Sources of Resource Risk

Resource risks represent about one third of the records in the PERIL database and nearly 30 percent of the overall impact. They caused an average project slip of over six weeks. There are three categories of resource risk: people, outsourcing, and money. People risks arise within the project team. Outsourcing risks are a consequence using people and services outside the project team for required project work. The third category, money, is the rarest risk subcategory for the PERIL database, as few of the problems reported were primarily about funding. Money, however, has the highest average impact of any of the eight PERIL risk categories, and the effect of insufficient funding has substantial impact on projects in many other ways. The root causes of people and outsourcing risk are further characterized by type, shown in the following summary.

Resource Root-Cause Subcategories	Definition	Count	Cumulative Impact (Weeks)	Average Impact (Weeks)
Money Limitation	Slip due to funding limits	44	457	10.4
People Motivation	Loss of team cohesion and interest; common on long projects	16	142	8.9
People Late Start	Staff available late; often due to delayed finish of earlier projects	27	185	6.9
Outsourcing Late or poor output	Deliverable late from vendor. Includes queuing, turnover	96	656	6.8
People Loss	Permanent staff member loss due to resignation, promotion, reassignment, health, etc.	83	566	6.8
Outsourcing Delayed start	Contracting related delays	27	133	4.9
People Queuing	Slip due to bottleneck (includes specialized equipment)	54	224	4.1
People Temp loss	Temporary staff loss due to illness, hot site, support, etc.	90	319	3.5

A Pareto chart of overall impact by type of risk is in Figure 5-1. Although risks related to internal staffing were most numerous, both outsourcing and money risks are in the top three for impact.

