Is Your Project Turning into a Black Hole?

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Any seasoned executive knows that information technology (IT) projects have a high failure rate. Large IT projects can become the business equivalent of what astrophysicists know as black holes, absorbing large quantities of matter and energy. Resources continue to get sucked in, but little or nothing of value ever emerges. Of course, projects don't become black holes overnight. They get there one day at a time through a process known as escalating commitment to a failing course of action.[1] While escalation of commitment can occur in any type of project, it is particularly common in large technology-intensive projects, such as those with a strong IT component. The complex and uncertain nature of these projects makes them particularly prone to escalation. Without executive intervention, projects of this type will almost inevitably turn into black holes. Consider the following three examples:

> In 2004, car rental firm Avis Europe canceled an ERP system after spending $54.5 million. The project had "encountered substantial delays and consequently higher cost due to a number of fundamental problems with its design and implementation." In a statement, the company's CEO said: "We are very disappointed that major IT parts of the project have incurred significant exceptional costs and will not deliver the anticipated benefits. We felt it was right to take decisive action on the results of the review." But with 54.5 million down the drain, one has to wonder if the executives could have exercised that decisiveness at an earlier stage.[2]

> In 2005, the FBI canceled its virtual case file (VCF) project after having spent $170 million. VCF was designed to replace the bureau's antiquated paper files and provide a networked system for tracking criminal cases. Begun in 2001, the project was to be completed within three years but the FBI failed to manage both the software vendor (SAIC) and the project's scope. As a result, requirements grew and costs skyrocketed, but the project continued. In 2004, after removing an internal whistleblower who tried to draw attention to the failing project, the

FBI hired a consultant to review the VCF project. Still, in March 2004, the head of the FBI (Robert S. Mueller III) testified before a House subcommittee that the FBI had corrected problems with the project and that he expected the last piece of the VCF project to be implemented by summer. When the consultant's report was completed in January 2005, it became clear that the "software was incomplete, inadequate and so poorly designed that it would be essentially unusable under real-world conditions." As a result, the VCF project was killed. FBI director Mueller later acknowledged: "I did not do the things I should have done to make sure that [VCF] was a success."[3]

In 2008, the airline carrier Qantas canceled its Jetsmart parts management system after spending $40 million on the project. Problems with the project emerged as early as 2004, when employees argued that the system would unnecessarily increase their workload, but the company pressed forward with the project nonetheless. Mechanics were urged by their union not to assist with the implementation of the system. As a result, "issues arose with the system, training, and the management of change," according to the executive general manager of Engineering. According to a union representative, mechanics were not involved in the development of the system, management could not do an adequate needs assessment without their input, and as a result "Jetsmart was a white elephant that didn't work."[4]

Now if these were isolated examples, it would be one thing, but we know from prior studies that this is just the tip of the iceberg: over 40 percent of all IT projects experience cost and schedule overruns and another 25 percent are either cancelled prior to completion or deliver outputs that are never used.[5]

Managers and executives sometimes have a tendency to become trapped in failing courses of action, even when there is evidence that things are going seriously wrong.[6] Executives can learn to avoid this trap, however, if they understand the dynamics of the escalation process. Actionable advice already exists for how executives can recover runaway projects[7] and how they can extricate their organization from a project that has gone awry,[8] but the most challenging task associated with these situations is determining whether an escalation problem exists in the first place. The executive needs to know how to detect projects that are in danger of becoming black holes so that corrective measures can be taken earlier as opposed to later. Early intervention can staunch the flow of resources that get sucked into the black hole, but this requires knowledge of how escalation develops over time, what the warning signs are, and how the process can be halted.

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Most of the available knowledge about escalation has been focused on identifying factors that increase the risk of escalation.[9] Unfortunately, little is known about the *process* by which escalation occurs, i.e., how the black hole comes into being.[10]

During the past 16 years, we have collected data on hundreds of IT projects that escalated in order to understand how and why escalation occurs and, more importantly, how such projects can be recognized at an early stage and salvaged if possible, or abandoned if necessary.[11] Much was learned about the escalation process from an in-depth case study of a New Deposit System (NDS) at a mid-sized European Bank (EuroBank).[12]

The escalation process that was observed at EuroBank led to the development of a framework that can be used to understand the stages of project escalation.[13] In this article, we briefly describe the EuroBank case, present the framework, and demonstrate its general applicability by applying it to another case of IT project escalation, namely, the California Department of Motor Vehicles' Database Redevelopment Project. We then extend the framework so that managers can use it to detect whether a project is at risk of becoming a black hole, determine to what stage the process has advanced, and initiate corrective action.

EuroBank's New Deposit System Nightmare

NDS was a large in-house IT project undertaken by EuroBank during the 1990s. NDS was viewed as "mission-critical," since it involved the replacement of an antiquated system for all payments and transfers that had become difficult to modify and prone to failure. Facing increasing competition and a greater emphasis on new service offerings, EuroBank needed a system that would accommodate the need for greater agility. When the NDS project proposal was introduced to the corporate IT board, which was chaired by the CEO, the NDS project was framed as being "necessary and urgent" which created the momentum to move ahead with the project. The project budget was set at €8 million (revised upwards from an initial estimate of €5 million). As the project unfolded, differences of opinion developed between key project participants regarding both the development approach and the scope of the project, and the project began *drifting*. As one manager put it: "There was no agreement on what kind of system [we were going to build]." To senior IT managers, it seemed like nothing was happening in the project and problems started to emerge. A review by external consultants confirmed the growing concerns of managers involved with the project. The project steering committee requested improved project control and reporting practices and even replaced the project manager. Unfortunately, the new project manager did not have the skill set to manage the project effectively. Thus, while some improvements were made in terms of project monitoring, problems persisted and resource expenditures continued to rise. Moreover, without any clarification on the development approach and the scope of the project, a pattern of *treating symptoms* resulted, wherein the responses to problems were ineffective because they did not address the root causes that gave rise to the problems. A number of small steps were taken but there was no reassessment of the underlying course of action or the project goals.

Over time, an executive vice president who was the highest-ranking member of the steering committee grew increasingly concerned and upset over the rising cost of the project (the projected total cost had been revised several times and was now at €18 million) and a new review was conducted. The review highlighted persistent problems in the area of project management capability, control, and reporting, and pointed to the lack of visible results. By this time, the problems facing the project had become increasingly visible throughout the organization and the projected cost had grown to €20 million, 2.5 times the initially approved budget. Doubts regarding the viability of the project began to surface, but nobody closely associated with the project wanted to seriously consider abandonment at this point. So, decision makers began *rationalizing continuation*.

