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STICKYMINDS ORIGINAL

Column: Nov 24, 2003

The Only Winning Move

By Dave Gelperin

Summary: Organizations that don't expect and encourage about 20 percent of their projects to be stopped may either be wasting resources or implementing only the safest bets. Denying reality or playing it safe may be the riskiest strategy of all according to industry authority David Gelperin.

"A strange game. The only winning move is not to play."
— Joshua, an AI system in the 1983 movie War Games

At the end of War Games, Joshua has gained full control of America's nuclear strike capability. He has just finished an in-depth analysis of the likely outcomes of various attack scenarios. The "strange game" Joshua refers to is Global Thermonuclear War.

Joshua's insight also applies to some software projects, where the only winning move is not to continue to play i.e., to stop (suspend or cancel) the project. In "Project Termination Doesn't Equal Project Failure" [IEEE Computer Sept. 2000 or http://www.cs.unc.edu/~welch/class/comp145/media/docs/Boehm_Term_NE_Fail.pdf], Barry Boehm argues that cancellation of some projects should be a normal and expected occurrence in well-managed software development organizations. He says that, in a world of rapid change, a 30 percent project cancellation rate may not be high enough.

There are many reasons to stop a project, including:

Environment

New government initiatives or controls may change priorities.

Business

The introduction of new products by competitors may redefine goals.

Organization

Business reengineering or integration with other organizations may change priorities.

Technology

New technologies may make design strategies obsolete.

Personnel

Critical stakeholders may not be sufficiently involved or may have serious disagreements with each other, or developer capability may have been misjudged.

Innovation is bred in organizations that encourage risk-taking, that expect some stopped projects, and that implement a management strategy of incremental commitment. Incremental commitment anticipates change and learning. Projects are marked by multiple review-points where project status and justification are reevaluated. Projects can be reauthorized, suspended, or cancelled at any review-point. The ability to stop projects before completion is a mechanism for managing quality while taking risks.

As with any human decision, we can get it wrong by stopping work on a project that should continue. More often however, for an array of psychological, social, and cultural reasons, projects continue that should be stopped. We need stakeholders to buy-in to stopping, just as we need them to buy-in to the project. Some projects, like some

government programs, seem to develop a life of their own.

Failure to stop a deserving project can result in:

- insufficient resources for priority projects
- projects that deliver nothing or little-used systems
- turnover of key staff, because working on failed projects is a major cause of extreme frustration and burn-out

Organizations that don't expect and encourage about 20 percent of their projects to be stopped may not be taking enough chances or may be wasting significant resources. High-payoff projects are often risky, but "playing it safe" may mean a significant loss of opportunity (e.g., market share to risk-savvy competitors) and may be the riskiest strategy of all.

Is your organization taking enough chances? Does it communicate its expectations with a line item in the yearly budget for stopped projects? Have you been on a project that should have been stopped but wasn't? What did you do or wish you had done? Let us hear from you.

About the Author [David Gelperin](#) is CTO & President of [LiveSpecs Software](#) in Minneapolis, MN. He has more than thirty-five years experience in software engineering with an emphasis on software quality, verification, and testing (SQVT) and software process engineering. David has been a SQVT consultant/mentor and instructor (20 yrs), quality support manager (5 yrs), verification lead (2 yrs), project lead (2 yrs), and programmer (5 yrs). He has consulted for both commercial and in-house software development organizations. In 1986, David co-founded Software Quality Engineering ([www.sqe.com](#), [www.stickyminds.com](#)), the leading provider of software quality information worldwide. In addition, David chaired the development of both ANSI/IEEE standards on software testing – 829 on software test documentation and 1008 on software unit testing.

Reader Comments

Why do I hear angel voices singing that Kenny Rogers' song 'The Gambler', I wonder? Must be my imagination. Thanks for a great article, Dave. I just wanted to add that as QA I also agree with William - unrealistic expectations were the major factor in most of the projects I've seen fail. They were also the major factor in poor morale, regardless of whether the specific project lived or was put out of its misery. As QA, I find I also have to be realistic: project managers might be the next up in the food chain from me, but they are not always the people with the authority to cancel something. If I have to tell a project manager that in their position I'd pull the plug, I try also to make it clear I'm prepared to support them in making the business case for cancellation wherever they need me. Too often I find QA and PM/dev degenerate into squabbling among themselves about this issue, when they might be more effective if they joined forces and thought of themselves as all being in the same boat.....(12/04/03) *Elizabeth Knight*

At a major New York insurance company a few years back when we were setting up the processes, we included a "get out of project free" card. After design and before coding begins, the participants at that point - PM, architect, customers, QA, etc. - meet to discuss whether to continue with the project or cancel it and take the losses incurred to date. Because the concept was sold to mgt, it was a positive thing to come away with a cancelation - no one lost face or reputation. Instead of blaming someone for starting the project in the first place, people were congratulated for saving the company from more losses. Since we worked in an increasingly "re-usable everything" environment, not everything was a loss, and the lessons learned were priceless. -steve blais....(11/25/03) *Steven Blais*

Author's Response: What a great story of one companies "enlightened" approach. Thanks for sharing Steve. David....(11/28/03) *David Gelperin*

