

## Killing IT Projects

### Get the Business Case Right

Every project should have a compelling business need. With appropriate process, design, and implementation, project success is ensured.

### Get the Culture Right

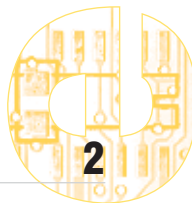
The best-laid plans may fail. Every organization must develop a culture that can deal with failure as a possible project outcome. To say "failure is not an option" is just bad management.

**"How do the turkey projects get wings in the first place; and, once flying, what prevents us from grounding them?"**

— Lynne Nix, Guest Editor

### Opening Statement

Lynne Nix



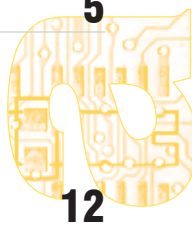
### Software Project Escalation and De-escalation: What Do We Know?

Mark Keil



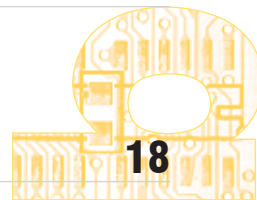
### Why Flawed Software Projects Are Not Cancelled in Time

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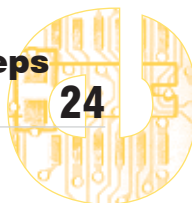
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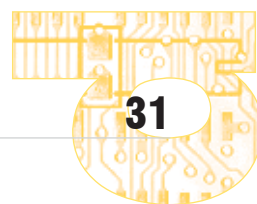
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### A Losing Gamble with Public Funds: Why Large Public-Sector IT Projects Are More Likely to Fail and Are Harder to Cancel

Payson Hall



# A Losing Gamble with Public Funds: Why Large Public-Sector IT Projects Are More Likely to Fail and Are Harder to Cancel

by Payson Hall

A large IT project represents an organizational wager: “If we invest X resources, we can obtain Y result by Z date.” When a project is affordable, the value seems worth the risk, and the proposition compares favorably to the other wagers available; the project is initiated and the game begins. Good managers then carefully monitor the cards dealt so that they can cut their losses if the game turns against them. Successful portfolio management requires skill in identifying, assessing, selecting, and monitoring wagers. It involves asking and answering key wagering questions:

- What are the current odds?
- How might the odds change?
- Should we continue to play?

It sounds simple, but in reality, good bets are hard to find. Project wagering is difficult, uncertain, and error-prone and can lead to expensive and embarrassing mistakes. The best organizations have projects in their portfolios that don’t pay off. The IT project game is tough in the private sector, even when played fairly and well.

The IT project game in the public sector is tougher still. Indeed, the deck is stacked against public-sector IT projects from the very

beginning. Current rules and practices result in poor odds for most wagers. Timely cancellation is discouraged — effectively precluding project teams and their sponsors from cutting their losses and walking away before all their chips are gone. As members of the public whose money is being gambled and lost, we have an interest in the reasons why government IT projects are more likely to fail and are harder to kill. We are bankrolling poor gamblers in a losing game, and we can expect continued losses if the rules and strategy don’t change.

**The public-sector paradox is that government’s extreme risk aversion increases project risk.**

**APPROACH TO RISK:**  
“To err is human, to forgive is not the policy of this administration.”

Project failure is wasteful and embarrassing. Both public- and private-sector projects seek to avoid failure. The key difference between the two environments is their respective approaches to risk.

The private sector expects risks to be identified, discussed, and managed. Successful organizations want their projects to succeed but give them permission to fail. A sign on one software executive’s wall offered this wisdom: “Around here we don’t shoot the messenger ... unless he’s late.” The private sector prefers success to failure, but it discriminates between low-investment early failures and later high-cost disasters. Reduced visibility is a private-sector advantage. In the private sector, most failed projects aren’t loudly publicized — they’re quietly euthanized.

The public-sector paradox is that government’s extreme risk aversion *increases* project risk. Large IT projects are risky — many fail to achieve their cost, schedule, or scope goals — yet up-front discussion of uncertainty and risk is often discouraged in the public sector. This is an understandable consequence of several factors:

- **The bad publicity that surrounds public-sector project failures.** When a government project fails, the media quickly blast the administration for “another public-sector disaster,” usually without providing

you got to know ... when to fold 'em

a context for the discussion in terms of project difficulty.