In the face of the doubts, large cost increases, and mounting delays, the project manager rationalized continuation by arguing that project planning had now advanced to a point where further delays were unlikely and that there was now "light at the end of the tunnel." As further technical problems surfaced, the steering committee assembled for a full-day meeting about the state of the project. The viability of continuing to move forward with the current approach was now openly debated, and several committee members expressed frustration with the project situation and a lack of confidence in the project manager. In response, experts from the IT department managed to paint any alternative courses of action that came up for discussion as equally or more problematic, while at the same time offering new arguments for the benefits that NDS would ultimately bring, thus providing sufficient rationalization for staying the course.

In the next months, the detail and accuracy of project plans were improved, but as additional task complexity was uncovered, the projected cost had to be further adjusted, now to €25 million. Since the IT director faced intense pressure from the CEO-to-be to curtail overall IT costs, he decided to propose cancellation of the NDS project in favor of renovation of the existing legacy system. When this recommendation was presented to the steering committee, it created surprise and astonishment, and the rationalizations that had sustained escalation broke down. The momentum of the escalation process was halted as project work came to a standstill and the issue was transferred to the incoming CEO. There was now an imminent threat to project continuation.

In response to the situation, the incoming CEO called a hearing to decide on termination or redirection of the project. The hearing process ultimately resulted in a decision by the incoming CEO to redirect the project. Soon after the decision, regular project work was halted for one month to allow a major reassessment of the project and all its problems, and an action plan for getting the project on track was crafted. All non-essential functionality was cut from the system specifications. The redirection of the project also included major changes in project governance, project organization, and staffing as well as changes to project management procedures, practices, and norms. Ultimately, the project was turned around to produce a reliable deposit system that is still in operation. (A summary of developments in EuroBank can be found in Table 1.)

TABLE 1. The Anatomy of Project Escalation in EuroBank

The Three Phases of Escalation	How Events Unfolded in EuroBank
DRIFTING	• As new members enter the NDS project team, divergent opinions on project approach and charter emerge. • Design decisions are repeatedly revised and there is confusion within the project team about work tasks in the project. • About four months into the project, three competing views of the project charter crystallize. These are discussed but no conclusion is reached. • Recurrent, inconclusive discussions between users, the business development department and key system developers about what the requirements actually mean. • The ambition level for the project gradually shifts upward as design experts become more influential. • At several consecutive steering committee meetings, the project manager reports bad news on achievements, deadlines, and projected costs.
TREATING SYMPTOMS	• The NDS project manager is replaced, but the new project manager is not up to the task, and the project charter is not clarified or changed. • A head of user representatives is recruited, but the organization of user and design work remains the same, restricting users' influence. • There are several heated, but mainly inconclusive, discussions in the steering committee around project directives, project reporting and control procedures. • Prodded by the steering committee, the project manager makes several, though ineffective, attempts to reform project management and work practices. • Continued project plan revisions are carried out in the project. • 18 months into the project, the steering committee and corporate management approve a revised project plan exceeding the initial budget by 120%.
RATIONALIZING CONTINUATION	• In response to criticism, the project manager argues that the project is no longer in need of fixing. He also presents a well-devised, detailed strategy for migration from the old to the new system that quells some of the criticism. • Nevertheless, the steering committee demands a full-day meeting to review project viability and alternatives. At the meeting, IT experts explain why the project has been more difficult than anticipated, why uncertainties are now lower than ever, and why alternative solutions are riskier for the bank. New arguments are offered for why the project is strategic for the bank and how the bank will benefit. • An external consultant is appointed project manager and described by the IT department as "the best project manager possible". • At a follow-up meeting, cost estimates for all alternatives are revised upwards. The meeting ends with an individual vote, which is unanimously in favor of continuing, re-committing the steering committee members to the project.

A Framework for Detecting Projects that are Turning into Black Holes

Based on the study of EuroBank, we developed a framework that provides an overview of how projects escalate (Figure 1). The framework's first

TABLE I. The Anatomy of Project Escalation in EuroBank *(continued)*

Results

Problem Emergence:

- After nine months, the string of small plan revisions amount to a project timeline extension from three to six years and projected costs 60% over the initial budget.
- People in the IT and business development departments start to pick up on the string of bad news about the project.
- The steering committee requests improved project control measures and reporting.
- Concerned with the lack of progress in the NDS project, the systems development manager initiates a project review by external consultants.
- The external review delivers critique of project management and stresses the need to clarify project charter.

Increased Problem Visibility:

- With the project approaching two years of development, the project manager reports that the staged development approach devised to control development costs has to be abandoned.
- Further substantial increases in project cost estimates are reported.
- A second external review questions the project timetable and criticizes project management and control, project organization and leadership.
- The news about the project's dire situation spreads throughout EuroBank central staffs and the retail banking organization.
- Members of the steering committee question the project manager's competence and raise direct questions about the viability of the current course of action.
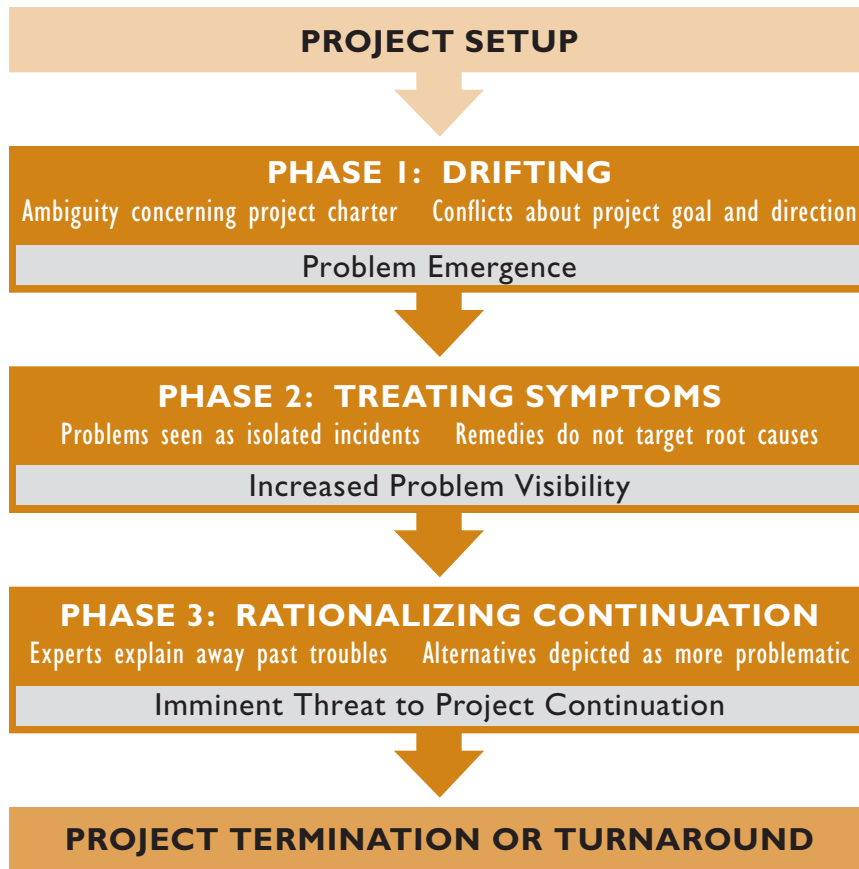
Imminent Threat to Project Continuation:

