

Selected Detail from the PERIL Database

The following information is excerpted from the Project Experience Risk Information Library (PERIL) database. (These risks are an illustrative subset selected from the database, representing less than three months of schedule slippage. The 20 percent of the risks that resulted in more than three months of impact are discussed in Chapters 3, 4, and 5.)

Scope Risks

- New product features were added at every weekly meeting and stage review.
- Project was based on standards still in draft form. Several options are possible, but project is staffed to pursue only one.
- Conversion from legacy system caused unanticipated problems leading to delays of three to ten days per module to fix.
- Data conversion problems made the implementation of a new system dependent on manual data reentry.
- Functionality for e-mail was added late to a document retrieval project.
- Processes were changed and made more complex late in the project.
- A solution project was priced to win with few details on the work.

- The sponsor demanded specification changes late in the project.
- User interface requirements for a new database system were not specific enough.
- A key telecommunications requirement was detected late.
- Component failure required finding a replacement and redoing all tests.
- A 1,000-hour test was required at project end. Failure halfway required repairs and a complete test rerun.
- A critical component broke because the packaging for it was too flimsy to withstand the stress of standard shipping.
- Test hardware did not work, so all tests had to be conducted manually.
- A complex system was designed in pieces. When integration failed, redesign was required.
- Two related projects failed to synchronize, missing their release.
- A poorly implemented Web tool caused ongoing support issues.
- A problem solution was developed based on assumed root cause. The cause was actually something else and resulted in a major slip.
- A purchased electronic component failed. It was necessary to design a new one late in the project.
- The delivery of the content started before the requirements were finalized.
- An application was found to need its own server, causing delay for installation.
- In a large system conversion, new applications were not able to work with existing data as expected.
- Midproject, scope was expanded to include the accounts receivable process.
- The database designed into the system was changed, requiring more resources and causing delay.
- An expected operating system release was canceled; the project was forced to use a prior version.
- A new CPU chip to be used in the product was assumed the same as the old version but required an additional heat sink and mechanical design work.
- Original scope missed supply chain issues and could not be used without changes.
- Scoping was documented and estimated based on data from only one customer.
- The product was developed for multiple platforms but worked on only two. The project was delayed to fix some, but others were dropped.

- Market research and competitive analysis information was faulty but not discovered until late in the project.
- New technology was used, hoping for faster performance. It did not work well and resulted in redesign and rework.
- An instrument system built for a customer had been designed using the current model of PC. A new version was released that was incompatible, and project completion required finding and using an older salvaged PC.
- A system using new components failed in final tests. Obtaining replacement older components proved to be difficult.
- All the individual components passed their tests, but the assembled system failed.
- A problem with transaction volumes that was not detected in test showed up in production.
- Purchased software was limited and inflexible, which necessitated workarounds and additional software.
- Late design changes required manufacturing retooling at the last minute.
- “Minor” changes were added and accepted late in the project. This doubled the work in the final phase and delayed the project.
- A database set up for the client did not have sufficient free space for all the growing accounts.
- The development team misinterpreted a number of requirements.
- Documentation was provided in only one of the two required languages, causing a delay for translation.
- Network configuration sometimes caused backups to fail but only intermittently; troubleshooting was hard.
- PC board failure required redesign and fabrication.
- An upgrade to software was required. The planning and training for this caused delays.
- New software was installed by IT. It didn’t work, and fixing it caused a delay.
- Metrics from many sites were required. When collected, the data was inconsistent, causing unanticipated additional work.
- The online badge printing requirement was completely missing from the scope definition.
- Proprietary data was needed, which the owners were unwilling to provide. After some delay, they finally shared partial information.
- Expected release of a new operating system expected slipped. This forced the project team to use the prior version, which was missing needed functionality.
- Although the system functioned well in Germany, it had no German documentation. Translation resulted in delay.

- A solution project elected to integrate a new, untried technology.
- Software modules in the system did not work together as planned.
- A major bug could be fixed only by moving to a later software version.
- The system move was delayed by last-minute system changes that made backups take too long.
- Scope was changed after the writers had completed their initial draft.
- A large print run of materials was scrapped and redone because of late changes required by legal.
- After the project was “complete,” significant rework was required before customer approval.
- The design team failed to collect the details on what was to be displayed to users.
- The project deliverable eventually collapsed because of vibration in transit that caused nuts and bolts to work loose.
- Bugs were reported in user test that should have been caught earlier by QA.

Schedule Risks

- The quantity of CPU processor chips needed was not available.
- There were too few disc drives and insufficient physical space for the needed number.
- Conversion normally requires six months from the date a contract is signed, but project goal was four months.
- Software development was underestimated by a factor of three.
- None of the project staff knew the technology.
- Training for a new tool took more time than planned.
- Because the water supply available to complete project was inadequate, water had to be trucked in.
- Expert opinion estimated two weeks, but the work took eight.
- Needed components were delayed because of an internal supplier problem.
- Work estimated displayed chronic optimism on completion dates.
- Multiple-phase rollout was delayed near the end because the systems needed were temporarily out of stock.
- Decisions were delayed without apparent reason.
- International leased line order was delayed while awaiting management approval.