- **The conflict inherent in checks and balances.** There is natural tension between the executive branch, which requests project funding, and the legislative branch, which must approve it. Partisan rivalries aggravate this tension.
- **Increased potential for delay or rejection of the business case if risk is candidly discussed.** Many regulatory players must review a government project's business case to authorize funding. If any are uncomfortable with identified risks, it is safer to say no or delay a decision than to dare saying yes.

The consequence of risk aversion is that business cases in the public sector tend to downplay risks in two ways:

1. Marginalizing and minimizing identification and discussion of potential problems
2. Discouraging identification of stop/go decision points in the project lifecycle that imply the project might be cancelled

**In California, it is common for a \$10-million project to require three to six years from idea to initiation. That's right, initiation.**

Avoiding risk thus increases it by inhibiting an honest discussion of risk that might set more realistic expectations and by discouraging a phase-limited structuring of projects that would support better decisionmaking.

**INITIAL BUSINESS CASE:  
"Ready, set, ready, ready,  
set, ready, ready ..."**

The private sector tries to be nimble. A business case is developed, evaluated, and approved; then large projects may wait as much as 12 months for the next budget cycle to obtain substantial funding. Typical time from idea to business case to budget authorization and initiation for a \$10-million project might be six to 18 months. It is common to authorize a fraction of the budget initially — sometimes before final approval — to fund further analysis or proof of concept prototyping and get a jump on the funding process. Private organizations may choose to commit resources immediately because they give themselves permission to change their minds later if the situation changes.

The public sector is ponderous and deliberate by comparison. Before a project can be considered for the budget cycle, lengthy business case or feasibility study documents must be created. These documents must then be approved by a variety of regulatory entities. This creation and approval process can take six to 18 months. Projects funded from multiple sources, such as state

projects that receive partial federal funding, add complication and delay because additional entities must review and approve the business case and secure funding. State fiscal years generally don't align with the federal fiscal year, compounding funding complexity. The budget cycle from approved business case to funding for most federal and state entities is an additional 18-24 months.

If a project is to be outsourced, final budget approval begins the procurement process, which can require another six to 24 months. In California, it is common for a \$10-million project to require three to six years and several iterations from idea to business case to budget authorization to procurement to initiation. That's right, *initiation* — three to six years from idea to project *start*. By this time the business case is dated, many of its authors are gone, and intervening election cycles have likely resulted in senior sponsorship changes. Is anyone surprised that the objectives and rationale for most projects are obsolete when the project begins?

**THE MEGAPROJECT: "If some is good, and more is better, then too much must be just right."**

Successful private-sector organizations try to pursue large, high-risk projects in small steps where practical. This "divide and conquer" strategy helps manage risk by reducing complexity and facilitates cutting losses if the project is troubled. Two goals dominate the

approach: seek to realize value early and look for early opportunities to cancel or redirect projects not meeting their promise.

In contrast, the public sector's bureaucratic funding and approval processes encourage counter-productive aggregation of smaller projects into megaprojects because people dread multiple "trips to the well." Breaking projects into discrete subprojects would reduce project risk but would also entail shepherding multiple business cases through the approval and funding process, thus increasing the risk that some projects would not make it safely through the bureaucratic morass. Consequently, rather than making several trips up the hill to fetch water with a pail, those seeking project approval are encouraged to avoid bureaucracy by lugging a barrel up the hill to get as much as possible in a single trip. Unfortunately, the larger and more complex a project is, the greater the opportunity for failure. Megaproject disasters are the rule, not the exception.

Furthermore, to obtain funding in the public sector, the business case for the megaproject must present cost, schedule, and scope factors with unflinching confidence. Only in the federal and state arenas would anyone attempt to fully specify the cost, schedule, and scope of a \$50-million-to-\$1-billion IT project at the beginning and expect that vendors could develop credible fixed-price/fixed-schedule bids for something that large and complex.

**SPONSORSHIP/STAKEHOLDER COMPLEXITY: "Everyone with a nickel invested wants a dollar's worth of say-so."**

Projects with multiple sponsors are sometimes an unpleasant and challenging fact of life in the private sector. Good project managers work to gain consensus on decisionmaking processes and ensure that all sponsors have a consistent view of the goal. Once an organization commits to a project, it is uncommon and unproductive for factions to emerge that threaten project success, because failure impacts all sponsors.

