

# Project Risk Profiles

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# Project Risk Profiles

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## Overview

Project risk management is one of the key knowledge areas in the Project Management Body of Knowledge (PMBOK) (PMI, 2013). Failure to manage project risks is one of the major causes of negative project outcomes, including cost and schedule overruns. The PMBOK outlines the best practices in risk planning, identification, assessment, response planning, and monitoring. There are also guidelines on establishing budget and schedule contingency reserves and management reserves to support known and unknown risks. This document offers some suggestions for time-phased risk profile reporting, aligned with contingency allocation and usage.

## Risk Profiles by Phase and SubPhase

Risks are identified and analyzed in the Risk Register. Risks should be identified in the register with their phase and subphase, where applicable. During project planning and project risk planning, the project risk team should develop a risk profile by phase. Using the information in the register, and an understanding of the nature of potential impact and probability of project risks, the team should assign weights to the risks for each phase of the project. For example:

| <b>Project Phase</b>              | <b>Percent of Risk (by phase)</b> |
|-----------------------------------|-----------------------------------|
| Requirements Fit-Gap              | 5%                                |
| Process Design                    | 10%                               |
| System Configuration              | 5%                                |
| System Interfaces                 | 18%                               |
| Reporting                         | 3%                                |
| Testing                           | 12%                               |
| Training                          | 8%                                |
| Data Conversion                   | 15%                               |
| Change Management/User Acceptance | 14%                               |
| Other (All Phases)                | 10%                               |
|                                   |                                   |
| <b>TOTAL</b>                      | <b>100%</b>                       |

Depending on the scope of the project, it may also be appropriate to further analyze risks by subphase or major activity. In this example, the major subphases with Testing could be further analyzed:

| <b>SubPhases in Testing Phase</b> | <b>Percent of Risk (by subphase)</b> |
|-----------------------------------|--------------------------------------|
| Test planning                     | 0%                                   |
| Test scenarios                    | 0%                                   |
| Module testing                    | 5%                                   |

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|                                 |     |
|---------------------------------|-----|
| Integration testing             | 5%  |
| Business process testing        | 20% |
| User acceptance testing         | 35% |
| Performance/load testing        | 10% |
| Disaster recovery testing       | 10% |
| Test results tracking/reporting | 0%  |
| Test remediation                | 15% |