- The systems required were on back order for six months, so the project was forced to use a competitor's system.
- The business counterparts were not in agreement on which option to choose.
- A special peripheral needed for the project deliverable was discontinued.
- Compilers and open source libraries needed were not available.
- Partner organizations were late with promised work, and even then their deliverables did not work as expected.
- Field engineers experienced long learning curves.
- The customer insisted on a deadline shorter than the plan.
- Development scheduled in parallel led to frequent rework.
- Needed skilled resources were unavailable.
- A three-week test took seven because of learning curves and ramping time.
- New hires were used for critical work, which required time for training.
- Senior management approval for software licenses was delayed.
- The system needed was delivered to the wrong building and was lost for weeks.
- The shipping requirements changed. Some shipments bounced, others got stuck in customs.
- Metrics required by a process improvement project were collected and delivered late.
- With a 12-hour time difference and heavy dependence on e-mail, even simple questions took two to four days to resolve.
- International shipment of parts was estimated to take six weeks, but it actually averages nine.
- Some parts were damaged in shipping and had to be reordered.
- Space was unavailable, so the project was forced to implement in the old space.
- Infrastructure changes caused last-minute problems.
- A sole-source chip supplier was reliable for low volume, but at high volume (and lower cost) it had quality problems that created delays.
- Components that could have been purchased were developed by the team, which took longer than expected.
- The system integration task was not broken down to small, manageable pieces in the project plan.
- There were chronic problems getting timely management decisions.
- Disaster recovery tests were delayed at project end because the hardware required was tied up solving another customer's problem.

- Some critical equipment needed for the project came from a pool of hardware in another country, which was delayed in customs.
- Parts of the development team had a 12-hour time difference.
- Bugs took an average of two to three days longer to fix than anticipated.
- Defective parts were received, and reordering doubled the time required.
- There were frequent delivery problems on international shipment with customs and paperwork.
- Firewall changes typically had taken 25 days, but the estimates were capped at 15.
- Estimates for cabling were too optimistic.
- The deliverable expected from a related project arrived on time, but the project could not use it.
- A flood shut down the data center, resulting in delay to restore power and clean up.
- Customer-supplied hardware did not work, and replacements were needed.
- A system was taken down for scheduled maintenance when needed by the project.
- There was no coordinated shipment of system components, so the last part to arrive delayed installation.
- A dependency on another project was not discovered until project end.

Resource Risks

- Project needed \$150,000 per month in supplies but had a limit of \$100,000.
- The senior system analyst, who was fully trained on the application, resigned.
- The travel budget for the project was cut, which led to inefficient long-distance collaborations.
- A key subcontractor went out of business, and it took two months to find a replacement.
- Midway in design stage, an important engineer had a family emergency and had to leave the country for a month.
- Two technicians were reassigned to a more business-critical project midway through system development.
- The government contract required that the staff have only U.S.-born nationals, but there were too few.

- The only experienced programmer gave notice and left the company.
- Halfway through the project, three of the engineers had to return to China because of visa issues.
- A key engineer was pulled off the team to work on another project.
- The project manager was unavailable because of jury duty.
- Money for needed software was not in the current budget, so the project was delayed to push the expense into the next quarter.
- Contract negotiations delayed the start of work.
- The project leader resigned and was not promptly replaced.
- Outsourcing the order entry process delayed all U.S.-based customers.
- Legacy systems were not retired as planned, and the project team got tied up with unplanned support work.
- Critical skills unique in the head of a programmer were lost when he had a heart attack.
- Critical training had to be postponed because of a last-minute emergency leave by the lead designer.
- For cost reasons, an Asian supplier was chosen, but qualification and paperwork caused delays.
- Initial stages of the project were outsourced to a professor who started late and lacked needed information.
- Last project tied up and exhausted the staff; so the following project started late and slowly.
- A key contributor was lost while solving problems related to a previous project.
- An engineer critical to the project left the company.
- Team members were reassigned to other, higher-priority projects.
- Only one employee had both the COBOL and relational database data conversion experience needed and she had other conflicting commitments.
- A valuable resource was pulled off project to work on a higher-profile project.
- Team members were lost to a customer hot site.
- A consultant broke both arms three weeks before project end.
- Two projects depended on one resource for completion, and the other project had higher priority.
- The system architect who knew how to integrate all the components fell sick and was hospitalized.
- An earthquake in Taiwan made part of the project team unavailable.
- There was a lack of money for needed equipment.

- Pricing negotiations stalled project work until they could be resolved.
- Slow renewal of the contract for a consultant caused a work interruption.
- The contract had no penalties for missing deadlines and a one-week task took three weeks.
- Outsourced tasks were slipping, but this was not known until too late.
- At a critical stage of the project, the medical director left the company.
- Late in project, the budget and staff were cut. This resulted in delays, forced overtime, and team demotivation.
- Key people resigned, leaving too few to complete the project on time.
- On a very long project, enthusiasm and motivation fell, and task execution stretched out.
- Key work in flu season was delayed when most of the staff was out ill.
- The team was frequently diverted from the project to perform support activities.
- A key resource was pulled off the project twice to fix bugs in a previous product.
- The lead engineer was stuck in Japan for two weeks longer than expected because of a visa problem.
- A packaging engineer was working on another high-priority project when needed.
- Key welding staff members were out with the flu.
- Manufacturing volumes spiked, which diverted several project contributors.
- An unannounced audit midproject caused delay to participate and respond.
- An important team member was grounded in the Middle East during a regional war.