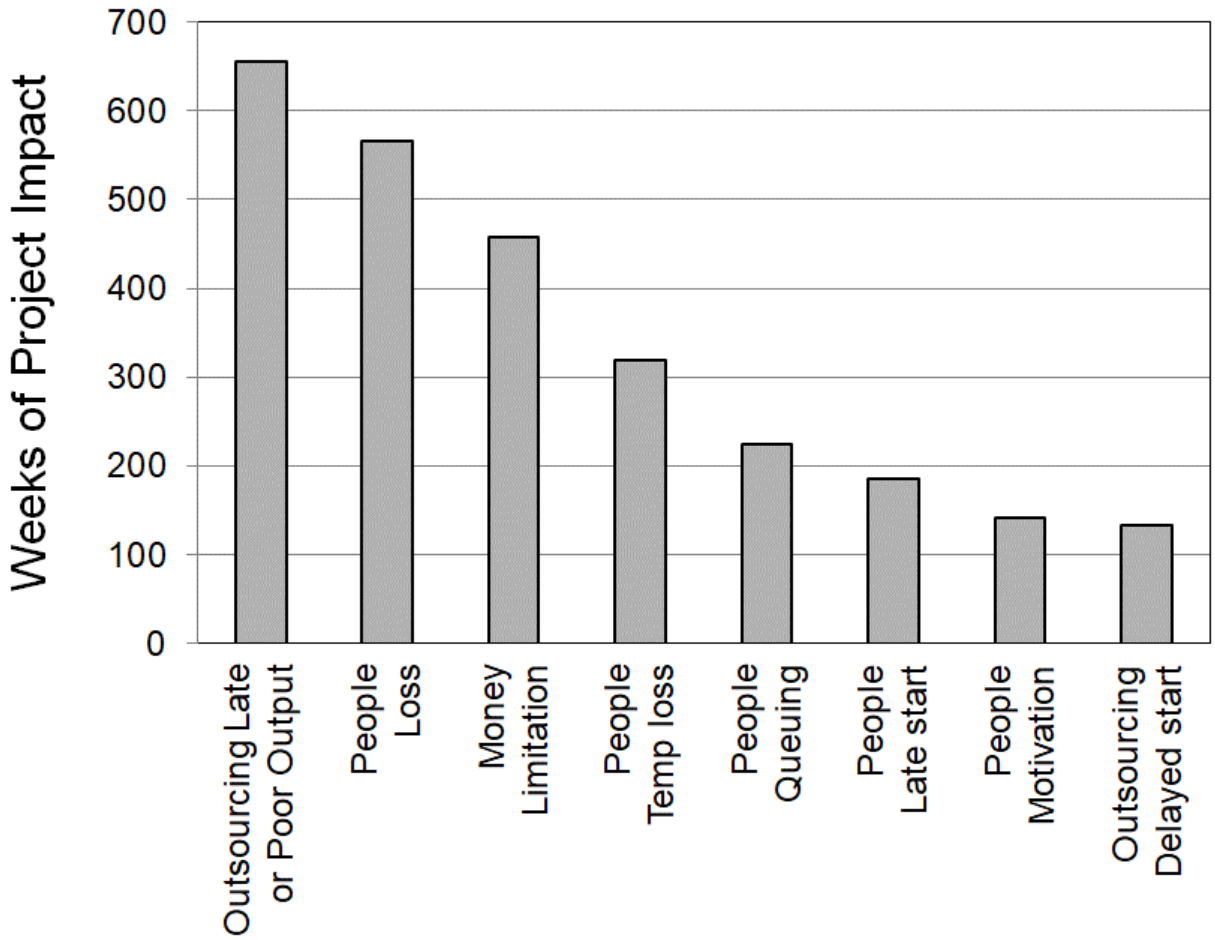

Figure 5-1: Total Project Impact by Resource Root-Cause Subcategories

People Risks

Risks related to internal project staff represent the most numerous resource risks, constituting nearly 20 percent of the entire database and over 60 percent of the resource category. People risks are subdivided into five subcategories:

- Loss: Permanent staff member loss to the project due to resignation, promotion, reassignment, health, or other reasons
- Temporary loss: Short-term staff loss due to illness, hot site, support priorities, or other reasons
- Queuing: Slip due to other commitments for needed resources or expertise
- Late start: Staff not available at project start; often because of late finish of previous projects
- Motivation: Loss of team cohesion and interest; typical of long projects

Loss of staff permanently represent nearly one-third of the people-related risks. Permanent staff loss of project team members caused an average slip of just under seven weeks and resulted in by far the highest total impact for the people subcategory. The reasons for permanent staff loss included resignations, promotions, reassignments to other work or different projects, and staffing cutbacks.

Discovering these risks in advance is difficult, but good record-keeping and trend analysis are useful in setting realistic project expectations.

Temporary loss of project staff is the common people-related risk, with a third of the overall cases. Its overall impact was lower than for permanent staff loss, causing an average slip of less than four weeks. A typical reason for short-term staff loss was a customer problem (a "hot site") related to the deliverable from an earlier project. Other reasons for short-term staff loss included illness, travel problems, and organizational reorganizations.

Queuing problems represent 20 percent of the people-related risks in the PERIL database. The average schedule impact due to queuing was roughly four weeks. Most organizations optimize operations by investing the bare minimum in specialized (and expensive) expertise, and in costly facilities and equipment. This leads to a potential scarcity of these individuals or facilities, and contention between projects for access. Most technical projects rely on at least some special expertise that they share with other projects, such as system architects needed at the start, testing personnel needed at the end, and other specialists needed throughout the project. If an expert happens to be free when a project is ready for the work to start, there is no problem, but if he or she has five other projects queued up already when your project needs attention, you will come to a screeching halt while you wait in line. Queuing analysis is well understood, and it is relevant to a wide variety of manufacturing, engineering, computer networks, and many other business systems. Any system subject to queues requires some excess capacity to maximize throughput. Optimizing organizational resources needed for projects based only on cost drives out necessary capacity and results in project delay.

Late starts when key staff are unavailable at the beginning of a project also cause a good deal of project delay. Although only 10 percent of the people-related resource risks, their average impact was almost seven weeks. Staff joining the project late had a number of root causes, but the most common was a situation aptly described by one project leader as the "rolling sledgehammer." Whenever a prior project is late, some, perhaps even all, of the staff for the new project is still busy working to get it done. As a consequence, any following project gets a slow and ragged start, with key people beginning their contributions to the new project only when they can break free of the earlier one. Even when these people become available, there may be additional delay, because the staff members coming from a late project are often burned out from the stress and long hours typical of an overdue project. The "rolling sledgehammer" creates a cycle that self-perpetuates and is hard to break. Each late project causes the projects that follow also to be late.