- In the ensuing months, additional, substantial increases in project cost estimates are reported.
- At the same time, the IT director is pressured by the incoming CEO to curtail IT cost increases.
- After agonizing over the situation and discussing with the business development manager, the IT director proposes to the NDS steering committee that the project be scrapped.
- The proposal leads to a deadlock in the steering committee, and the situation is brought to the attention of the incoming CEO.
- Project work is halted as the CEO conducts a hearing on project termination, ultimately leading to a major redirection of the project—the project is turned around.

phase involves *drifting*. How can executives know if a project is drifting? Fortunately, there are some telltale signs. First, when ambiguity concerning the project charter emerges, this is often a warning sign of drifting. If the ambiguities cannot be resolved within a relatively short period of time, there is a real risk that the project will be pursued without any clear consensus regarding the

FIGURE 1. A Process Model of Project Escalation

PROJECT SETUP

PHASE 1: DRIFTING
Ambiguity concerning project charter   Conflicts about project goal and direction

Problem Emergence

PHASE 2: TREATING SYMPTOMS
Problems seen as isolated incidents   Remedies do not target root causes

Increased Problem Visibility

PHASE 3: RATIONALIZING CONTINUATION
Experts explain away past troubles   Alternatives depicted as more problematic

Imminent Threat to Project Continuation

PROJECT TERMINATION OR TURNAROUND

primary objective of the project. When different stakeholders are not on the same page with respect to the primary objective of the project, there is little hope that they will agree as to what is inside the scope of the project and what is not. The result is that the project starts drifting. Also, when conflicts concerning the project goal and direction ensue, this is another warning sign of drifting. When the project team or key stakeholders cannot agree on the goal or the direction to follow, the project becomes analogous to taking a trip without a clear destination or having a destination in mind but no map of how to get from here to there. Under such circumstances, drifting becomes inevitable. In the NDS project, divergent opinions on both the project approach and the charter meant that design decisions were repeatedly revisited and requirements were unclear, which led to confusion and drifting. Once drifting occurs, it inevitably leads to *problem emergence*.

As problems begin to emerge, it isn't as though they are completely ignored; it's just that their potential impact on the ultimate viability of the

project is not seen with clarity. All projects, after all, experience setbacks and challenges. In many cases, the issues that arise on a project can be adequately addressed without the need to radically adjust the project plan or current trajectory. However, in escalation situations this is not the case, for underneath the surface problems that arise are deeper-rooted issues that must be addressed. Thus, the pattern that emerges in the second phase of the escalation process is what we call *treating symptoms*. During this phase, numerous problems are dealt with on a one-off basis as they occur, but there is often a failure to connect the dots (i.e., to recognize that these individual problems may be symptomatic of deeper issues).[14] Thus, during this phase, problems are seen as isolated incidents that can be resolved without change in goal or direction. This piecemeal approach to problem solving is ineffective because the attempted remedies do not target the underlying root causes of problems. As a result, the number and magnitude of the problems continue to grow. Over time, *increased problem visibility* alerts a broader set of stakeholders to the problems, and criticism and complaints may be voiced either openly or through the grapevine. In the EuroBank case, heated discussions concerning the project occurred within the steering committee, but the project charter was neither clarified nor changed in response to the problems that had arisen. Instead, relatively minor adjustments to project management and work practices were made, but these failed to adequately address the underlying problems.

The third phase of escalation involves *rationalizing continuation*. By this point, decision makers and project participants have become acutely aware that the problems facing the project are more serious than they had originally judged them to be. During this phase, more people begin to doubt the project and, depending on the culture of the organization, these doubts may be expressed and discussed more widely. At the same time, projects in this stage of escalation normally have highly committed and influential backers, who are unwilling to consider termination.[15] Therefore, key proponents of the project will make forceful efforts to rationalize why it makes sense to stick with the previously chosen course of action.

To convince those who would doubt the wisdom of continuing, experts provide credible explanations for past troubles. A typical argument is that the project can be successful with some modifications to the present project plan, and that previous problems are now well enough understood that they should not be predictive of what can be expected in the future. These rationalizations are often enough to sustain the project's momentum. For cases in which there is growing opposition to the project and where alternatives to pursuing the original project are suggested, these alternatives are depicted as equally or more problematic by the project's backers. In this way, rationalizing continuation allows the project to be sustained for a period of time. In the EuroBank case, IT experts were able to explain to the steering committee why the project was more difficult than originally anticipated, that these problems had been brought under control, and why it would not be sensible to embark on any of the alternative courses of action that had been proposed, as these were positioned as

carrying even greater risks for the bank.[16] With these explanations, the steering committee was able to rationalize continuation.

However, this rationalization of project continuation cannot continue forever. Eventually, an *imminent threat to project continuation* appears that forces managers to address the black hole that by now often consumes not only matter (i.e., monetary resources) and energy (of teams and individuals), but also careers. In response to this threat, actions are finally taken to shut down or fundamentally re-plan and redirect the project. This is what happened in EuroBank when the NDS project crisis was transferred to the incoming CEO, who subjected the situation to close scrutiny and then oversaw the turnaround and successful completion of the project.

Our framework, which was derived from the NDS case, was designed to be both simple and broadly applicable to other escalation situations.[17] We demonstrate the general applicability of our framework by applying it to the California Department of Motor Vehicles (CA DMV) case. While the NDS and the CA DMV cases differ in many respects (i.e., they involve different industry settings, different types of organizations, and different types of projects), the underlying process of escalation is the same. The best way to illustrate this is to apply the escalation framework to the CA DMV case.

California DMV's Database Redevelopment Project Fiasco

After running an increasingly outdated database information system for many years, California's Department of Motor Vehicles determined that it was necessary to modernize its databases, since the existing legacy system was inflexible and difficult to maintain. For these reasons, the Database Redevelopment (DBR) project was initiated, with the intention of providing a platform that would allow the DMV to meet all existing functionality requirements and to be more responsive to future changes.

