# The PERIL Database

Good project management is based on experience. Where does experience come from? Often, experience is won as a consequence of not-so-good project management. Fortunately, not all the expensive and painful experience has to be personal. We can also learn from the experience of others, avoiding the aggravation of seeing everything firsthand. The Project Experience Risk Information Library (PERIL) database provides a step in that direction.

In conducting workshops and classes on project risk management over decades, I have collected a great deal of anonymous data from hundreds of project leaders on their past project problems. Their descriptions included both what went wrong and the amount of impact it had on their projects. I have compiled this data in the PERIL database, which serves as a foundation for this book. The database describes a wide spectrum of things that have gone wrong with past projects, and it provides a sobering perspective on what future projects will face. The size of the PERIL database has grown with each edition of this book, and it presently includes slightly more than 1,300 cases.

Some project risks are easy to identify because they are associated with familiar work. Other project risks are more insidious because they arise from new, unusual, or otherwise unique requirements. The PERIL database is valuable in helping to identify at least some of these otherwise invisible risks. In addition, the PERIL database summarizes the magnitude of the consequences associated with key types of project risk. Realistic impact information can effectively counteract the overly optimistic assessments typically assumed for project risks. Although some of the specific cases in the PERIL database relate only to certain types of projects or may seem unlikely to recur, most of these situations will be applicable to most technical projects.

## Sources for the PERIL Database

The information in the PERIL database comes primarily from participants in classes and workshops on project risk management, representing a wide range of project types. Slightly under half the projects are product development projects, having tangible deliverables. The remainder are information technology, customer solution, or process improvement projects. The projects in the PERIL database are worldwide, with a majority from the Americas (primarily United States, Canada, and Mexico). The rest of the cases are from Asia (predominantly from Singapore and India) and from Europe and the Middle East (from about a dozen countries, but largely from Germany and the United Kingdom). As with most modern projects, the projects in the PERIL database whatever their type or location share a strong dependence on new or relatively new technology. The majority of these projects also involved software development. There are both longer and shorter projects represented here, but the typical project in the database had a planned duration between six months and one year. Although there are some large programs in PERIL, typical staffing on these projects was rarely larger than about twenty people.

The raw project numbers in the PERIL database are presented in the following table.

| 2022 | Americas | Asia | Eur/ME | Total |
|---|---|---|---|---|
| IT/Solution | 575 | 98 | 43 | 716 |
| Product Development | 447 | 95 | 50 | 592 |

| | | | | |
|---|---|---|---|---|
| Total | 1022 | 193 | 93 | 1308 |

Although the PERIL database represents many projects and their risks, even with 1,300 examples, it is far from comprehensive. The database contains only a small fraction of the many thousands of projects undertaken by the project leaders from whom the data were collected, and it does not even represent all the problems encountered on the projects that are included. Because of this, analysis of the data in the PERIL database is more suggestive of potential project risks than definitive. Despite this, as the PERIL database has grown the overall patterns have persisted.

Also, as with any data based on nonrandom samples, there are inevitable sources of bias. The database contains a bias for major project risks. Because the project leaders were asked to provide information on significant problems, trivial problems are excluded from this analysis by design. There is also potential bias because all cases are self-reported. Although all the information included is anonymous, some embarrassing details or impact assessment may well have been omitted or minimized. In addition, nearly all of the information was reported by people who were interested enough in project and risk management to invest their time participating in a class or workshop for skilled practitioners, so they are at least modestly skilled in project management. This probably means that problems related to poor project management will be underrepresented.

Even considering these various limitations and biases, the PERIL database does reveal a wide range of risks typical of today's projects. It is filled with constructive (and stable) patterns, and the biggest source of bias—looking only at major problems—accurately mirrors accepted strategies for risk management (focus on the "big stuff"). Nonetheless, before blindly extending the following analysis to any particular situation, be aware that your mileage may vary.

## Measuring Impact in the PERIL Database

The problem situations that make up the PERIL database resulted in a wide range of adverse consequences, including forced overtime, significant overspending, scope reductions, and a long list of other undesirable outcomes that can be difficult to compare quantitatively. Although such an extensive assortment of misery may be fascinating, it is difficult to pummel into a structure for meaningful analysis. Because of this, I chose to normalize all the quantitative data in the database using only one consistent measure of impact: time, measured in weeks of project slippage. This tactic makes sense in light of today's obsession with meeting deadlines, and it was an easy choice because by far the most prevalent serious impact reported in the data was deadline slip. Focusing on time is also appropriate because among the project triple constraints of scope, time, and cost, time is the only one that's completely out of our control—when it's gone, it's gone.

