/schedule
- Ongoing discussions between the Project Manager, Risk Manager (as applicable) and the project leadership, including stakeholders and team members, help identify potential sources of project risks
- Part of the PIA process, initially identified in IBC

Methods of Risk Identification

- **Brainstorming:** Typically conducted in a meeting where one idea sparks another generating additional risk insights
- **Expert interviewing:** Involves the team or project manager interviewing project participants, stakeholders, or subject-matter experts to identify potential project risks
- **Root cause analysis:** Used to identify the underlying cause of a problem and determine preventive measures to avoid it in the future
- **Strengths, weaknesses, opportunities and threats analysis** (SWOT): Analyzes the project to identify these four areas and their associated risks

Writing the Risk

A risk description should include three main components:

- The risk event
- The risk description (consequence)
- The risk impact

These components combine to give a comprehensive understanding of the potential risk and its possible consequences.

"If *<event X>* happens then there is a risk <consequence> that the project could be impacted in *<Y way>*"

If the new HR software is not delivered by May 1st, then we may have to extend the contracts for the HR software testing team meaning there would be an increase in budget required.

Writing the Risk

A risk description should include three main components:

- The risk event
- The risk description (consequence)
- The risk impact

“If *<event X>* happens then there is a risk <consequence> that the project could be impacted in *<Y way>*”

- Insufficient network bandwidth to support real-time data transmission
- Compatibility issues between legacy systems and new technology
- Outdated hardware or software impacting system performance

Risk Evaluation

Risk Evaluation: Once potential risks have been identified and analyzed, the project team evaluates each risk based on the likelihood of it occurring and its potential impact.

- Not all risks are the same
- Some risks are more likely to occur than others
- The cost or schedule impact of a risk can vary significantly

The next step in the risk management process is to assess each risk based on its probability of occurrence and the severity or potential loss to the project.

Tools: Risk Matrix, sometimes referred to as a probability and impact matrix

Risk Evaluation: Risk Exposure

Risk Exposure:

- Risk exposure is calculated by multiplying the probability of a risk occurring by its potential impact
- This is done by assigning numerical values to both the probability and impact, which together represent the potential exposure to the project
- This analysis provides a framework for identifying which risks are most likely to affect the project's outcomes

Commonwealth Specific:

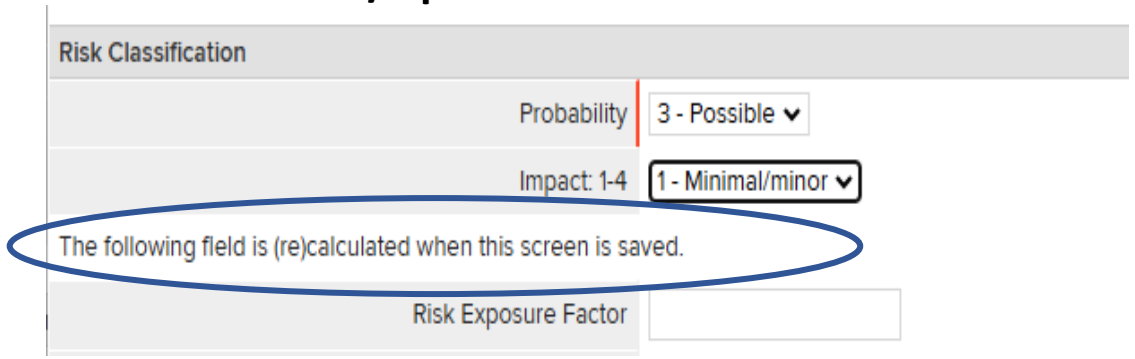
- In CTP Ranking: Probability 1-4 and Impact 1-4
- Risk Management Plan can be sorted by the Risk Exposure Factor to show the highest risk

Risk Evaluation: Risk Exposure

Risk Exposure Factor Calculation:

- Rule of thumb for ranking:
  - 1: 1% - <25%
  - 2: 26% - <50%
  - 3: 51% - < 75%
  - 4: 76% - ≤100%
- The risk exposure is automatically calculated when the screen is saved
- The higher the number, the more likely the risk will impact the project
- The value lies in prioritizing risks with the highest exposure factor for the team to address first

CTP Before Save/Update Button:



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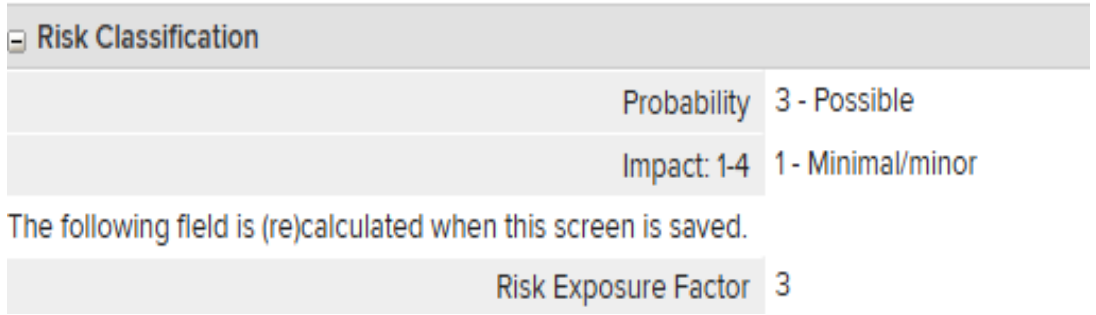
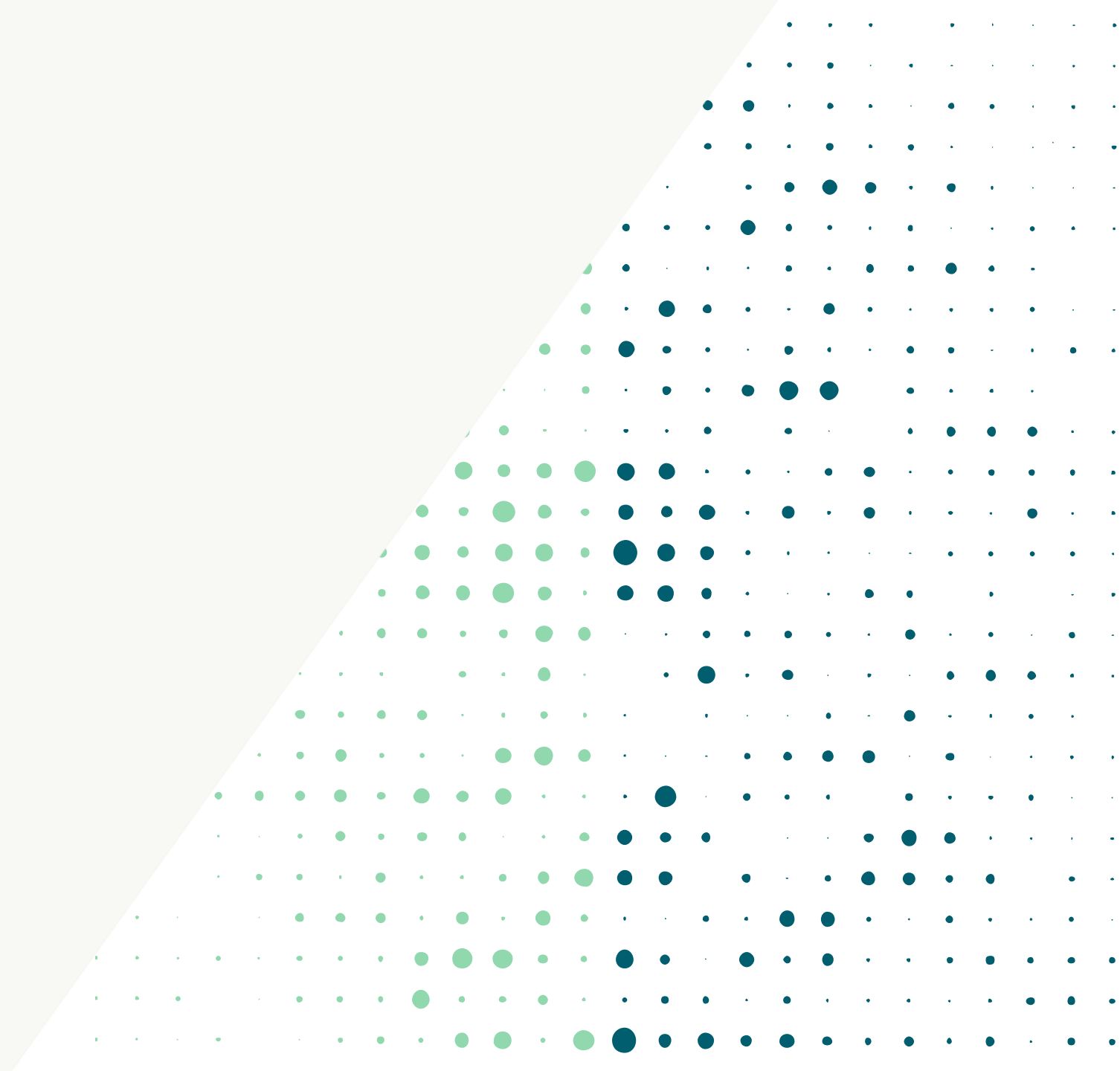