Although the DBR project was initiated to address the DMV's technical concerns about the system, the database renovation became seen by some as an opportunity to achieve certain strategic objectives as well. Since the mid-1980s California's legislature had proposed or passed laws that required (or would require) expensive changes to DMV's computer system. For example, the State Legislature had passed a bill requiring the DMV to establish a program to cross-match names of licensed drivers with those of registered vehicle owners. Historically, the California DMV had maintained separate drivers license and vehicle registration files, making it difficult or impossible for the DMV to comply with proposed legislation of this type without making radical changes to their legacy systems. This further motivated the DBR project. Seen as necessary and important, the project was initially estimated to cost $29 million.[18]

Phase 1: Drifting

Viewed as a purely technical project to modernize its obsolete databases, DMV management had little direct involvement in the DBR and the project

was delegated to the DMV's IT staff. As a result, the focus was on acquiring new computer hardware and new database software, while the business objectives of the project were never clearly defined.[19] This led to ambiguity concerning the project charter and conflicts concerning the project goal and direction, with DMV management seeing it as a strategic project that had to achieve certain business objectives (e.g., being able to respond to the needs of the law enforcement community), and the DMV IT staff seeing it as a technology project to modernize the database platform. The project began drifting. Determining that it lacked the internal expertise needed for the project, the DMV entered into a series of agreements with external vendors. Arthur Andersen & Co. was contracted early on to assist the DMV with the planning phase of the DBR and six months into the project, the Codd & Date Consulting Group was contracted to provide assistance with the planning phase of the operational assessment.

One year into the project, after narrowing its technology evaluation process down to two database software products, the DMV selected Tandem Computers' NonStop SQL for the database management system. By this time, the DMV had already amended its contracts with Arthur Andersen (once) and Codd & Date (twice), which strongly indicates that the project had been started without a clear understanding of the scope and number of tasks that they needed assistance on.

According to Frank Zolin, who would later become director of the DMV, "there was no management involvement…top management ignored the project at that time…people were looking to buy this new architecture that had all this unlimited capability and it was going to be able to do marvelous things and the mission critical business needs of the DMV took a back seat."[20] Consequently, the project charter was "foggy," the project drifted, and not much progress was made during the entire first year of the project.[21] Recognizing that they lacked the project management capabilities in-house to take on a project of this magnitude, the DMV conducted an RFP process to secure the services of a consultant to serve as co-project manager.

Problem Emergence

Fifteen months into the project, technical problems relating to performance (i.e., system response time) and system architecture had emerged.[22] Three months later, the DMV entered into a contract with Arthur Young (later Ernst & Young) to serve as co-project manager. A series of problems continued to emerge and two years into the project, the Office of Information Technology (OIT), which provided oversight over the DBR, returned the DMV's project report stating "it fails to provide specific information needed to evaluate the status of the project."[23] Five months later, the DMV filed another project report with the OIT. This time, the OIT was highly critical of the DMV's actions with respect to the project, including: inaccurate status reporting; lack of demonstrable benefits relative to costs; failure to implement a pilot project; and proceeding with the full implementation without the OIT's approval.

Phase 2: Treating Symptoms

In spite of the negative feedback from the OIT, DMV leadership saw the problems as isolated incidents that could be resolved without change in goals or direction. The project was still viewed by most insiders as a technology platform upgrade aimed at modernizing or replacing an obsolete database, and the general approach of outsourcing the work to various contractors was never questioned. However, it was gradually becoming clear to DMV management that the relationship with Ernst & Young was not working. In response to the problems, the contract between the DMV and Ernst & Young was terminated by mutual agreement. Thus, the DMV was left in the position of having to assume responsibility for project management, at least temporarily. Shortly thereafter, two-and-a-half years into the project, the DMV contracted with Tandem to provide project leadership in place of Ernst & Young. Tandem was also to provide technical support services in the areas of application design and development, testing, and conversion.

Thus, while the DMV was reshuffling contracts in order to respond to some of the problems that had been encountered, they still stuck to their basic approach to the project: outsourcing most of the work (including project management responsibility) to third-party contractors. Over the next months, the DMV submitted two revised versions of the special project report that was previously returned by the OIT, attempting to respond to the OIT's concerns about the project. Three years into the project, the OIT approved the special project report and gave the DMV the go-ahead to purchase six Cyclone computers from Tandem at a cost of $11.9 million. Still, because root causes were not addressed before the hardware purchase, problems persisted and became more visible over time.

Increased Problem Visibility

Three months later, the Department of Finance's Program Evaluation Unit published a report that was critical of the DMV DBR project, noting problems with both cost and schedule and pointing out that the prototype had not demonstrated the expected performance. Lower- and middle-level staff expressed concerns about the problems facing the project to the new DMV director Frank Zolin, who came on board shortly after the critical report had been published: "My first month on the job I had lower-level staff, maybe even middle management-level staff, that warned me that the project was in some difficulty and they had doubts about whether the project could be successfully implemented."[24] Doubts were also being expressed by the new director of the data center Chong Ha who was a strong critic of the project. Zolin recalled that Chong Ha told him: "Frank, I think you got a turkey. I don't see how it's going to work."[25] The doubts and reservations expressed by Ha and others led Zolin to start talking to the people managing the DBR project, but they assured him that "things were right on schedule and going very well."[26] Four years after the project started, Tandem Integrated Engineering Services (TIES) was hired to review the DBR project. Following the TIES review, the estimated completion date for the project

was pushed back three and a half years and the estimated cost of the project was revised to $57 million, twice the initial estimate.

Phase 3: Rationalizing Continuation

In spite of the increased problem visibility, DMV director Frank Zolin remained committed to the previously chosen course of action with respect to the DBR project, as he and others engaged in rationalized continuation. While the TIES review revealed that the project would require a significant infusion of additional resources, it also allowed IT experts to provide credible explanations for past troubles. Five and a half years into the project, Tandem initiated work on a new project plan that included assistance from Electronic Data Systems (EDS) as a project partner capable of keeping the project on schedule and "within budget limits."[27]

Even though the DMV's own Teale Data Center developed an alternative project proposal that would bring the DBR project in-house, this alternative was depicted as equally or more problematic, causing it to be rejected by DMV management. Frank Zolin rationalized his decision to continue: "We had already committed 35 or 40 million into the project, we already had the hardware…I'd be the first person to say, I probably wasted 6 to 12 million tax dollars trying to save that first investment…I mean people would come forward and say 'Here's a solution' and I'd say 'Gosh yeah, let's take a look' and if we only have to spend an additional million dollars and we can save a 45 million dollar investment it seemed like a pretty good bet. Well, I probably made that bet three or four times and finally realized, there was no way to win."[28]

Imminent Threat to Project Continuation

Almost six years into the project, Tandem and EDS submitted a new proposed project plan for the DBR. The new plan included an estimated project cost of $185 million, six times the original estimate and three times the previous estimate. The sharp increases in projected expenditures posed an imminent threat to project continuation and, ultimately, to the reputation and credibility of the DMV and its leadership. By this point, the expenditures of the DBR project had led to mounting political pressure for California Governor Pete Wilson and Zolin had stepped in to stress that the responsibility for the DBR project was his and the DMV's rather than the Governor's.[29] However, with the arrival of the new project estimate from Tandem and EDS, Zolin "had lost any faith in the chance of it being successful."[30] He began to realize that given the budget realities and the current state of the project, it would be better to take the heat for terminating the project at this point than to try and continue pushing forward.