For cases where the impact reported was primarily something other than time, I either worked with the project leader to estimate an equivalent project slippage or excluded the case from the database. For example, when a project met its deadline through use of substantial overtime, we estimated the slippage equivalent to working all those nights, weekends, and holidays. If a project found it necessary to make significant cuts to the project scope, we estimated the additional duration that would have been required to deliver the original scope. Where such transformations are included in the PERIL database, we were consistently conservative in estimating the adjustments.

To better reflect the reality of typical projects, the time data in the PERIL database also excludes extremes. In keeping with the theme of focus on major risk, projects that reported a time slippage of less than a week were omitted. On the assumption that there are probably better options for projects that overshoot their deadlines by six months or more, the cases included that reported longer slips are all capped at twenty-six weeks. This prevented a single case or two from inordinately skewing the analysis, while retaining the root causes for the problems.

The average impact for all records was roughly seven weeks, representing almost a 20 percent slip for a typical nine-month project. The averages by project type were consistently close to the average for all of the data, with product development projects averaging a bit more than seven weeks and IT and solution projects slightly less than seven weeks. By region, projects in the Americas averaged slightly more than seven weeks. Projects in Asia and in Europe and the Middle East projects were slightly less, but still more than six weeks of slippage. This data by region and project type includes average impact, in weeks.

| 2022 | Americas | Asia | Eur/ME | Total |
|---|---|---|---|---|
| IT/Solution | 6.8 | 6.6 | 6.8 | 6.8 |
| Product Development | 7.7 | 6.0 | 6.7 | 7.4 |
| Total | 7.2 | 6.3 | 6.7 | 7.1 |

<u>Risk Causes in the PERIL Database</u>

Although the consequences of the risks in the PERIL database are consistently reported in terms of time, the risk causes were varied and abundant. One approach to organizing this sort of data uses a risk breakdown structure to categorize risks based on risk type. The categories and subcategories I have used to structure the database form an example of an RBS. Each reported problem in the database is characterized in the hierarchy based on its principal root cause. The top level of the hierarchy is organized similarly to the first half of this book, around the triple constraints of scope, schedule (time), and resource (cost). The database subdivides these types of risks based on further breakdown of the root causes of the risks. For most of the risks, determining the principal root cause was fairly straightforward. For others, the reported problem may have been caused by several factors, but in each case the risk was assigned to the project parameter that appeared to be the most significant.

Across the board, risks related to resource issues were dominant. They were both most frequent and, on average, most damaging. Schedule-related risks were next most numerous, followed by scope risks. Both of these categories were somewhat less consequential than the resource risks. The typical slippage for risks within each major type represented between six to eight weeks.

| 2022 | Count | Cumulative Impact (weeks) | Average Impact (weeks) |
|---|---|---|---|
| Resource | 507 | 3986 | 7.9 |
| Schedule | 437 | 2682 | 6.1 |
| Scope | 364 | 2557 | 7.0 |
| Total | 1308 | 9225 | 7.1 |

The total impact of all the risks is a bit more than 9,200 weeks—about 180 years—of slippage. A Pareto chart summarizing total impact by category is shown in Figure 2-3.

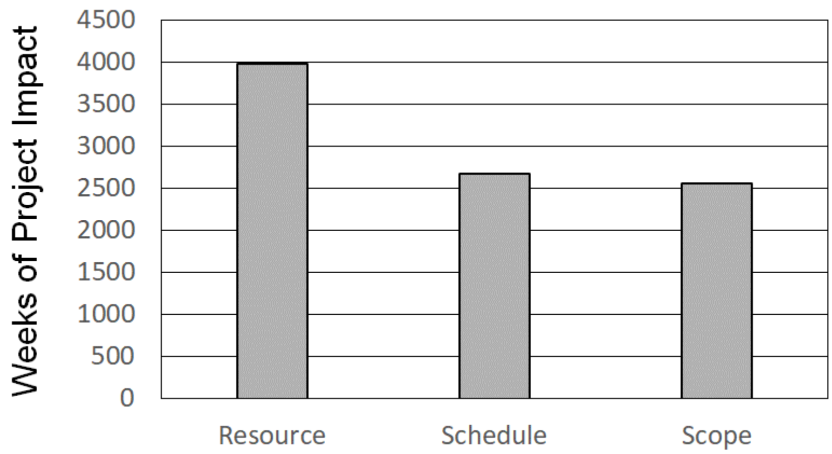


**Figure 2-3:** Total Project Impact by Root-Cause Category

The following table shows root-cause subcategories within scope, resource, and schedule:

| 2022 Root-Cause Subcategories | Definition | Count | Cumulative Impact (weeks) | Average Impact (weeks) |
|---|---|---|---|---|
| Scope: Changes | Revisions made to scope during the project | 367 | 2972 | 8.1 |
| Resource: People | Issues arising from internal staffing | 270 | 1436 | 5.3 |
| Schedule: Delays | Project slippage due to factors under the control of the project | 199 | 1236 | 6.2 |
| Scope: Defects | Failure to meet deliverable requirements | 140 | 1014 | 7.2 |
| Resource: Outsourcing | Issues arising from external staffing | 123 | 789 | 6.4 |
| Schedule: Estimates | Inadequate durations allocated to project activities | 95 | 757 | 8.0 |
| Schedule: Dependencies | Project slippage due to factors outside the project | 70 | 564 | 8.1 |
| Resource: Money | Insufficient project funding | 44 | 457 | 10.4 |

Figure 2-4 is a Pareto chart summarizing the cumulative impact data for these defined root-cause subcategories. By far the largest source of slippage in this Pareto chart is scope change; it is more than twice as large as the next subcategory. As depressing as all this data is, however, most of the subcategories here are at least partially within the purview of the project leader. This suggests that more focus on the things that you can control as a project leader can significantly reduce the number and magnitude of unpleasant surprises you'll encounter during your projects. The next three chapters will explore this idea in some detail.

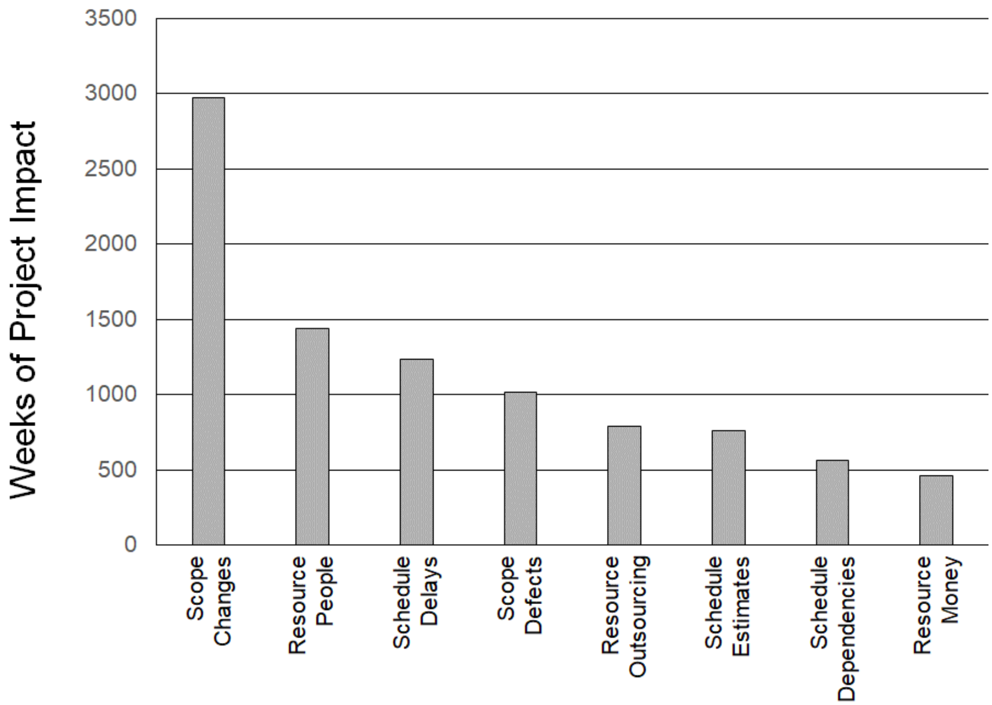


**Figure 2-4:** Total Project Impact by Subcategory