Break



Risk Categories - Exercise

Brainstorming

The pandemic created a never before seen (in this lifetime) set of risks for projects. Look at the risks as they were in 2020 at the start of the pandemic. Then look at the risks if another pandemic started today.

Collective Brain Dump

- Whiteboard every risk without any discussion—don't discard anything. Even an outlandish statement might inspire someone else to identify a real risk

Clean it Up

- Remove items that are unlikely to be actual risks
- Organize the remaining risks from most likely to occur to least likely

Analyzing Risk - Qualitative

Analyze the risk: Once risks are identified, the next step is to assess the likelihood and consequence of each risk. Understanding the nature of the risk and its potential impact on project goals and objectives is crucial.

- There are two types of risk analysis: qualitative and quantitative
- This information is then recorded in the Project Risk Register

Qualitative Risk Analysis:

- Qualitative Risk Analysis involves assessing individual risks by evaluating the likelihood of each risk occurring and the potential impact of each risk on the project objectives.

Subjective	Difficult to Quantify
External Factors	Technical Uncertainty
Integration Challenges	Stakeholder Resistance
Security Vulnerabilities	Reputation Risk
Team Dynamic Issues	Regulatory Compliance Concerns

Risk Classification - Qualitative

- **Probability:** How likely is probability that the risk will occur
  - 4: Highly likely/probable
  - 3: Likely
  - 2: Somewhat likely
  - 1: Unlikely/improbable

Probability	Impact 1	2	3	4
4	Low	Medium	High	High
3	Low	Medium	Medium	High
2	Low	Medium	Medium	Medium
1	Low	Low	Low	Low

- **Impact: If the risk were to occur, what impact would it have on the success of the project**
  - 4: High: Threatens the achievement of business vision or severely reduces project benefits
  - 3: Moderate: May delay achievement of the vision or reduce project benefits
  - 2: Low Risk: You can easily handle the consequences of this risk.
  - 1: Minimal/minor: No impact on business vision but may increase project costs and timescales

Risk Evaluation: Risk Exposure/Qualitative Analysis

Risk Exposure:

Use probability and impact scale to calculate the risk exposure for this item

- You have a new resource starting on the project (software development) with little experience. There is a concern that the resource might under-perform
  - What ratings do you give Probability and Impact and why
  - What is the Risk exposure on this
  - Are costs in this example quantifiable with more details

Risk Evaluation: Risk Exposure/Qualitative Analysis

Risk Exposure:

Use probability and impact scale to calculate the risk exposure for this item

- The General Assembly is in session and considering a budget line item that will require the addition of features to one of the agencies systems. You are currently on sprint 4 of 10 working on enhancements to this system
  - What ratings do you give Probability and Impact and why
  - What is the Risk exposure on this
  - Are costs in this example quantifiable with more details

Risk Classification - Quantitative

Quantitative Risk Analysis:
Quantitative Risk Analysis calculates the potential impact of risks on project objectives using current plans and information, considering all risks together.

The results help evaluate the likelihood of successfully achieving project goals and determine appropriate contingency reserves, typically for time and cost, based on both the identified risks and the project stakeholders' risk tolerance.

Probability: How likely is probability that the risk will occur

Impact: If the risk were to occur, what impact would it have on the success of the project

- Estimate the “risk probability,” from 1 percent to 100 percent, of a risk occurring
- Estimate the “risk impact” of the risk in dollar terms
- Multiply the “risk probability” by the “risk event impact” to calculate “expected monetary value.”