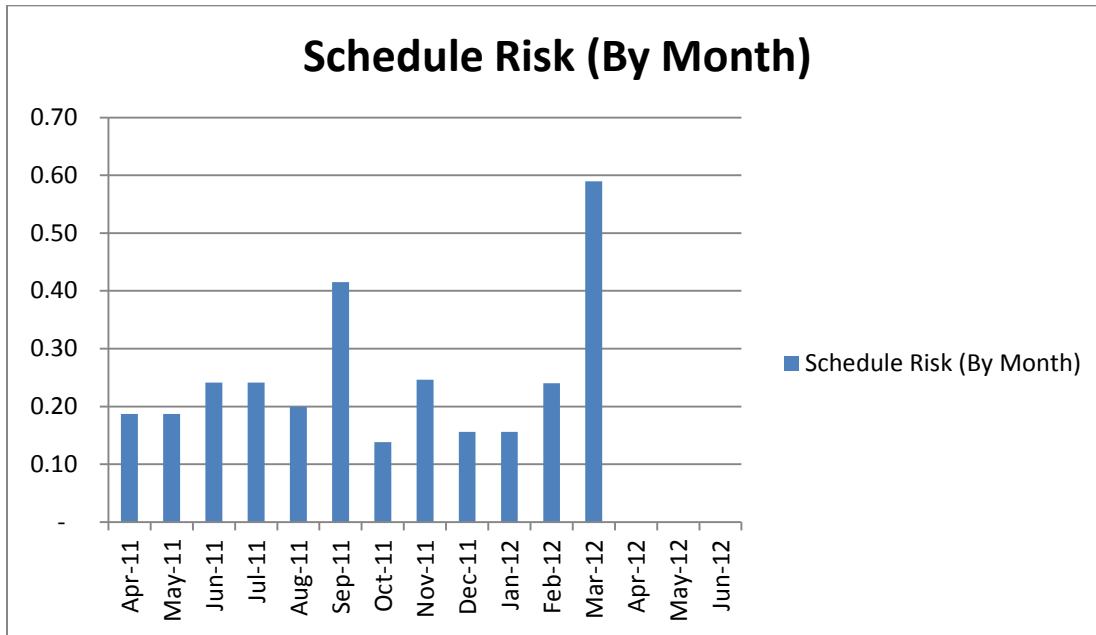
### Time-Phased Risk Profiles

The risk weights by phase or subphase are then compared to the baseline project schedule, before contingency. The risk weights are allocated over the time periods that the phases/subphases are scheduled to be performed. In the example below, the Requirements Fit-Gap is scheduled to be performed in April 2011, so the 5% risk weight is allocated in total to April 2011. In contrast, the System Interfaces work is scheduled to be performed during June 2011 through September 2011. However, the project risk team assesses that the majority of the risk will occur toward the end of that period, rather than equally over the four months.

| Project Phase                     | Percent of Risk (by phase) | Percent of subphase risk by month |           |           |           |           |            |           |           |           |           |           |            | Contingency |           |           |  |
|-----------------------------------|----------------------------|-----------------------------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|-----------|-----------|-----------|------------|-------------|-----------|-----------|--|
|                                   |                            | Apr-11                            | May-11    | Jun-11    | Jul-11    | Aug-11    | Sep-11     | Oct-11    | Nov-11    | Dec-11    | Jan-12    | Feb-12    | Mar-12     | Apr-12      | May-12    | Jun-12    |  |
| Requirements Fit-Gap              | 5%                         | 5.00%                             |           |           |           |           |            |           |           |           |           |           |            |             |           |           |  |
| Process Design                    | 10%                        |                                   | 5.00%     | 5.00%     |           |           |            |           |           |           |           |           |            |             |           |           |  |
| System Configuration              | 5%                         |                                   |           |           | 5.00%     |           |            |           |           |           |           |           |            |             |           |           |  |
| System Interfaces                 | 18%                        |                                   |           | 1.80%     | 1.80%     | 5.40%     | 9.00%      |           |           |           |           |           |            |             |           |           |  |
| Reporting                         | 3%                         |                                   |           |           |           |           | 3.00%      |           |           |           |           |           |            |             |           |           |  |
| Testing                           | 12%                        |                                   |           |           | 0.00%     | 0.00%     | 0.60%      | 3.36%     | 4.56%     | 1.56%     | 1.56%     | 0.36%     | 0.00%      |             |           |           |  |
| Training                          | 8%                         |                                   |           |           |           |           |            |           |           |           |           | 4.00%     | 4.00%      |             |           |           |  |
| Data Conversion                   | 15%                        |                                   |           |           |           |           |            |           |           | 1.00%     | 1.00%     | 1.00%     | 1.00%      | 6.00%       |           |           |  |
| Change Management/User Acceptance | 14%                        |                                   |           |           |           |           |            |           |           | 1.40%     | 1.40%     | 1.40%     | 1.40%      | 8.40%       |           |           |  |
| Other                             | 10%                        | 1.25%                             | 1.25%     | 1.25%     | 1.25%     | 1.25%     | 1.25%      | 1.25%     | 1.25%     | 1.25%     | 1.25%     | 1.25%     | 1.25%      |             |           |           |  |
| <b>TOTAL</b>                      | <b>100%</b>                | <b>6%</b>                         | <b>6%</b> | <b>8%</b> | <b>8%</b> | <b>7%</b> | <b>14%</b> | <b>5%</b> | <b>8%</b> | <b>5%</b> | <b>5%</b> | <b>8%</b> | <b>20%</b> | <b>0%</b>   | <b>0%</b> | <b>0%</b> |  |

# Project Risk Profiles

Based on this analysis, the risk profile by month can be displayed as follows:



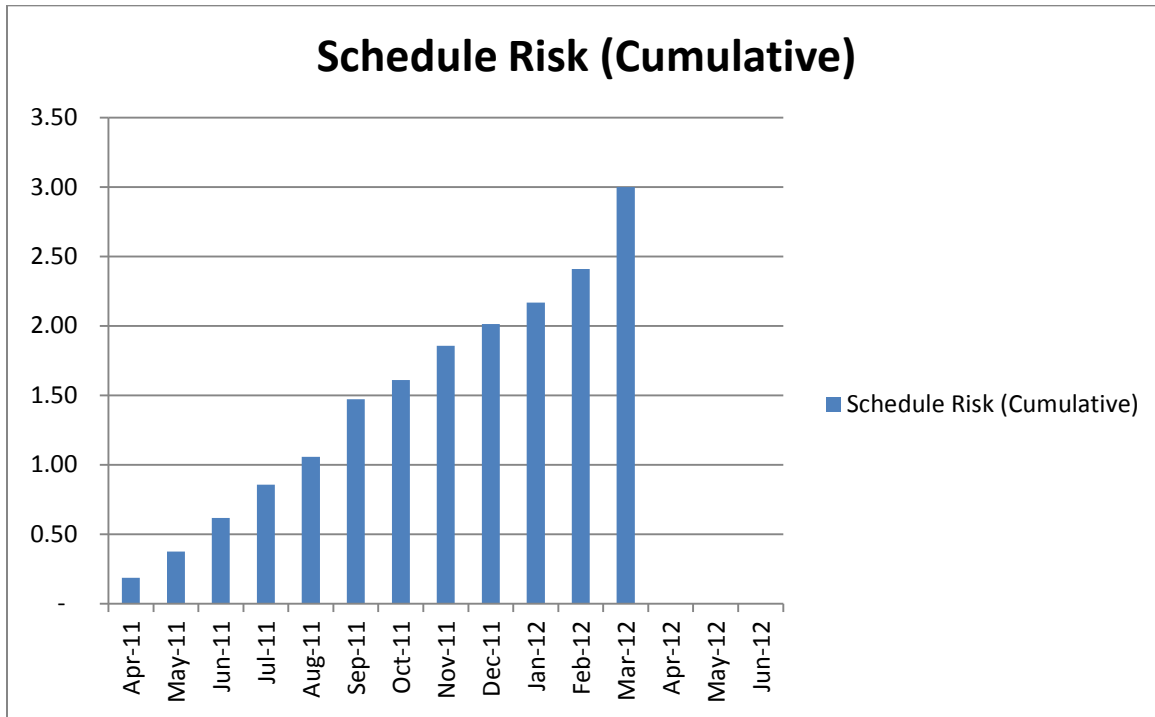
The team can now see that the project risks are disproportionately high in September 2011 and March 2012. Visibility into risk profile by period can trigger a discussion of risk mitigation and allocation to determine whether there are opportunities to spread risk more evenly, and specifically to move risk earlier in the project. Some risks are inevitable late in the project and cannot be easily moved. However, an understanding of the impact of late-phase risk can encourage creative thinking about risk avoidance and mitigation.

## Contingency Usage/Allocation

In the example used above, assume the project team has determined that there are no viable alternatives to re-spread the risks, so the time-phased risk project above has been accepted. The project plan is approved with a 3 month schedule contingency (April-June 2012).

# Project Risk Profiles

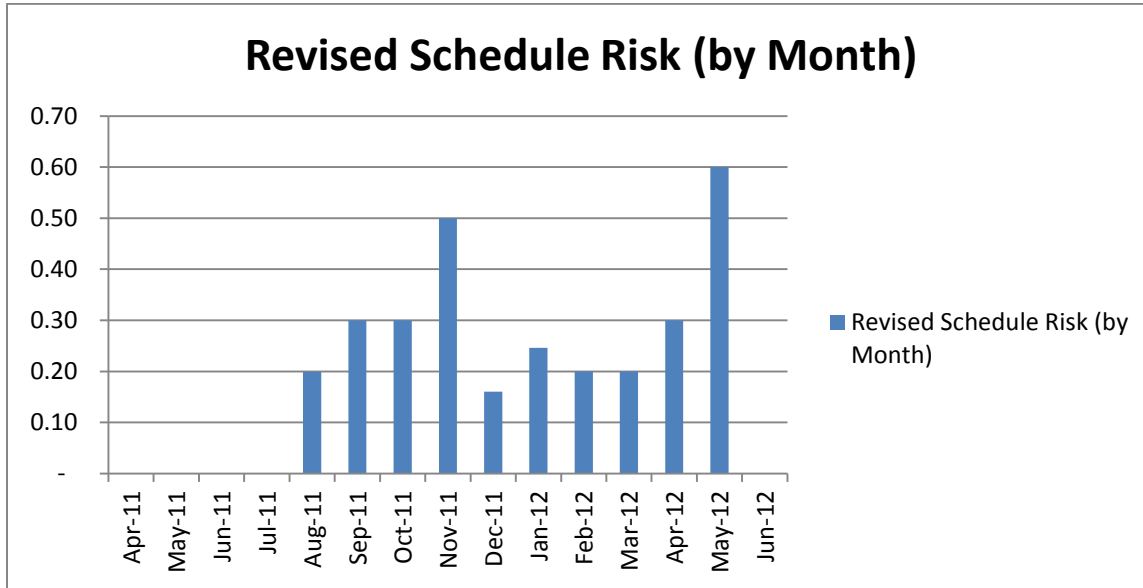
The cumulative risk profile before use of contingency is as follows:



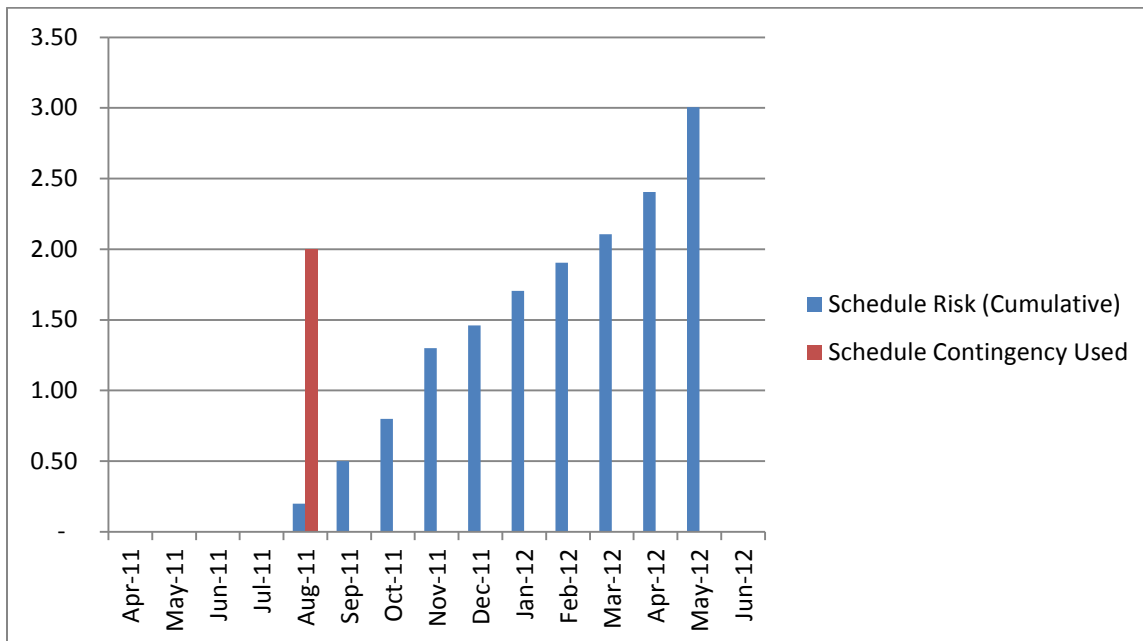
The project manager and sponsors now have better information when faced with decisions about the use of the schedule contingency reserve. For example, assume that in August 2011, one of the key team members working on the system interfaces leaves the project team. The technical manager believes it will take 2 months to hire a replacement team member, get them up to speed, and continue. Because this is on the critical path for the project, the technical manager requests that 2 months of the 3 month contingency should be allocated to this “outlier” event, which was included in the risk register as low probability. The project manager and sponsors may decide to approve the usage of contingency for this event. However, they can see that the major risks are still ahead of them, and that if the contingency reserve is used early in the project, there may be inadequate reserve to support the remaining risks.

## Project Risk Profiles

In the following example, the 2 month contingency reserve was allocated as requested in August 2011. The time-phased project risk profile was then adjusted to reflect that (1) No adverse risks were actually experienced in the months of April – July 2011, and (2) Remaining risks were re-spread over the remaining period, including the 2 month contingency through May 2012.



The contingency usage graph could then be presented as follows:



In this example, the remaining contingency reserve of 1 month may not be sufficient to support the remaining known risks. The project management team and project sponsors can use this information to make appropriate decisions depending on project constraints.

# Project Risk Profiles

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## References and Citations

Project Management Institute (2013). *A guide to the project management body of knowledge: PMBOK guide* (5<sup>th</sup> ed.). Newtown Square, PA: Project Management Institute Inc.