Motivation issues are the smallest subcategory, at only a bit more than 5 percent of the people-related resource risks. However, these risks had an average impact of nearly nine weeks, among the highest for any of the subcategories in the PERIL database. Motivation issues are generally a consequence of diminishing interest on long-duration projects, or due to interpersonal conflicts.

Thorough planning and credible scheduling of the work well in advance will reveal some of the most serious potential exposures regarding people. Histogram analysis of resource requirements may also provide insight into staffing exposures a project will face, but unless analysis of project resources is credibly integrated with comprehensive resource data for other projects and all the nonproject demands within the business, the results may not provide sufficient insight. Aligning staffing capacity with project requirements requires ongoing attention. One significant root cause for understaffed projects is little or no use of project planning information to make or revise project selection decisions at the organization level, triggering the "too many projects" problem. (Managing such portfolio risks is explored in Chapter 13.) Retrospective analysis of projects over time is also an effective way to detect and measure the consequences of inadequate staffing, especially for chronic problems.

Outsourcing Risks

Outsourcing risks account for nearly 30 percent of the resource risks. Although the frequency in the PERIL database is lower than for people risks, the impact of outsourcing risk was higher, in excess of six weeks. Risks related to outsourcing are separated into two subcategories: late or poor outputs and delayed start.

Late or poor output from outsource partners is a problem that is well represented in the PERIL database. The recent growth of outsourcing has been driven primarily by a desire to save money, and often it does. However, there is generally a trade-off between economy and predictability. Work done at a distance is out of sight, and problems that might easily be detected with efforts within the organization may not surface as an issue until it is too late. Roughly 80 percent of the outsourcing risks involved receiving a late or unsatisfactory deliverable from an external supplier, and the average impact for these incidents was almost seven weeks. These delays result from many of the same root causes as other people risks—turnover, queuing problems, staff availability, and other issues—but a precise cause may not be known. Receiving anything the project needs late is a risk, but these cases are compounded by the added element of surprise; the problem may be invisible until the day of the default (after weeks of reports saying "Things are going just fine . . ."), when it is too late to do much about it. Lateness was often exacerbated in cases in the PERIL database because work that did not meet specifications caused further delay while the work was redone correctly by the project team.

Delayed starts are also fairly common with outsourced work, causing about a fifth of the outsourcing problems. Before any external work can begin, contracts must be negotiated, approved, and signed. All these steps are time consuming. Beginning a new, complex relationship with people outside your organization can require more time than expected. For projects with particularly unusual needs, just finding an appropriate supplier may cause significant delays. The average impact from these delayed starts in the database was about five weeks.

Outsourcing risks can be detected through planning processes, and by careful analysis and thorough understanding of the contract. Both the project team and the outsourcing partner must understand the terms and conditions of the contract, especially the scope of work and timing requirements.

Money Risks

The third category of resource risks was rare in the PERIL database, representing a little over 10 percent of the resource risks and about three percent of the whole. It is significant, however, because when funding is a problem, it is often a big problem. The average impact was the highest for any subcategory, at well over 10 weeks. Insufficient funding can significantly stretch out the duration of a project, and it is a contributing root cause in many other subcategories (people turnover due to layoffs and outsourcing of work primarily motivated by cost cutting, as examples).

Resource Risk and VUCA

From a VUCA perspective, about half of the impact in the PERIL database was caused by uncertainty, including all of the resource risks. The cases reported were all the result of predictability issues associated with staffing or funding. You can minimize the uncertainty from resource risk effects of VUCA through better data archives and metrics showing recent trends and performance, more reliable staffing and budget commitments, and disciplined and thorough planning. You will find many examples of typical resource risks listed in the Appendix.