Risk Evaluation – Expected Monetary Value (EMV)

Expected Monetary Value (EMV):

- EMV is a decision-making tool that assigns a monetary value to each potential quantifiable risk of a project
- It's a key method for managing and monetizing project risks
- Effective in showing the total risk value to the portfolio when applied to all projects
- To calculate risk scores for IT projects, you can multiply the probability of an event by its financial impact:

EMV= Impact(Estimated Cost) * Probability Percentage

EMV – How Do We

EMV: Common IT project risks:

- Resource needs to be away/or pulled
- Vendor lagging
- New Regulation/law
- Poor requirements
- Scope creep
- Need hardware/software that was not in the original budget

Challenges in Risk Quantification

- Data limitations (Availability and Quality)
- Complexity of models/scenarios
- Uncertainty in assumptions (Difficulty to predict/biases)
- Stakeholders
- Difficulty in estimation (Expertise required)
- Over reliance on the math
    - Qualitative should not be discounted – compliment not replace

CTP Risk Quantification

CTP Before Save/Update Button:

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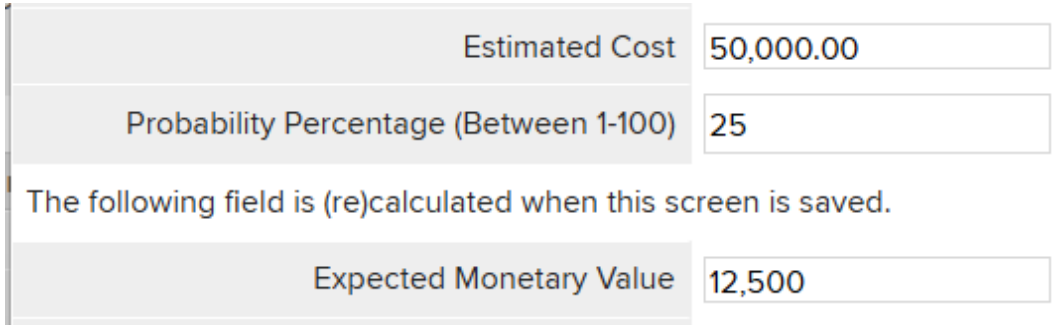


Estimated Cost: The estimated financial impact to the project

Probability Percentage: 1-100% Not an exact science

Expected Monetary Value (EMV): estimated cost x probability percentage – Calculated automatically on page save

Risk Quantification: Risk Exercise

Risk Quantification:

- Your Sr. Oracle developer on the enhancement project shares that he has family issues out of town that may require him to travel home for a 2-week period. (rate of pay $250 hr)
- Your sprint team runs 4 hours a day in 2-week sprints

Risk Management – Response Planning

Response Planning

Effective risk response planning is crucial for ensuring project success and minimizing negative outcomes.

- Identifying Risks Early: Enables teams to detect potential risks and their causes before they escalate
- Prioritizing Risks: Helps teams focus on risks based on their urgency and potential impact on the project's timeline and budget
- Allocating Resources: Ensures that resources and budgets are properly assigned to address risks
- Making Informed Decisions: Supports teams in making well-considered decisions under pressure

Risk response plans provide stakeholders with confidence that the project team has identified vulnerabilities and developed a strategy to address them

Risk event Response Planning (Mitigation)

Risk Responses:

- Avoidance/elimination—Avoidance/Elimination: Adopting a completely different approach to the task to eliminate the risk entirely
- Transfer: Shifting the risk to another party, such as a supplier or insurer
- Mitigation: Creating a plan to reduce the likelihood and/or impact of the risk event
- Acceptance: Acknowledging the risk and accepting the consequences if it occurs
- Escalation: Transferring the risk to a higher authority or stakeholder when it exceeds the capabilities of the project team or the original risk owner

Risk Responses

Effective Risk Responses have the following characteristics:

- Appropriate to the risk's significance
- Timely
- Owned by someone

Exercise

Risk Mitigation (Responses):

- What are the risks?
- What are the mitigations and why?

- Replacing a 20-year-old tracking system that barely works.
- Most employees that use the current system have been with the agency forever, leveraging the new system will be a new concept for the employees
- IT will need to learn/acquire new skills that are difficult to come by on the current market to support

Risk Management – Response Planning Triggers

Document

Triggers:

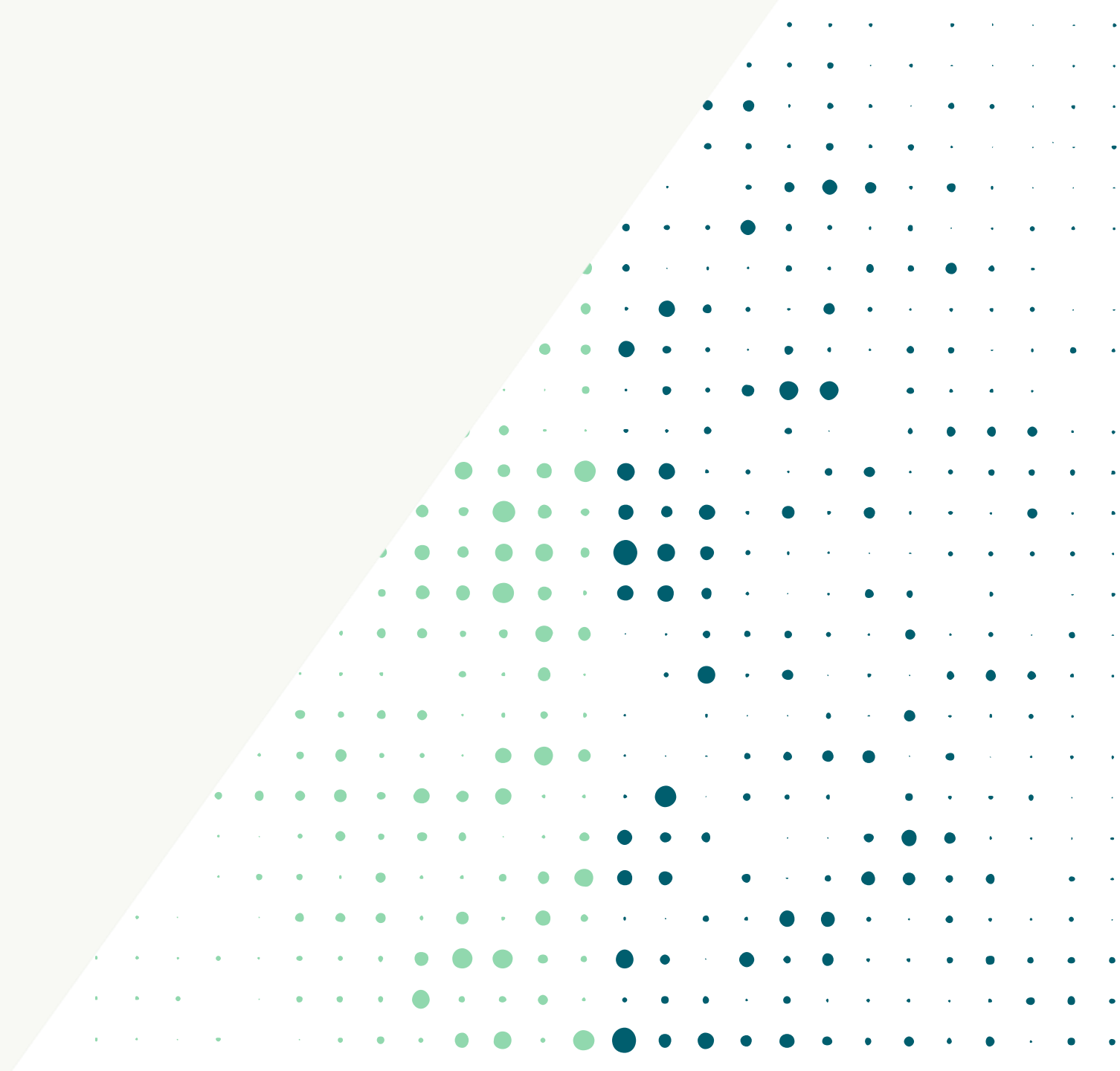
- A risk trigger is a signal that a risk is either about to happen or has already occurred
- Risk triggers can be identified during the risk identification process
- They should be documented and continuously monitored throughout the project's execution
- Once a risk trigger occurs, the project team must take appropriate action to implement the risk response