Complex sponsorship and stakeholder relationships are the unfortunate norm on large government IT projects. In addition to the organization sponsoring the project, other regulatory bodies, control agencies, and elected and appointed officials have the authority to require additional reporting and procedural compliance. Sharing project costs among multiple jurisdictions involves even more actors. These sponsors and stakeholders frequently have differing goals and agendas and sufficient authority to delay the project until they are satisfied. When an IT project discovers that initial schedule or resource projections (from the business case built years earlier) are incorrect, a host of players may insist on being involved in the change management process without regard to the resulting delay.

At the end of the day, multiple entities have the authority to derail a public-sector IT project, but few have any accountability

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for making it succeed. This creates an intractable situation that makes success more about bureaucratic maneuvering and luck than hard work, engineering, or good management.

**PROCUREMENT: "Lie to me."**

There may be a time and place for fixed-price/fixed-schedule contracts for massive IT projects. The time is almost never, and the place is nowhere near competent organizations. Solicitation of fixed-price/fixed-schedule bids makes sense only if work is exceptionally well defined, the processes and quality standards are clearly described in advance, and it is expected that any of several competent contractors could provide a comparable work product within a narrow range of schedule and cost variance. In this case, soliciting competitive bids encourages vendors to shave some of the profit from their bid to obtain the work. This situation almost never exists on large IT projects.

In the private sector, portions of a project that are well understood and defined (e.g., data conversion or hardware procurement) may be bid at fixed price. Portions of the

project that are expected to be learning events (system analysis, design, development, testing and implementation) are frequently managed as time and materials or fixed price per phase, with the understanding that each step will refine the understanding of the work, resources, and time required for subsequent steps.

Selecting a vendor may be a competitive process, but cost is only one factor. In a private-sector project, the vendor agrees to do work, and you agree to pay. Both parties know that a successful project and good relationship at the end are in their mutual best interest. The vendor would like a successful project and a satisfied client it can reference, and it would like to work with your large organization again; if you are unhappy, neither is likely. If problems arise along the way, smart vendors work with you to find a mutually acceptable solution or an exit strategy that minimizes damage to the relationship.

In the public sector, we create a perfect procurement storm that can wreck the best of intentions. Public-sector procurement rules codify the waterfall development model on a huge scale without acknowledging or addressing any of its limitations. On one hand, we have an aged, phone-book-sized business case and requirements document. On the other hand, we have a procurement process that favors the lowest bidder in fixed-price/fixed-schedule procurement for these carefully defined and comprehensive requirements (wink, wink). We

then ask potential bidders a foolish question that can be roughly translated as:

Given this obsolete and imperfect description of what we want and a schedule that was established with mechanisms unrelated to the work involved, give us a guaranteed cost that accounts for the information we haven't told you, delays beyond your control, unanticipated surprises, and changes yet to be identified.

Systems integration firms know that daring to admit that this is a stupid question will result in their exclusion from a share of the multi-million-dollar procurement. Given little alternative, vendors hold their noses and produce proposals that they hope address the requirements while trying to guess at a price that is credible and competitive, knowing that they will not and cannot be held to the schedule, scope, or budget they propose. This process — at best, bad judgment; at worst, bad faith — does not provide a solid foundation for the project work ahead.

**VENDOR MANAGEMENT: “Don’t make me pull this car over ...”**

Inevitably, questions and issues arise regarding project boundaries and vendor responsibilities. In the private sector, there is typically an escalation path that seeks to resolve or remedy issues at the lowest level possible, but both parties know that ending the relationship is the ultimate recourse if other accommodation cannot be

reached. This makes the business relationship not one between equals, but one of client and vendor, where the client is paying the bills and can “fire” the vendor.

Things are more confusing in the public sector, due primarily to the larger project size, the lengthy and cumbersome procurement process, and the public-sector preference for fixed-price contracting. Everyone would still like a successful project, but the client-vendor relationship, which is typically dominated by the client in the private sector, can come to be dominated by vendors in the public sector. The vendor knows that it is exceedingly difficult to stop the project or discontinue the vendor relationship because:

- Stopping the project would be perceived as a sign of project weakness that might shake the confidence of some of the sponsors; a stopped project might never start again.
- Changing vendors might require having to go back not only to the procurement step (a six-to-24-month delay), but also the budget step (an additional 18-to-24-month delay) since the budget timing would change. All this for a project that already has an aged business case and has now been labeled “troubled.”

Because everyone involved knows this, it gives vendors inappropriate negotiating leverage. Some unscrupulous vendors bid public-sector projects well below cost,

knowing that once the project is underway they can recoup their margins by inflating change orders or reducing scope elsewhere. Public entities have few options if a vendor begins to abuse its leverage. To add insult to injury, most public entities have no provision for allowing previous bad experiences with a vendor to influence the selection process. Vendors can hold a project hostage knowing that their public-sector clients have little recourse.

