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Short-Term and Long-Term Remedies for Runaway Projects

"At last I've found the secret that guarantees success; to err, and err, and err again, but less, and less, and less."—Ogden Nash

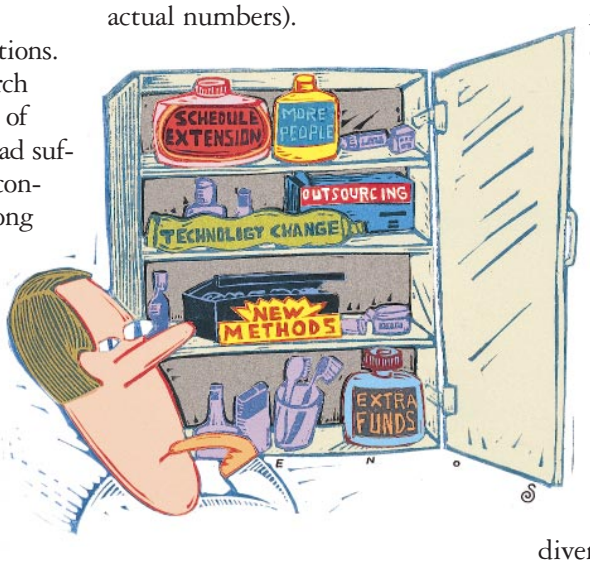
What do you do when a software project threatens to become a runaway, spiraling out of control? And then when the smoke clears, what do you do to keep it from happening again?

These are fascinating questions. This column is about a research study [1] in which a number of companies in England that had suffered runaway projects were contacted. They were asked, among other things, these two questions.

With respect to the first question, here is what the companies said about attempting to recover during a runaway. They tried (in order of decreasing commonality):

1. Extending the schedule—85%
2. Better project management procedures—54%
3. More people—53%
4. More funds—43%
5. Pressure on suppliers by withholding payment—38%
6. Reduction in project scope—28%
7. New outside help—27%
8. Better development methodologies—25%
9. Pressure on suppliers by threat of litigation—20%
10. Change of technology used on the project—13%
11. Abandoning the project—9%
12. Other—9%

(Percentages in this list are readings from graphs presented in [1]. The study did not contain the actual numbers).



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Since these choices raise some additional questions, I would like to examine and analyze them further.

Extend the schedule. Note that this is the most common remedy, exceeding its closest competitor by more than 30%. The remedy suggests one or both of two things—either the productivity of the developers has been too low, or the original schedule was too ambitious (my personal belief is that the latter is usually the prime cause of schedule overrun). Extending the schedule may or may not be a simple remedy, of course. If there was a substantive reason for setting the schedule in the first place, such as a prime market opportunity or a need to integrate the results of this project with another, then this remedy may be an exceedingly painful one. But, if (as is often the case) the schedule was somewhat arbitrary in the first place, then this remedy is easy and relatively painless.

Employ better management procedures. This remedy, one can imagine, covers a multitude of sins. It suggests that inferior management procedures were used on the project up until the point of applying the remedy. Perhaps the managers in question had their attention diverted by too many other activities, or perhaps an inept manager was in charge and is now being replaced by a more effective one. In any case, the remedy is relatively easy to apply. (It is interesting to note that "improved project management" was the remedy most often suggested as a step to ward off future runaways, as we will see later in this column. This suggests the survey respondees

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either (a) were aware of project management problems and a way to fix them, or (b) used this response as a generic one to which they attributed little specific meaning. The study offers no clue as to which might be the case).

Add people. This is a particularly interesting remedy, because Fred Brooks has said that adding more people to a late project makes it even later (in fact, that is the title theme of his "Mythical Man-Month"). The reason, of course, is that integrating new people adds learning curve costs. Nevertheless, this is a relatively easily applied remedy. If the added people happen to be knowledgeable and experienced in the project, then those learning curves are diminished—the new people can "hit the ground running."

Spend more money. This remedy can be paired with the first, extending the schedule. That is, more time costs more money. But there are other ways more money can be spent on a runaway—adding people (as I've mentioned) or equipment or outside services. In fact, no matter what remedy is used, it will usually result in spending more money. Consider the remedies in this list—all but two: "reduction in scope of project" and "abandoning the project"— result in increased cost.