Risk Management – Exercise

Mitigation and Triggers

- Resources who perform below expectations
- Added workload or time requirements because of new direction, policy, or statute
- Sponsor/Product Owner scope creep
- Unclear requirements
- Resource shortages and Skill gaps

Break



Risk Manage and Control

The risk manage and control phase is an ongoing process that provides information to support decision-making before risks materialize. Since risks evolve as a project advances, it's crucial to monitor and manage them throughout the project's lifecycle.

- Response Plan
- Adding new Risks
- Tracking Risks

Risk Management Plan

- Risks are usually documented in a Risk Register
- *A Risk Register is a project management tool that helps identify, assess, and manage potential risks throughout the project
- It is an essential part of the risk management plan and is used throughout the project's lifecycle, especially during the initiation and execution stages

- CTP has a Risk Management Plan screen for inputting risk information
- Category 1 projects (High risk) enter all risks into the Risk management plan screen
- Category 2-4 are asked to enter the top 5 risks
- These should be updated with every status report

*PMI definition

Risk Responses

Risk response provide the framework to contain unexpected hurdles, keeping your project progressing smoothly toward completion on track

- They allow you to get ahead of risks before they escalate. By anticipating issues, you can address them early on
- When something unpredictable happens, you aren't left scrambling
- Your responses guide well-thought-out decision-making under pressure
- Preparation means you can cope without wasting time or money when risks do strike
- Your stakeholders feel assured that you've considered project vulnerabilities and have a remedy prepared if the need arises

New Risks

New Risks/Tracking Risks:

Actively and continuously evaluate the project and environment /people for emerging potential threats or issues that could impact the project's success,

- Identifying as early as possible and taking appropriate actions to mitigate their impact;

Regularly reviewing project progress, stakeholder feedback, and changing circumstances to identify new risks that may not have been considered initially

- Risk register is a living document
- New risks will occur throughout the life of the project

Reporting Risks

Risks should be reported to the IAOC/Steering Committee, along with an assessment of the effectiveness of risk controls. They should be clear and contain:

- Include details on actions taken
- Preparations for upcoming risk-related activities
- Any inputs required from stakeholders

Commonwealth standards for High-Risk projects

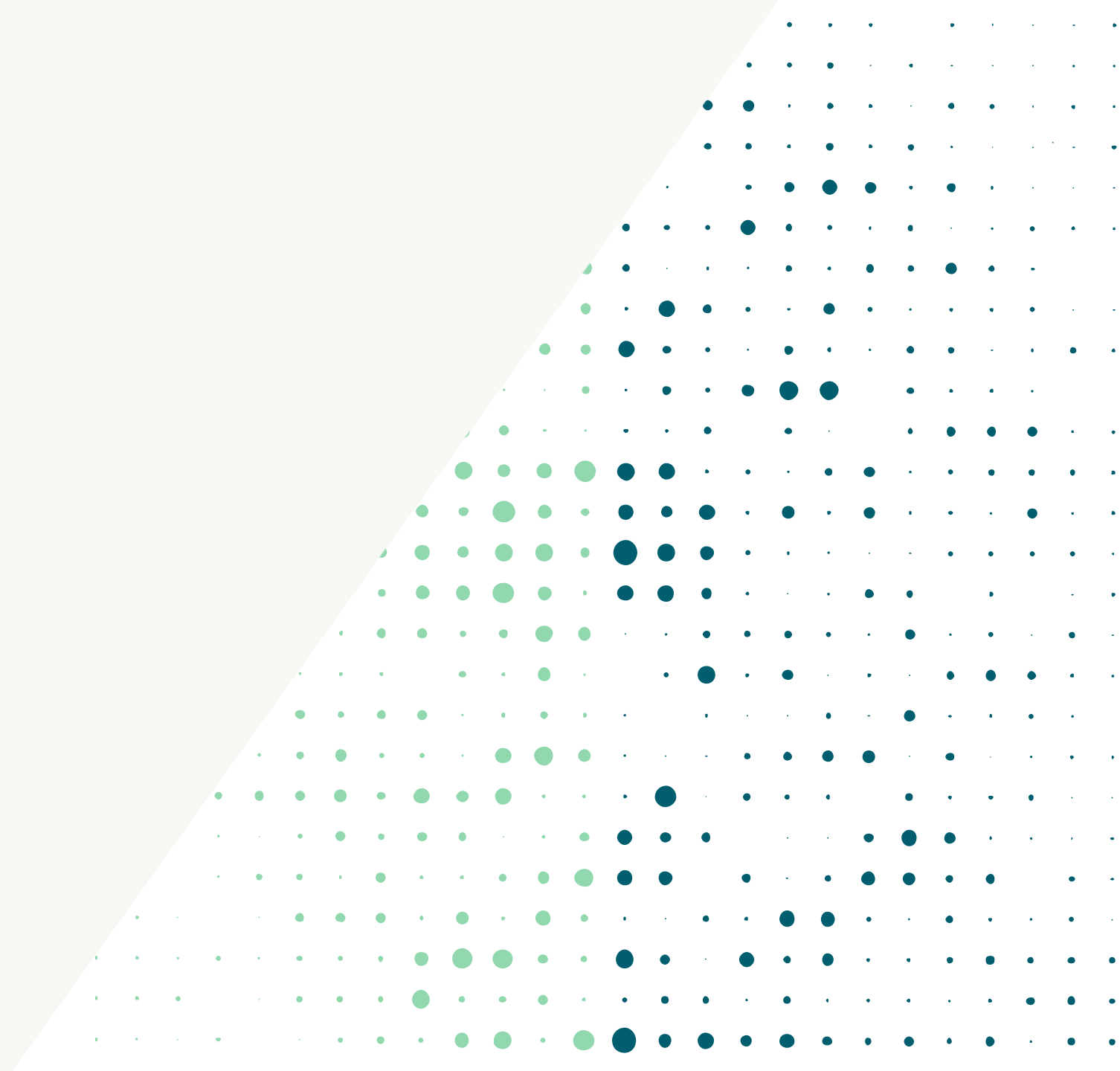
- High-Risk (Category 1) projects are required to have a risk manager that is not the project manager
- Risk meeting that include the PMD consultant – Monthly
- Part of quarterly Secretariat reporting