Outcome: Project Termination

At the end of six long years of the DBR project, Zolin decided not to accept the new DBR project plan proposed by Tandem and EDS and to terminate the project. Originally estimated to cost $29 million, the project ultimately ended

up costing taxpayers at least \$49.4 million before it was abandoned.[31] (A summary of developments in California DMV can be found in Table 2.)

Executive Tactics for Dealing with Escalation

Our framework provides a foundation for understanding escalation dynamics. It is possible to increase the chances of capturing escalation tendencies by creating early warning mechanisms that will signal an alert when projects are in trouble. Two approaches are particularly effective: using intelligent project reporting and developing a culture that encourages problem disclosure. Additionally, the framework can be used to stop escalation when it does occur, through a set of actions attuned to each of the three escalation stages.

Use Intelligent Project Reporting

While it would be a fallacy to assume that good project management practices alone will prevent escalation, they can go a long way. Project management offices are increasingly used to provide an overview of ongoing projects and to help signal when a project is in trouble. Dashboard reporting—which often signals project status as green, yellow, or red—can also be effective in providing busy executives with early indicators of escalation.[32] However, the usefulness of the dashboard will clearly be compromised if the information used for its construction is biased. The potential for such bias entering into the dashboard can be reduced if it is constructed or verified by a third party without a vested interest in the project.

To supplement these practices, there is the use of alarm bells—predefined thresholds for time and budget overruns with predefined actions that need to be taken when these thresholds have been reached. By predefining levels and actions, executives are relieved from being perceived as playing "bad cop" with project managers. Also, typical escalation behaviors such as explaining away problems or depicting them as temporary are less likely to gain traction—which means that tendencies towards treating symptoms and rationalizing continuation are countered. When levels and actions are not predefined, executives are stuck with a messy situation in which it is too easy to take a wait-and-see approach, resulting in creeping escalation. Predefined levels and actions avoid the need for extended discussion and debate and make it easy to initiate action.

Develop a Culture that Encourages Problem Disclosure

Employees are often reluctant to transmit bad news and are especially prone to keep mum following episodes in which they (or other employees) have been ignored (or worse still, punished) for having reported problems or raised concerns.[33] An organization that fails to root out the mum effect is fertile ground for project escalation to take hold and grow. Executives need to demonstrate that reporting bad news is rewarded and that problems are dealt with openly and forthrightly. In most, if not all, of the projects we have studied, there were people who early on realized that a project was starting to turn into a black

hole.[34] If a culture of problem acknowledgment and constructive problem solving is developed, chances will improve that signals reach the right decision makers and are acknowledged as relevant.

As an example, after the turnaround of the NDS project, the project manager instituted a practice of running open project reporting meetings, in which stakeholders could participate as active observers. After each sub-project manager had reported on their part of the project, steering committee members and other guests sitting in on the meeting could comment and ask questions. This fostered an open environment that was much appreciated by members of the project team and that demonstrated to them that discussing problems openly was safe.[35]

For an example of how some of these recommendations can be implemented in practice, consider the case of Scania, a European truck manufacturer. Scania employs weekly one-hour "pulse meetings" in which all product development projects are reviewed. Every Monday morning at 8 a.m., all project managers, product development executives, and corporate executives gather in a room at Scania's development center (and via conference call from other sites) for a super-efficient run-through of projects. Each project manager gets two minutes to update the status of specific work tasks in the their project by switching colored magnet markers on a giant whiteboard and commenting on the changes. Green markers indicate that a specific project task is progressing according to plan, while yellow and red indicate problems. The process provides a visual map of changes in project status as well as an update on how individual projects are progressing. (Is the project "in the green"? Is the tendency towards more red markers or are problems getting fixed?) It also provides an overall picture of all development projects. Better still, everyone involved in managing and monitoring development projects gets updated on all projects. Anyone can ask questions and one of the Toyota-inspired corporate norms is to "love deviations" because of the learning opportunities they offer. The resulting openness, shared knowledge of problems up and down the line, and the presence of senior executives—not always the same ones—make escalation tendencies immediately visible and also shorten lead times for decisions on how to address problems.

Stop Drifting

In the drifting phase, the project seems to have a difficult time making any meaningful progress. For executives, it is difficult to assess whether they are seeing signs of healthy debate or something much more sinister. Typical indications of drifting include stakeholders failing to develop a consensus view of the project objectives, and conflicts lingering in the project team and/or the steering committee. Box 1 provides a checklist that can help determine if a project is drifting. Should this be the case, suitable actions to reign in the drifting project are provided below.

TABLE 2. How the California DMV's DBR Project Turned into a Black Hole

The Three Phases of Escalation	How Events Unfolded at the California DMV
DRIFTING	• Viewed purely as a technical project to modernize its obsolete database, the Database Redevelopment (DBR) project is initiated in with no real management involvement. • As a result, mission critical business needs of the DMV are not addressed, business benefits are not defined and the project is not linked to the DMV's strategies. • The project proceeds with an emphasis on the acquisition of new computer hardware and new database software. • The DMV gradually discovers the magnitude of the project and realizes its lack of internal expertise. • The DMV enters into a series of agreements with external vendors. • Arthur Andersen & Co is hired to assist the DMV with the planning phase of the DBR. • Codd & Date Consulting Group is contracted to provide assistance with DBR planning and later, operational assessment of IBM and Tandem. • One year into the project, Tandem's NonStop SQL is selected for the database management system. • Recognizing that they lack adequate project management capabilities in-house, the DMV initiates a request for proposal (RFP) process to hire a consultant to serve as co-project manager.
TREATING SYMPTOMS	• In spite of the negative feedback from OIT, DMV leadership presses on with the DBR project without making any major changes in terms of goals or direction. • It gradually becomes clear that the relationship with Ernst & Young is not working and the contract between the DMV and Ernst & Young is terminated by mutual agreement. • The DMV temporarily assumes responsibility for project management. • The DMV contracts with Tandem to provide project leadership in place of Ernst & Young. The DMV submits revised versions of the special project report that was previously returned by OIT. • Three years into the project, OIT finally approves the special project report and gives the go-ahead for the DMV to purchase six Cyclone computers from Tandem at a cost of $11.9 million.
RATIONALIZING CONTINUATION	• In spite of the increased problem visibility, DMV director Frank Zolin remains committed to the previously chosen course of action. • Based on the TIES review, Tandem initiates work on a new project plan and proposes to work with assistance from EDS in order to keep the project on schedule and within budget. • DMV's Teale Data Center develops an alternative project proposal that would bring the DBR project in-house, but the DMV director Zolin rejects this alternative. • Zolin rationalizes his decision to continue with the previously chosen course of action: "we had already committed 35 or 40 million into the project, we already had the hardware… I'd be the first person to say, I probably wasted 6 to 12 million tax dollars trying to save that first investment.