Apply pressure on suppliers by withholding payment and *Apply pressure on suppliers by threat of litigation.* These two remedies imply that the runaway project is dependent on one or more outside suppliers. These are the only two remedies for which the research study provides some words of explanation. "A remarkably high number of organizations became involved in disputes with their outside suppliers," the authors said. It was remarkable for two reasons: (1) in a similar study conducted in 1989, none of the organizations in question had been involved in formal disputes; and (2) in this newer (1995) study, 38% withheld payments, 20% threatened litigation, and 4% actually sued. Apparently there is a dramatic increase in the role of the legal system in runaway projects.

Reduce project scope. It is not always possible to reduce the scope of a project—that is, to eliminate requirements in order to make the task manageable. But it is usually possible to defer some requirements or features. It is surprising this remedy was not among the top five used. The implication of its sixth position is that most of the projects in question could not, or would not, defer or eliminate any requirements.

Get outside help. There is an increasing trend toward the use of outside people on internal projects. Academics say that their best students are increasingly being hired, not by the companies using computing solutions, but by consulting firms, software houses, or service vendors who provide those services for hire. Note that this remedy automatically invokes several of the other remedies, such as "more people" and "more money" and (perhaps) "more time."

Use better development methodologies and *Change the technology used in the project*. These remedies pair with each other and also with the second remedy: "better management procedures," in the sense that they imply the project in question used poor procedures or methodologies or technologies. I find this remedy troubling. Changing methodologies or technologies in midstream may traumatize a project and guarantee its failure. The time to switch methodologies and technologies, I would assert, is not at mid-project, but at the project's outset. The exception to the rule would be when a damaging methodology or technology was being used (perhaps the project had been sold on some experimental and untried process, for example), and its use needed to be discontinued immediately. In any case, changing methodologies is not an easy remedy to apply. There are, as with adding more people, learning curves to be absorbed.

Apply pressure on suppliers by threat of litigation. (This remedy was discussed under #5.)

Change the technology used in the project. (This remedy was discussed under #8.)

Abandon the project. The only way in which this is a remedy is that it stops project bloodletting. But abandoning the project means returning to the status quo, which presumably had been found wanting. What is interesting and perhaps surprising about this remedy is its infrequent occurrence (at the

10% level). In other words, most of these runaway projects did not end in failure!

I've covered the remedies used during runaway projects. Now, let's look at what those same companies planned to do in the future to avoid similar problems:

- Improve project management—86%
- Feasibility study—84%
- More user involvement—68%
- More external advice—56%
- None of the above—4%

There are some particularly interesting things about this list. The first is that it is quite short. There were 11 remedies attempted during the runaway projects, but only four were proposed after the fact. Of course, some of the remedies attempted during the projects make no sense as a long-term cure. More time, more people, more money, pressure on suppliers, or abandoning the project are efforts of expediency only.

But some of the other remedies tried during the runaways would seem to have longer-term corollaries. For example, during the projects, some remedies focused on technology—better development methodologies and change of technology. Neither of those appears in the list of longer-term ideas. It is as if technology is a problem of the moment, not a long-term focus.

Another interesting difference between the lists regards user involvement. It is seen as a long-term remedy, but nothing analogous to it was tried during the projects themselves. Of course, one remedy attempted during the projects was reducing the project scope, something that should not be attempted without consulting the users. Still, there is the belief that the respondees who saw more user involvement as a long-term solution may be repeating a mantra rather than speaking from experience.

Perhaps the most interesting of the long-term ideas, falling at a strong second position, is the notion of a feasibility study. The implication is that feasibility studies were not conducted on projects that became runaways. There seems to have been an unrealistic optimism at the outset of those projects, and management is deciding to follow a more rational approach in the future.

But the strongest theme, running across both the in-progress remedies and the long-term remedies, is better project management. There is a very strong belief among these companies that project management is the prime cause of software runaways. But what does improved project management really mean? There are lots of tasks that managers perform. Which are the ones that need improving? How are they to be improved? These questions, begged by the research study findings, are not answered here. Perhaps it is finding answers to those questions that could provide us with the most progress toward stemming software runaways in the future. C

REFERENCE

1. Cole, A. Runaway projects—Cause and effects. *Softw. World 26*, 3 (Mar. 1995).

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