Reporting and Monitoring

Risk Report:

- Sources and owners of overall project risks
- Current project risk status
- Total number of identified risks
- Risks that have occurred (issues now) and the mitigation taken in response (results)
- Updates on probability of occurrence for current risks
- Financial and schedule impacts of occurred risks

Break



CTP Risk Management Plan

Risk Management Strategy

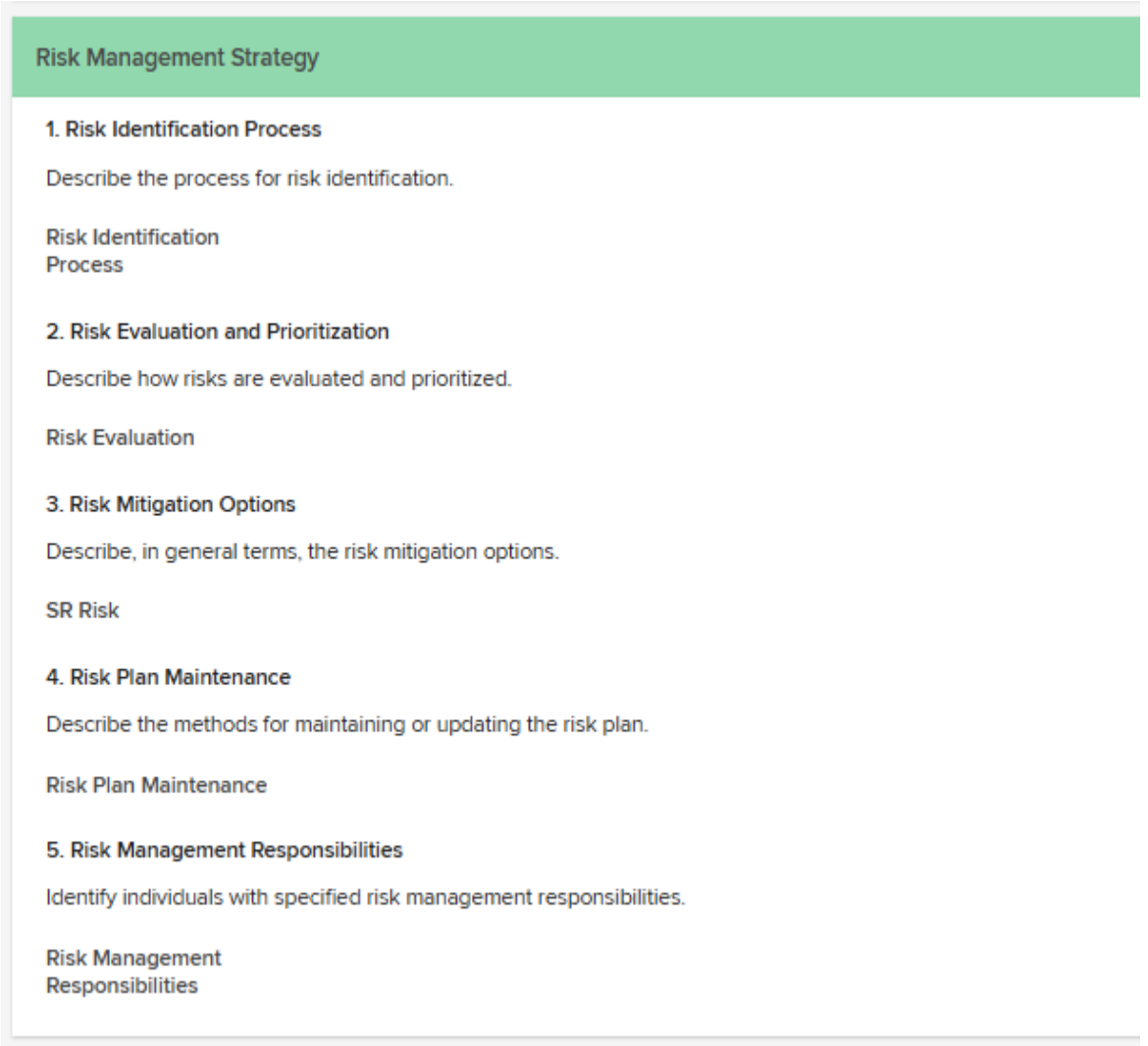
Risk Identification Process: Describe the process for risk identification.

Evaluation and Prioritization: Describe how risks are evaluated and prioritized.

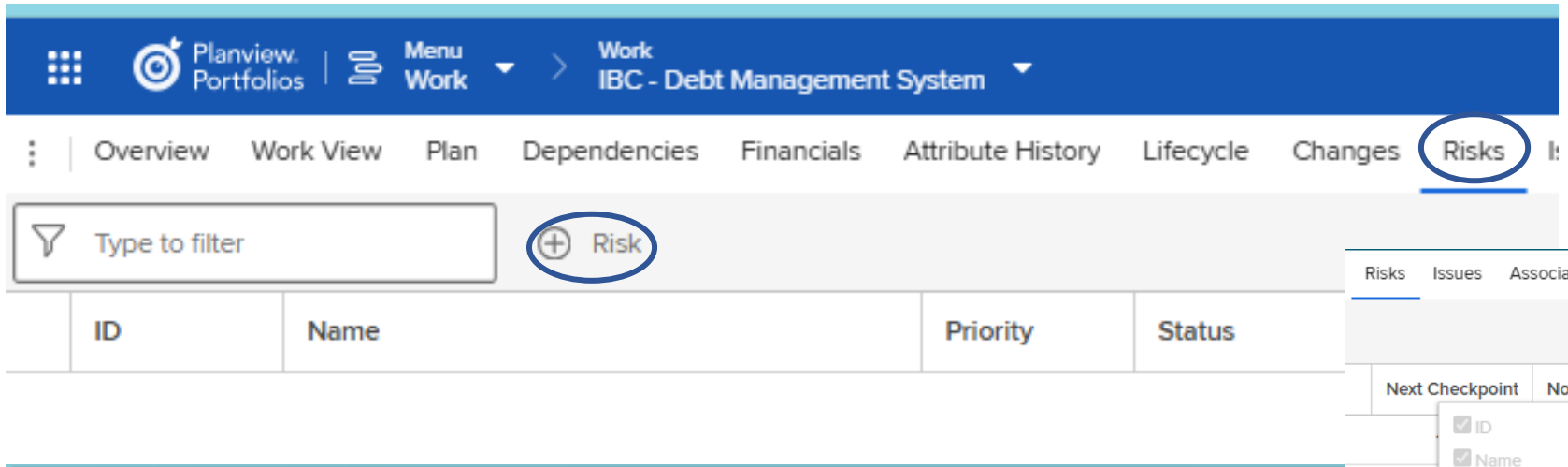
Mitigation Options: Describe, in general terms, the risk mitigation options.