TABLE 2. How the California DMV's DBR Project Turned into a Black Hole *(continued)*

Results

Problem Emergence:

• Fifteen months into the project, technical problems relating to performance and system architecture emerge.

• Two years into the project, after a string of problems, the California Office of IT (OIT) returns a major project report to the DMV stating that it "fails to provide the specific information needed to evaluate the status of the project."

• Five months later, OIT returns a special project report to the DMV noting a host of problems including: (1) inaccurate status reporting, (2) lack of demonstrable benefits relative to costs, and (3) failure to implement a pilot project and (4) proceeding with the full implementation without OIT's approval.

Increased Problem Visibility:

• Three months after the hardware purchase approval, the Department of Finance's Program Evaluation Unit publishes a compliance review report of the DBR project, stating that the DMV under-reports costs and spends more than approved by OIT. The report also notes that the project is behind schedule and that the Phase I prototype under-performs.

• Lower and mid level staff express doubts concerning the viability of the project to the new DMV director Frank Zolin.

• The director of the data center, Chong Ha, shares his concerns with Zolin, expressing that the project is, in his view, "a turkey."

• The DMV reports a variety of problems with the project to OIT.

• Tandem Integrated Engineering Services (TIES) is hired to review the DBR project.

• The estimated completion date for the project is pushed back three and a half years and the estimated cost is revised to $57 million, twice the initial estimate.

Imminent Threat to Project Continuation:

• Six years into the project, Tandem and EDS estimate the cost to complete the DBR project under the new plan at $185 million.

• The sharp increase in projected costs clash with the budget realities of the DMV and Zolin realizes that taking the heat for terminating the project at this point would be better than continuing to press forward.

• Finally, after six long years of the DBR project, Zolin decides to pull the plug on the project.

BOX 1: One-Minute Test – Is Your Project Drifting?

1. The project has been going on for some time without consensus among key stakeholders regarding the objective(s) of the project.
   True ☐   False ☐

2. The project has been going on for some time without agreement regarding how best to achieve the project objective(s).
   True ☐   False ☐

3. Although considerable time and money has already been spent on the project, there appear to be few, if any, deliverables to date.
   True ☐   False ☐

4. Work continues on the project in spite of a vague or ambiguous project charter.
   True ☐   False ☐

5. Conflicts regarding the goals and direction of the project remain unresolved.
   True ☐   False ☐

Score 1 point for every question you answered "True" and 0 otherwise.
Add up your total points.

Points	Assessment
0	Congratulations! This project is not drifting, nor is it in danger of doing so.
1-2	This project is either beginning to drift or is in danger of drifting.
3-5	This project is almost definitely drifting.

Freeze or Reduce Headcount in the Project Temporarily

When a project is drifting, it is easy to give in to requests for more resources in the hope that more manpower will solve the conflicts and ambiguities plaguing the project. However, pulling more people into the project without having a clear direction is likely to further fuel escalation. Once there, the pressure to use personnel resources is immense. However, the problem is that people will commit their time, their minds, and sometimes their hearts to what might be a failing course of action. As the EuroBank and the CA DMV cases clearly show, until you have a viable direction, additional momentum is not a good thing.[36] Therefore, when there are indications that the project is drifting, temporarily reducing headcount in the project can be an excellent first step to moving the project from a state of frenzied action to one of clear direction setting.

Get a Small, Good Team to Reassess and Re-Plan

Instead of increasing staffing, get a small group of qualified people—often project managers with support from a few additional experts—to reassess and re-plan the project. The team should be instructed that you want everything on the table now rather than unnecessary surprises later and that you want thorough assessments of feasibility and risks. If possible, request a proof-of-concept

study (a prototype for example) that models what the project aims to achieve and have it corroborated by stakeholders.[37]

In EuroBank, this action was unfortunately not taken early in the project, but the redirection of the NDS project included a version of this strategy: a one-month moratorium on regular project work was called to allow for a major reassessment of the project, a careful mapping of all known problems, and the crafting of an action plan for getting the project on track.[38]

Make a Clear Go/No-Go Decision

Uncertainty and ambiguity is probably what got the project into drift in the first place, so try to counter this to the extent possible by making a clear decision and explaining the rationale behind it. However, refrain from statements that commit you to the project "no matter what happens." Nobody has the whole picture and if top executives commit themselves unconditionally, this can be seen as writing a blank check and will often spur escalation at a later stage.[39]

If the decision is a "go," the project manager and other key people need to understand the organization's priorities so that they can adapt to future contingencies, and the project team needs to know that they can work according to plan and without further disturbances. If the decision is a "no go," it needs to be explained clearly and convincingly both to the project team and key stakeholders.

In the CA DMV case, Frank Zolin pointed to the prohibitively large cost increases of the new project plan and was utterly clear that it was him taking the decision to terminate. In EuroBank, the CEO explained the decision to continue in terms of the business risk of not having a stable deposit system and expressed his confidence in the revamped project team. Both decisions were clear, although in both cases escalation had been allowed to continue for too long before the right actions were taken.[40]

Stop Treating Symptoms

In the treating symptoms phase, problems are acknowledged and addressed through a pattern of coping with "isolated" incidents, which makes it difficult for executives to demand action, since on the surface it appears as if issues are already being addressed. Often, project managers attribute problems to external events that are unlikely to recur and deal with them in a piecemeal fashion, but new incidents continue to emerge. To help detect whether your project is stuck in a pattern of treating symptoms, use the checklist in Box 2.