**MANAGING CHANGE: “Success is unlikely when the rate of change exceeds the rate of progress.”**

Effective private-sector organizations expect and manage change. Substantive change triggers a reassessment of the wisdom of continuing the project and may result in cancellation or substantial redefinition of the project to minimize losses. Reviewing and approving substantial changes to schedule, scope, or resources is the responsibility of the project’s sponsors who monitor the project wager for a change in the odds of winning or the return on the gamble.

The long duration and complex sponsoring relationships of large public-sector IT projects subject them both to more *sources* of change and higher *likelihood* of change. As noted earlier, project scope is frequently described in a business case or feasibility study that is three to six years old by the time the project begins. Not only are there ambiguities, inaccuracies, and omissions in those documents,

new laws and regulations are frequently promulgated *during* the project. Long project durations virtually guarantee that technology will change and that there will be new or changed interfaces to adjacent systems. Project resources change, not only in response to scope change, but as a result of personnel turnover. Schedule changes result from scope changes and the inevitable delays needed to gain approvals from the numerous sponsors.

Because making change visible is frequently interpreted as an indication of project trouble and can result in unwelcome scrutiny and delays, there is pressure to hide change from the project’s sponsors whenever possible. Frequently, this is accomplished by redefining ambiguous scope out of the project through quiet negotiations with systems integration vendors.

**PROJECT STATUS: “If we punish the bearers of bad news, bad things will stop happening.”**

The initial assumptions and estimates about schedule, scope, and resources for a nontrivial IT project are never completely accurate. We can’t predict the future that well. Anyone who suggests otherwise is foolish or cooking the books.

Sponsors use status information to monitor their investment and determine the need for intervention. Sound project decisions must be based upon timely and accurate status information. In the private sector, falsifying project status is

**When variance is detected, multiple parties spring into action — each wanting detailed explanations, corrective plans, and new policies and procedures.**

called “fraud” and is typically a career-limiting activity.

In the public sector, project status is a more complex and sometimes political issue. None of the sponsors, stakeholders, or oversight bodies in the complex web of authority wants to be the last to discover that a project is troubled. This manifests itself as extreme sensitivity to the reporting of variance from plans. When variance is detected, multiple parties spring into action — each wanting detailed explanations, corrective plans, and new policies and procedures to ensure the sources of variance are identified and eliminated. Having multiple anxious entities involved means that projects that report a few otherwise manageable problems may suddenly become deluged with complex governance and reporting issues. While few entities have the authority to cancel the project outright, many have the ability to overwhelm it with requests for data and requirements for new processes, effectively delaying things further and increasing risk.

If governing bodies cannot be quickly appeased, sacrificing the project manager is a common

tactic used to demonstrate that “something is being done.” This creates a situation in which the project manager is encouraged to avoid reporting bad news out of concerns for the impact on project viability as well as his or her own career. Corrective action may even be discouraged because it implies problems exist.

**Better returns on public-sector IT wagers will require substantial changes in the way that both government and the public think about projects.**

The state of California experienced several high-profile IT project failures in the 1990s. When a new administration took over in 1998, a senior official warned agency CIOs, “This administration does not want ANY project failures during the next four years.” Taken literally, this directive left CIOs with few options:

- Engage in no IT projects during the next four years.
- Defer all measurable outcomes until after the next election.
- Do not admit failures until the next administration change.
- Redefine success and failure.

Sometimes there are astounding structural incentives to obscure project status. One \$100-million project was begun with a 90/10

funding split between the federal and state government, *provided* it could be delivered on a prescribed date. If the state wouldn’t or couldn’t promise to meet the schedule target, the funding formula changed to 50/50. Would you like to be the state project manager who believes a schedule slip is necessary or unavoidable but recognizes that honestly acknowledging that fact will cause a \$40-million increase in the project budget?

### IMPROVING PROJECT OUTCOMES IN THE PUBLIC SECTOR

Public-sector IT projects are just like projects in the private sector — except that they are bigger, are more complex, have multiple layers of sponsorship, take much longer, have additional layers of oversight and red tape, must adhere to a strict waterfall model, and are not allowed to have any problems along the way. This is frequently a losing game, but it doesn’t have to remain that way.