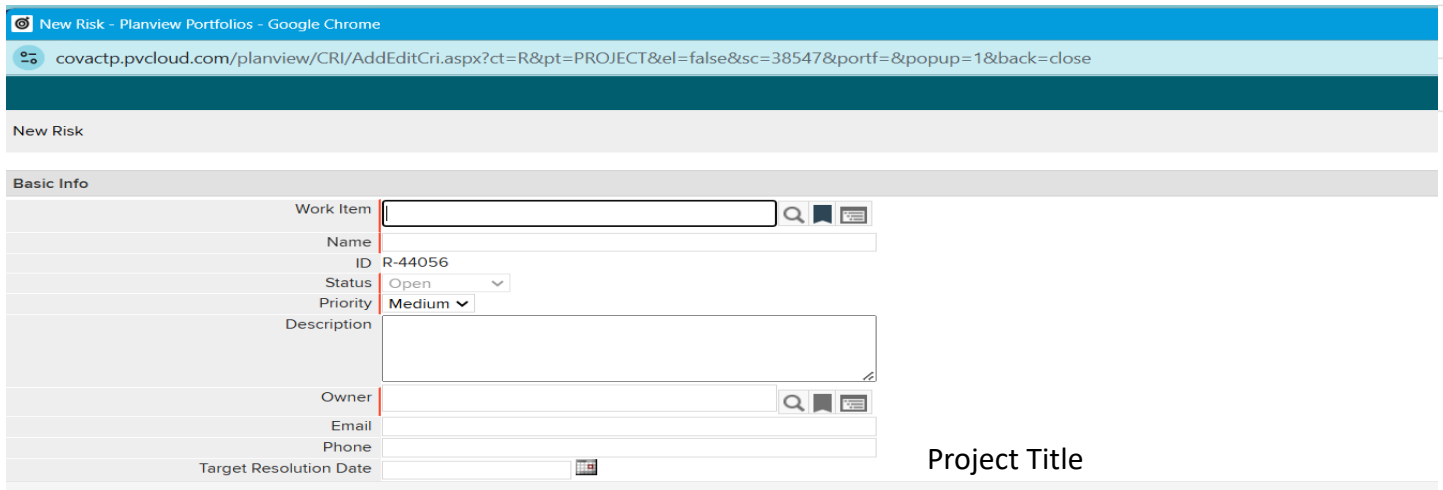
Risk Plan Maintenance: Describe the methods for maintaining or updating the risk plan.

Risk Management Responsibilities: Identify individuals with specified risk management responsibilities



CTP Risk Management Plan

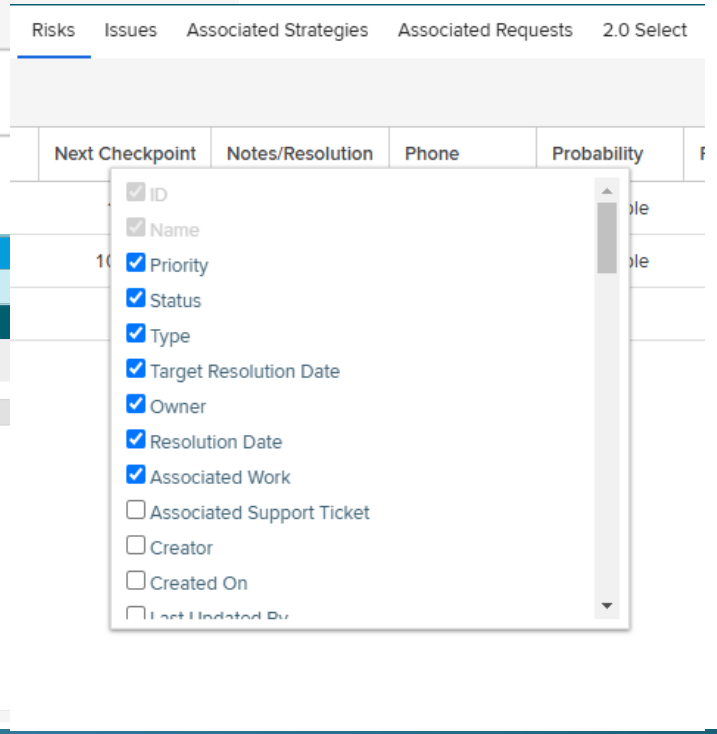




Project Title

Tips

- Drag and drop fields
- Remove unwanted fields



CTP Risk Management Plan

Manage & Control

Work Item: The name of your project

Name: Descriptive name of the risk

ID: This refers to a unique ID number you use to identify and to keep track of the information in your template. – Preassigned in CTP

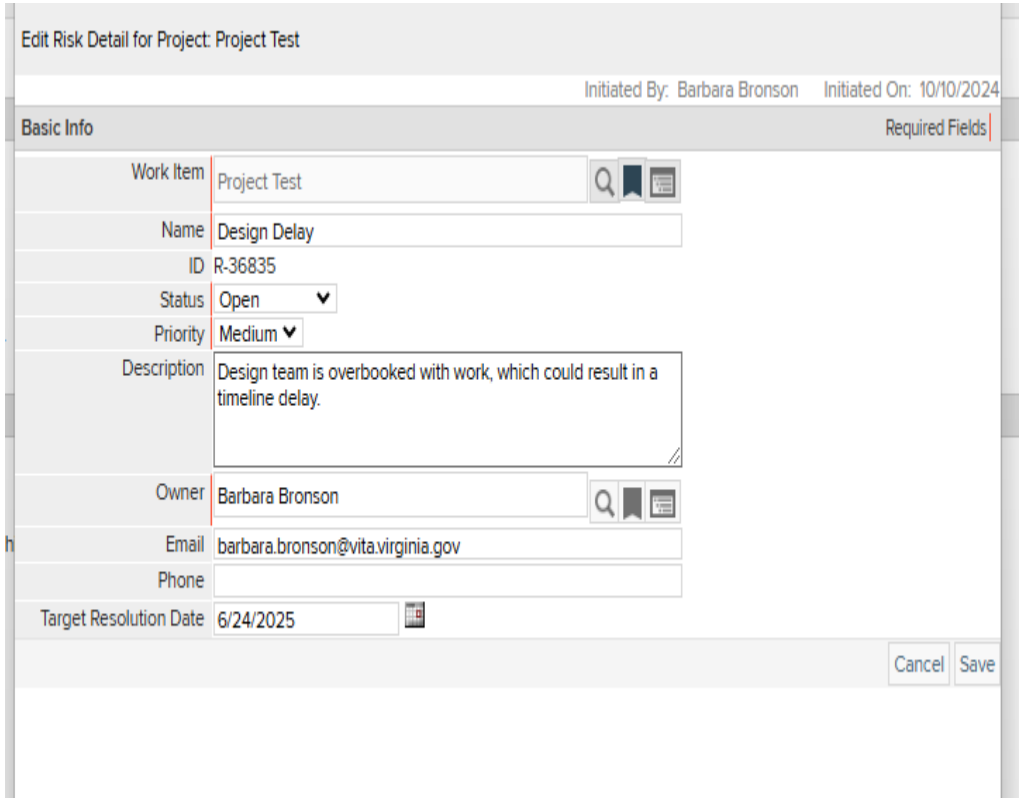
Status: Approved, Closed, Disapproved, Escalated, On-Hold, Open, Transferred

Priority: High, Medium, Low

Risk Description: This refers to a short description of each of the risks. It's important to include this so anyone else who reads your project risks knows what each risk is all about.