Break the Habit of Solving Problems by Throwing Money at Them

Clearly, the more people have gotten used to increasing resources and adjusting the budget when additional problems are discovered, the more executives now need to break that habit. One way to do so is to instruct the project manager to review, together with experts on the project team (for example, a chief technical architect), how the project can be scaled back both in order to

BOX 2: One-Minute Test – Are You Tackling Underlying Causes of Problems or Just Symptoms?

1. Project-related problems are being addressed in a superficial way.
   True ☐   False ☐

2. As soon as one problem is addressed another one emerges.
   True ☐   False ☐

3. Each problem that occurs is described as isolated from other problems and is treated independently.
   True ☐   False ☐

4. Actions taken to solve problems constitute minor adjustments or "quick fixes."
   True ☐   False ☐

5. Problems are seen as being addressable without any need to review or reconsider the current project goals or direction.
   True ☐   False ☐

Score 1 point for every question you answered "True" and 0 otherwise.
Add up your total points.

Points	Assessment
0	Congratulations! The underlying causes of project problems are being addressed and not just the symptoms resulting from these problems.
1-2	Be careful. It is likely that the symptoms of project problems are being addressed and not their underlying causes.
3-5	Underlying causes of problems are almost certainly not being addressed.

make it more manageable and to reduce cost substantially. This may call for some persistence: In some projects we have studied, such instructions bear fruit only the second or third time around. So this might be a situation where it is wise not to accept "that's impossible" for an answer.

In another well-known project disaster, the London Stock Exchange Taurus project, the process of dealing with the black hole started with the CEO, Peter Rawlins, declaring: "No more staff and no more money."[41]

Stop any Futile Attempts to Fix the Project One Symptom at a Time

One of the key problems in this phase is that the project has gotten into a pattern of futile attempts to fix things one little piece at a time, focusing on symptoms rather than root causes. The problem is that however hard you hit each individual problem, they are connected under the surface and as soon as you address one problem, another problem pops up. The EuroBank and the CA DMV cases both vividly illustrate this pattern. Often, qualified people that have become trapped in treating symptoms through incremental adjustments are so preoccupied with solving individual problems that they fail to see the forest for

the trees.[42] To address this, you need to draw attention to the fact that a string of "bad luck" is unlikely to be the sole reason behind the project's troubles. Maintaining or retrospectively constructing a problem history (or incident chronology) so that patterns can be detected over time can prove to be an immensely valuable tool for establishing whether problems are isolated events or more systemic in nature.

Put Your Best People on the Project and Resolve the Root Causes

Another pattern in this stage is that project staffing is beefed up incrementally as additional project complexity is discovered. However, if a project experiences a period of treating symptoms, chances are that staffing is constantly one or several steps behind the complexity of the task. This was clearly the case during the treating symptoms phase of the NDS project in EuroBank. To solve this, put your best people on the project until the root causes are found. This might include replacing the project manager if she/he is not up to the task or has developed a pattern of believing that "just one more budget increase" will solve the problems. This action is different from the suggested action in the first phase of using a temporary task force to re-plan the project, since at this point the regular project should be staffed with top people to close the gap between the complexity of the project task and the competence of the project team.

In the EuroBank case, this was finally done during the turnaround of the NDS project. At the CA DMV, one of the problems was that the project relied heavily on outside expertise, and this dependence increased as complexity increased and problems mounted. Because of this, management at the CA DMV could not control the level of expertise in the project—or even assess it. They were almost completely dependent on the consultants and had no "bigger guns" to pull out when the project got deeper and deeper into trouble.

Stop Rationalizing Continuation

In the rationalized continuation phase, the project seems to sink deeper into trouble, but the conviction level expressed by key proponents and champions is high, the arguments for continuing often forceful, and the prospect of quitting often unthinkable. For executives, it is difficult to get a fair assessment of the situation, let alone a complete and objective one. In addition, the costs of intervening have increased, not only because of sunk costs, but also because stepping in sends the message that you distrust your experts or that other projects may also get the rug pulled out from under them. The checklist in Box 3 can be used to assess if you are rationalizing continuation of a project rather than facing the problems head-on. At this stage, you will probably need to act quite forcefully to reduce project momentum. Consequently, the following actions might have to be used in combination to grapple with an increasingly full-fledged black hole project.

BOX 3: One-Minute Test – Are You Rationalizing Continuation?

1. Proponents of the project keep coming up with new reasons for why the project must be completed.
   True ☐   False ☐

2. Experts have been enlisted ostensibly to "evaluate" the project but may be motivated to advocate for continuing the project.
   True ☐   False ☐

3. A growing number of people outside the project are now raising doubts about the wisdom of continuing the project.
   True ☐   False ☐

4. As projected expenditures rise, experts portray alternative solutions and project abandonment as even more costly or problematic to pursue.
   True ☐   False ☐

5. Despite growing recognition that the project is in a troubled state, the prevailing assumption is that pressing ahead will eventually bring the project out of the woods.
   True ☐   False ☐

Score 1 point for every question you answered "True" and 0 otherwise.
Add up your total points.

Points	*Assessment*
0	Congratulations! Rationalization of project continuation is not occurring.
1-2	Be careful. This project may be entering the phase in which continuation is rationalized.
3-5	You are almost certainly rationalizing continuation of this project.

Cultivate Suspicion Towards New Rationales for Projects

One reason that projects are sustained when their original goals cannot be fulfilled is that new reasons for continuation are found—or invented. As described above, this prolonged the escalation of the NDS project in EuroBank. Because of the exploratory nature of some projects, it may sometimes be the case that new reasons do fit an old project. In general, however, the invention of new rationales for continuing a failing project—sometimes accompanied by enthusiastic rallying around this new raison d'être—is a sure sign that rationalized continuation is taking place. A first defense against this tendency is to require that a new business case be worked out from scratch for the new set of project goals. Often, however, the situation has by now become so complex and muddled that additional measures are required.

Bring in Outside Expertise for a Review

Regular reviews by outside experts can be a useful way to catch troubled projects at an early stage. However, a review can also be useful when a project

is already clearly in dire straits.[43] Such reviews can provide sufficient basis for proceeding with internal scrutiny and questioning of the project, but may not by themselves be sufficient to make a termination decision. To increase the potential leverage from a review of an already troubled project, it is important to clearly instruct the experts performing the review to include a recommendation on project termination, continuation, or redirection as part of their report.[44] In addition, reviewers should be instructed to assess the need and available options for scope reduction.[45]

Halt the Project Temporarily

In this stage, the momentum of the project contributes to making unbiased assessments difficult.[46] One way to cool things down so that key people can begin to think about alternatives and opportunities is to call a halt in project activities during a short period. Since part of the problem is that people are caught up in skewed thinking about the project, taking people out of the daily hustle of the project may help them realize that the end of the project need not be the end of the world. As mentioned previously, this was done belatedly as part of the redirection of the NDS project in EuroBank.