Profitable gambling doesn’t mean always winning — it means winning more than you lose. Improving government IT project outcomes requires two parallel strategies:

1. **Winning more** — changing the practices and policies surrounding public-sector projects so that they are more likely to succeed
2. **Losing less** — establishing an environment in which project cancellation is seen as a positive management choice and not an indication of mismanagement and failure

Better returns on public-sector IT wagers will require substantial changes in the way that both government and the public think about projects. We must simultaneously reduce the likelihood of failure while increasing the tolerance for some failures.

The single most effective change that could be made to improve the odds of success is to *decrease the size of the projects attempted*. Where projects cannot be scaled back, they should be factored into smaller projects that are individually more likely to succeed. This divide-and-conquer strategy will accomplish several important things. It will:

- Decrease the complexity of individual projects
- Decrease project durations, reducing exposure to change
- Improve the quality of the estimates
- Reduce the amount of each project wager
- Facilitate cancelling or restarting efforts that get off track without undermining the credibility of the larger initiative
- Simplify vendor management

The Byzantine regulatory and oversight structures that exist at all levels of public-sector project sponsorship make government projects untenable. We must seek a better balance between appropriate fiscal oversight and multitiered micromanagement. While making projects smaller may relieve some

pressure, we need to reconsider the ways authority and funding are delegated. Public-sector IT projects must:

- Delegate authority and accountability for day-to-day sponsorship decisions to where the work is happening.
- Include reasonable risk reserves in budgets and schedules to respond to changes that inevitably arise during large IT projects (20%-40%), then manage change carefully.
- Expose laws and regulations that mandate how and when technology projects will be implemented (and specify penalties for variance) for the farce they are. Punishing an honest assessment of status does *not* encourage timely reporting or prompt response to issues.
- Ensure that the consequences of change are understood. Executive, legislative, and regulatory mandates to freeze or cut staff, delay or reduce expenditures, or modify project scope must be met with a timely assessment of the impact of these changes on affected projects so that sponsor expectations can be realigned, the project business case reassessed, and the project definition adjusted accordingly.

Healthier vendor relationships would benefit everyone. Smaller projects will help make the procurement process more rational,

but there are healthy market forces that could be nurtured in the public sector to improve the quality and responsiveness of service:

- Establish procurement rules that favor vendors with a history of providing good service and disfavor those who have provided poor service.
- Recognize project management as an essential skill, then recruit, retain, develop, and pay for better IT project management and procurement expertise in the public sector. Strong large-scale systems integration project managers in the private sector can earn \$250K per year; their government counterparts earn half that or less.
- Move away from fixed-price procurements. Well-managed time-and-materials engagements are more cost-effective (no risk premium) and reduce the adversarial relationship between vendor and client.
- Work with multiple vendors on the same project. This improves the flexibility to end vendor relationships that are not going well without devastating the project.

Finally, we must address the problem of perception. When a government IT project fails, the media frame the failure as “squandered public funds,” not as a failure to accomplish something complex and difficult. As professionals, we must work with the press and the public to build a more realistic

understanding of the size, complexity, and risks of large IT projects. We must improve the caliber of the questions from “Who was responsible for this screw-up?” to “When were the problems first detected, and was it a conscious choice to continue?” We should encourage early cancellation. We can and should be more forgiving of \$1-million failures than \$1-billion failures. It will be both difficult and essential to change these perceptions.

Since it is our money on the table, being risked to build IT systems for our collective benefit, we *all* have a stake in this game. Large IT projects will continue to be gambles. Today, there are better odds in the project wager for a new \$4-billion airport than there is for a new \$4-billion air traffic control system. We need IT systems today that we cannot readily build. We can wish that the state of the practice were otherwise, but wishing won’t make it so. We can’t ensure that each wager is successful, but if we choose our wagers carefully, play well, monitor the game closely, and fold losing hands earlier, we *can* become more skilled and successful IT gamblers. That is the best strategy available to us.

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### Lynne Nix, Guest Editor

Lynne Nix is a Senior Consultant with Cutter Consortium's Risk Management Intelligence Network and Agile Project Management Practice. She is the founder and president of Knowledge Structures. She has extensive technical and management experience in software engineering projects. Ms. Nix has provided professional services to many of the world's leading computer software and hardware manufacturers, major banks and financial institutions, insurance companies, and government agencies. Her training and consulting assignments have covered a wide range of software engineering topics, including strategic, tactical, and operational planning; business case development; project management; requirements definition; development; and course development and training. She can be reached at [lnix@cutter.com](mailto:lnix@cutter.com).

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