One of the amusing "metrics" used to prove the "software crisis" is still with us it comparing data from 20 years ago with today's data on the project cancellation rate - as a single number without any other qualifying information. This number seems to have stayed nearly constant over this period. What is missing from these 2

page scare stories in the popular magazines (pulp?) is any further quantification of WHEN these cancellations occur. I've worked on several large (\$125 Mill, \$5 Bill) projects where they were cancelled after initial delivery, or the company went bankrupt after delivery. I've also worked on projects where at the end of the design the project has been cancelled due to more accurate cost/benefit analysis, and others that were cancelled after a thorough requirements analysis. The use of a single data point to substantiate an argument is often indicative of shallow thinking/writing. Complex problems usually need data from a variety of views. Dave has made an interesting comment on the arena of project cancellation.....(11/25/03) *Ed Weller*

└ Author's Response: Ed: Please see response to Andrew (below). Thanks for your comments.....
(11/28/03) *David Gelperin*

David, your point that cancelled projects are a normal consequence of innovative risk-taking is well taken, but a high cancellation rate could just be a sign of incompetence: you can't tell without analyzing specific cases. Furthermore, the normal cancellation rate of a competent organization may depend on what business it is in, as well as external factors that change with time. Therefore, "encouraging" a 20% cancellation rate, or any other specific figure, seems to be putting the emphasis on the wrong issue: it is innovative thought itself that needs encouragement. Admittedly, this includes removing the stigma associated with having been a participant in a cancelled project, at least when it was conducted competently.(11/25/03) *Andrew Raybould*

└ Author's Response: Andrew: I very much appreciate your comments as well as those of Ed (above) and Gerold (below). You all understood that the point of the column was to advocate incremental commitment and "successful stopping", but you expressed dissatisfaction with "% of cancelled projects" as a useful indicator and caused me to think more deeply about measuring project risk and termination. As a result, I propose that development directors ask for the following information on a yearly basis: (1) What % of our total yearly project value falls into each of the 5 project risk categories? This assumes that each project has an associated measure of its value to the enterprise and contains a risk assessment task as part of its planning process. This question provides a profile of risk undertaken. (2) What % of the project value in each category completed successfully, completed unsuccessfully, stopped successfully, stopped unsuccessfully? This distinguishes between failure and success and between completion and stopping before the end. Ed provides two examples of what I think of as "successful stopping" -- one at the end of requirements and one at the end of design. This question provides a profile of outcomes by risk category. (3) For each project, I would want (honest) answers to two questions: a. Should we have started this project based on what we knew at the time? b. Should we have stopped sooner? This assumes that some form of project retrospective will provide quality indicators for our project management judgments. I hope you find this approach more useful.....(11/28/03) *David Gelperin*

An interesting article, But I wish you had said more about when projects should be canceled. To drop a project in the requirements stage is relatively painless, but to drop it after investing millions of dollars and thousands of hours of work isn't. In fact it's a good way to destroy a development team. I have been a developer for about 30 years now, and in that time I have rarely seen a project terminated for any of the reasons you list in your article. I would say the two most common reasons projects are terminated are unrealistic goals, and company politics. (Of course the two often go together.) In every case the result was damaged moral, increased turn over, and heavy costs to the company.(11/24/03) *William Ames*

└ Author's Response: William: After project initiation, the three most important justification review points follow needs assessment, system specification, and architectural design. Each of these activities may provide significant new insight into project feasibility and lead to "successful stopping". Any later activity may uncover "nasty" surprises that require a justification review, but this should be an exceptional occurrence. You mentioned that you have rarely experienced successful stopping, but spoke of termination caused by unrealistic goals and company politics. These causes of project failure sit atop Barry Boehm's list of top 10 software project risks. (1) Personnel shortfalls (2) Unrealistic schedules and budgets (3) Developing the wrong functions and properties (4) Developing the wrong user interface (5) Gold-plating (6) Continuing stream of requirements changes (7) Shortfalls in externally furnished components (8) Shortfall in externally performed tasks (9) Real-time performance shortfalls (10) Straining computer-science capabilities. This list complements my list of reasons for successful stopping. Thanks for your comments.....(11/28/03) *David Gelperin*

Hi Dave, I agree that 20 to 30 percent of projects probably should be stopped, in a healthy, risk-taking software organization. These organizations can afford the budget line item to support that rate of stopped projects,

because of profitable returns on innovative projects that succeed (the other 70 to 80 percent). Also, "stopped projects" should be considered valid part of R & D, at least conceptually if not literally on the annual budget projections. I'm not sure exactly how to protect against disappointed customers in the 20-to-30 percent--except maybe by using Incremental Commitment. i.e., marketing research leads to beginning a project, but making promises to potential customers doesn't happen until you reach a certain point in the Incremental Commitment, past a certain point where the project's risk of termination can be reduced. Something like that. At any rate, risk and quality process/planning don't have to be at odds. The worst fate is having to continually fix-and-feed software that should've been stopped; software that will eventually stop anyway (after more dollars are sunk with the sinking ship). >>Thanks for another great column.....(11/24/03) *Robert Rose-Coutre*

david, thanks for reminding us that not every project deserves to be finished. what i question, however, is that a metric like "% of cancelled projects" is of any use. the implication of a cancelled project must be interpreted in the specific context of that project. and what about customer requested projects? do you want to leave 20% of you customer population with empty hands? best regards,....(11/24/03) *Gerold Keefer*

└ Author's Response: Gerold: Please see response to Andrew (above). Thanks for your comments.....
(11/28/03)*David Gelperin*

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