Create Transparency and Visibility for a Broader Set of Stakeholders

In some cases, black hole projects are finally halted when they start to get attention from people outside the department or organization undertaking the project. In cases of escalation, there is often a fine line between commitment, hope, and deception of self and others. By increasing transparency and visibility, a larger and more diverse group of people can see what is going on in the project and this makes the upholding of unrealistic views and assumptions increasingly difficult. Maybe you have experts on market entry or construction projects that you could ask to take a look; maybe the board's auditing committee could be informed (before they request it themselves). To paraphrase a saying from the open source movement: given enough eyeballs, all self-deception becomes apparent. If not stopped, black hole projects eventually tend to become infamous anyway, and sometimes this is when they are finally stopped.[47] However, transparency is better used earlier.

For example, the recurring problems in a large Danish public sector project we studied were regularly covered in the national media, so that over time it became more and more difficult to hide the fact that the project was turning into a black hole. Ministers dealing with the crisis leveraged the media coverage in their efforts to reduce momentum and redirect the project.[48]

Conduct a Series of Hearings

If you are undecided about terminating a troubled project, a hearing process might be useful. Our observations from the EuroBank case suggest that the hearing process stops the momentum of the troubled project, because people stop to wait for the go/no-go decision produced through the process. Two or three executives might host a series of meetings, each with a few key invitees

who can weigh in on the project's situation and future. These sessions should be open to other project stakeholders and they should have the opportunity to ask questions following the formal discussion. (These meetings might listen to a total of 15 to 20 individuals for a medium- to large-sized project.) During the sessions, look for people who seem to speak "the whole truth" and look for people who are committed to the wellbeing of the business rather than that of the project. To foster such responses, ask things such as "if you owned this company, what would you do with the project, and why?" and be clear that you are not looking to criticize past decisions, but to get a good picture of a complex situation.

Through the hearing process used in EuroBank, the CEO got many data points on the project. As the process progressed, he also used the meetings to test whether the emerging turnaround strategy for the NDS project would hold water and to gradually build support for it. When the process was completed, the CEO, the steering committee, and key decision makers had a solid, shared understanding of the situation and where to go next.[49]

Conclusions

Dealing with projects that are turning into black holes starts with recognizing the situation. However, when complex projects get into trouble, the uncertainty and ambiguity of the situation makes it difficult to assess what is going on and to take the actions needed to curb escalation. When addressing this difficult situation, executives can benefit from our framework and the guidance and support it provides. In addition to suggesting measures for preventing the occurrence of project escalation, our framework also allows executives to properly diagnose the stage of escalation, and to launch appropriately tailored countermeasures. In this way, we provide a basic set of managerial strategies for dealing with escalation in ways that match the situation at hand. The three underlying themes for the actions we propose are: creating transparency, countering skewed and biased thinking, and reducing or stopping momentum.

Obviously, our suggested set of actions is not an exhaustive list, and managers must always use the tools presented in this article with judgment and mindfulness. That also goes for assessing escalation: while our diagnostic tools can help you get a quick assessment of the situation, they are not foolproof and can never replace in-depth scrutiny of a specific project. They can, however, provide a means for taking a few steps back and looking at a troubled project in a new light, and that can be crucial for breaking loose from the process of escalation.

As pointed out previously, escalation situations are wrought with uncertainty, complexity, and ambiguity. It might just be the case that when a project manager declares, for the eleventh time, that the project is now finally out of the woods—she may finally be right. In general, however, projects that have developed the patterns of drifting, treating symptoms, and rationalizing continuation are unlikely to fix themselves without radical intervention. Our diagnostic tools help assess how many indications of the project being in a specific escalation

phase there are. In addition, it is useful to ask for how long a specific pattern has been present.

Obviously, the sooner you detect that a project is escalating, the better, since escalating projects become costlier and more difficult to stop as escalation progresses through the stages of the framework. In an early stage of escalation, fewer resources have been consumed and it is less difficult to change the direction of a project because the project has less momentum. As a project morphs into a black hole, its momentum tends to grow as resources and reputations become invested in the project. Consequently, in later stages of escalation, the first priority should be to slow the momentum of the project. This takes a measure of determination and political will, because strong forces that favor persistence will need to be overcome. At this stage of the game, it is also important to consider multiple options for how to deal with the situation. Remember that even projects that have a long history of failing to meet expectations and produce results can sometimes be turned around, such as in the case of EuroBank.

Given the very nature of complex projects, it is unlikely to expect that simple, universal solutions to escalation will emerge anytime soon. Risk and reward often go hand in hand, and a world without escalation would be a world in which managers failed to take the kind of risks that can produce large rewards. Therefore, it is all the more important that executives develop their readiness and ability to detect and cope with escalation when it does occur, so as to contain the potentially catastrophic downside risks associated with black hole projects.

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16. Staw and Ross, op. cit.

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38. Mähring, op. cit.; Mähring and Keil, op. cit.

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40. The actions described above can most likely be executed in sequence. In contrast, as the escalation process gains momentum, actions might have to become more forceful and be executed concurrently in order to be effective.

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43. Iacovou and Dexter, op. cit.

44. Prior research has shown external reviews prevent escalation more effectively when consultants are instructed to make specific termination/continuation recommendations in review reports, see K. Kadous and L.M. Sedor, "The Efficacy of Third-Party Consultation in Preventing Managerial Escalation of Commitment: The Role of Mental Representations," *Contemporary Accounting Research*, 21/1 (Spring 2004): 55-82.

45. In the EuroBank case, the reviews that were conducted were mishandled in several ways and thus failed to play any pivotal role in the turnaround of the NDS project. None of the reviews had the explicit instructions described above. In addition, the first review was botched when the ineffective change of project manager was conducted in parallel with the review. The second review did stir emotions and raise concerns in the steering committee, but members let themselves be temporarily appeased by the project manager's assurances of better times ahead. To be effective, reviews need to answer pointed questions and be part of a coherent strategy rather than single shots in the dark.

46. Staw and Ross, op. cit.

47. Mähring, Holmström, Keil and Montealegre, op. cit.

48. M. Mähring, M. Keil, L. Mathiassen, and J. Pries-Heje, "Making IT Project De-Escalation Happen: An Exploration into Key Roles," *Journal of the Association for Information Systems*, 9/8 (August 2008): 462-496, Montealegre and Keil, op. cit.

49. Mähring, op. cit.; Mähring and Keil, op. cit.