Owner: Risk Owner

Target Resolution Date: Approval Desired by Date



CTP Risk Management Plan

Risk Basic Information

Name, Description: Carry over from previous screen

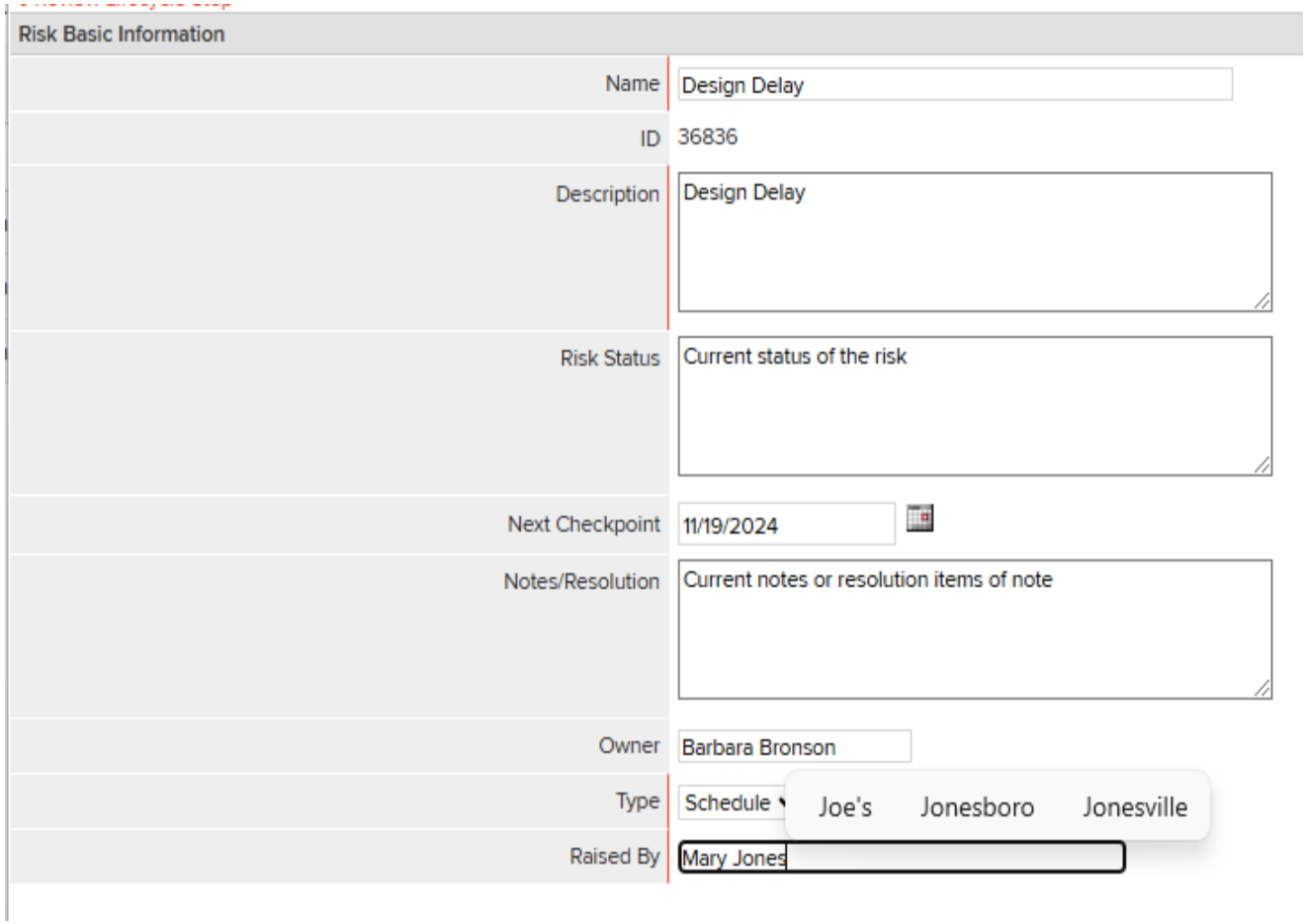
Risk Status: Current status of risk

Next Checkpoint: Next point

Notes/Resolution: Current notes or items relevant to the resolution of the risk

Type: Scope, Schedule, Budget

Raised By: Person that identified risk



CTP Risk Management Plan

Risk Classification:

Probability: likelihood that the risk will occur

Impact: the consequences to the project if a risk occurs

Risk Exposure Factor: Risk exposure is the cost of what the project stands to lose in case of negative risk or gain in case of positive risk

Estimated Cost: The potential cost of the risk to the project

Probability Percentage: % between 1-100 likelihood the items will occur

Expected Monetary Value: probability of an event by its financial impact:

Trending: Red, Yellow, Green

Managing level: task, project, program

Span: project or program

Risk Classification	
Probability	4 - Likely
Impact: 1-4	3 - Moderate
The following field is (re)calculated when this screen is saved.	
Risk Exposure Factor	12
Estimated Cost	50,000.00
Probability Percentage (Between 1-100)	25
The following field is (re)calculated when this screen is saved.	
Expected Monetary Value	12,500.00
Trending	Green
Managing Level	Project
Span	Project

CTP Risk Management Plan

Risk Mitigation Information

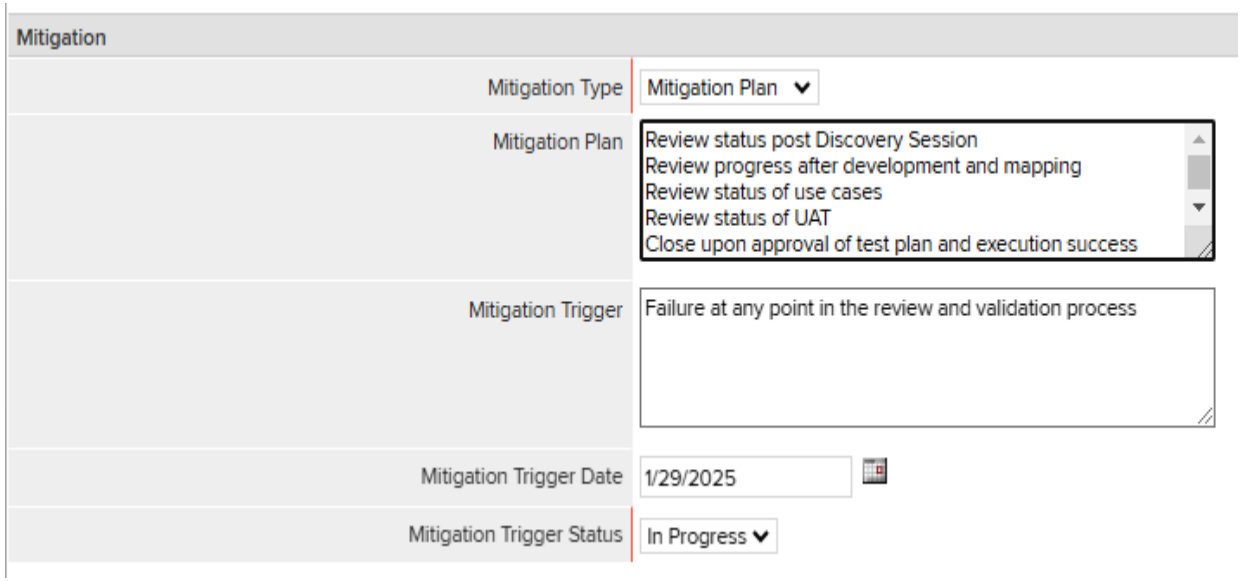
Mitigation Type: Accept, Avoid, Transfer, Undetermined, Mitigation Plan

Mitigation Plan: Summary information regarding the mitigation plan/strategy

Mitigation Trigger: The item or activity that triggers the mitigation

Mitigation Trigger Date:

Mitigation Trigger Status: Pending, Open, In Progress, Complete



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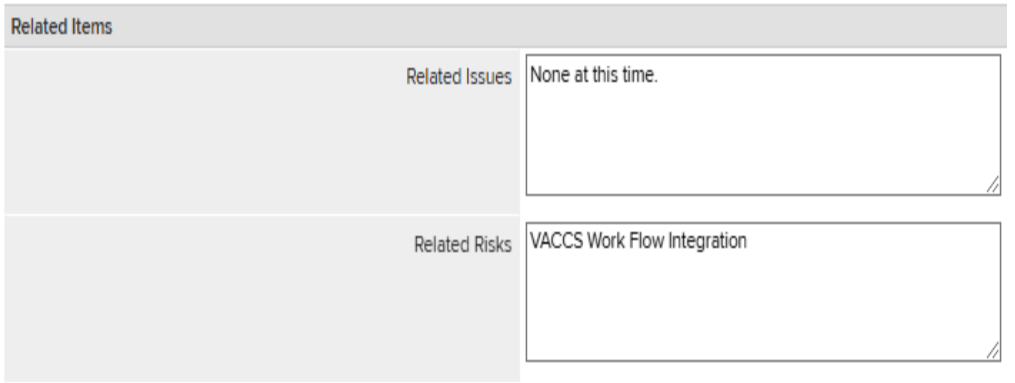
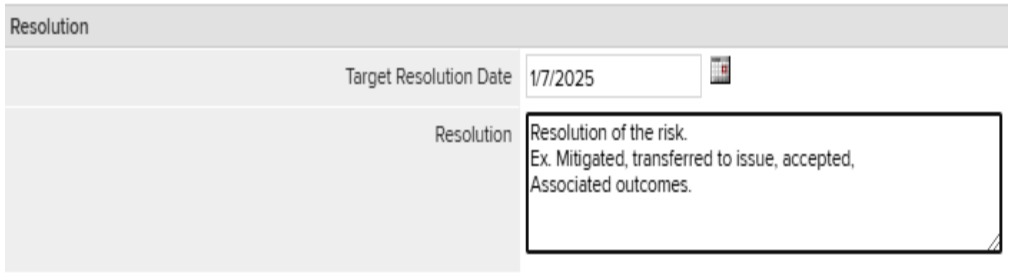
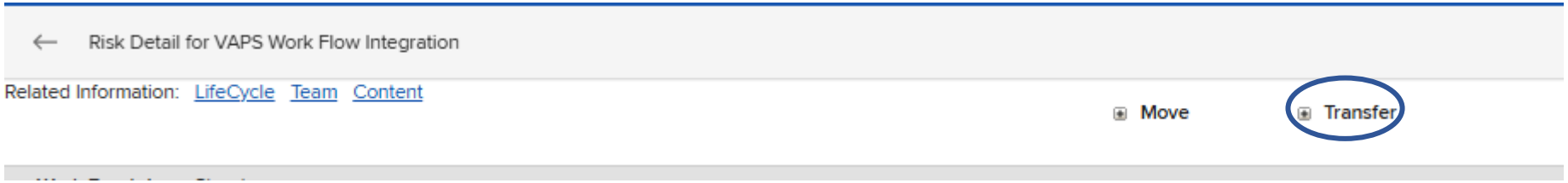




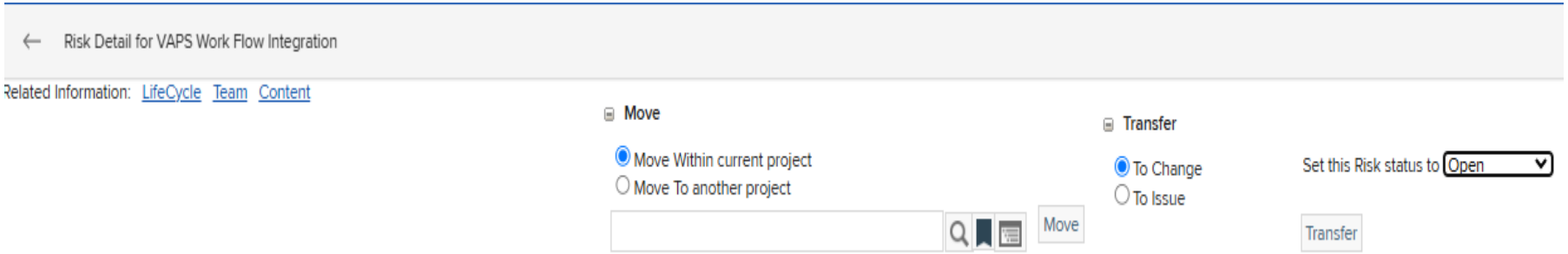
Risk Management Plan



Transfer Risk: Realized Risks should be transferred to the Issues

Top of the Risk page:

Two buttons: Expand to see the below



Issues

Issue management is the process of analyzing, monitoring, and prioritizing issues. It's an integral part of the risk management cycle, and a risk can be considered a potential issue

- When a risk is realized
- Acknowledge trigger
- Implement mitigation plan
- Transfer from risk

Q & A