Journal of the Association for Information Systems

JAIS

The Dynamics of IT Project Status Reporting: A Self-Reinforcing Cycle of Distrust

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Abstract

Accurate project status reporting is important to avoid the problem of information technology (IT) project escalation and to successfully manage and deliver IT projects. One approach that some organizations have taken is to audit their IT projects to avoid surprises that are frequently associated with inaccurate status reporting. Little is known, however, about the effects that such auditing arrangements can have on the dynamics of project status reporting. To examine the process of IT project status reporting in this context, we followed a grounded theory inspired approach in which we investigated nine IT projects in one U.S. state's government agencies. All of the projects we studied were subject to the state's IT oversight board. Based on 118 interviews with a variety of stakeholders including technical personnel, managers, users, and contractors, we present a grounded theory of project status reporting dynamics in which the reporting process can best be characterized as a self-reinforcing cycle of distrust between the project team and the auditors. Specifically, in some projects, we observed a pattern whereby project teams interpreted the auditor's scrutiny as unfair and as not adding value to their projects. As a result, they responded by embracing some defensive reporting tactics. The auditors interpreted the project team's actions as indicating either deception or incompetence, and they then increased their scrutiny of the reports, thus exacerbating the situation and further fuelling the cycle of distrust. We discuss implications for both theory and practice.

Keywords: Project Management, Reporting, Auditing, Information Systems Development.

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1. Introduction

Information technology (IT) projects are notorious for escalating out of control and resulting in costly failures. According to research conducted by McKinsey and the BT Centre for Major Programme Management at the University of Oxford, large IT typically projects run 45 percent over budget, while delivering 56 percent less value than predicted (Bloch, Blumberg, & Laartz, 2012). Such failures are particularly visible in the public sector, where IT projects rely on the use of public funds, are often subject to oversight, and can more easily become the object of media scrutiny. For example, in 2011, Britain's National Audit Office (NAO) reported that, after nine years and £2.7 billion, the National Health Service (NHS) had "failed to deliver its primary aim of an electronic care record for everyone in the country" (Ballard, 2011). Similarly, the U.S. military "is still operating on creaky old computer systems after a decade of modernization by systems integrators and ERP software suppliers whose problematic implementations have gone $7bn over-budget" (Ballard, 2011).

Frequently, IT project failures involve an escalation of commitment to a failing course of action (Keil, Mann, & Rai, 2000), situations in which additional resources are put into projects that should be terminated or redirected (Staw & Ross, 1987). In some cases, an escalation of commitment may occur because senior management does not have an accurate handle on the status of a project because employees withhold and/or distort project status information. For example, in the case of the notorious CONFIRM project (a $125 million failure that involved a joint venture between Marriott, Hilton, Budget Rent-a-Car, and AMRIS to build a state-of-the-art computerized reservation system), senior management claimed to be surprised when they discovered the true state of the project and blamed employees for not disclosing "the true status of the project in a timely fashion" (Oz, 1994).

Previous research has suggested that accurate project status reporting can help to avoid the problem of IT project escalation and result in more-successful project outcomes (Keil & Park, 2010; Park & Keil, 2009; Keil & Robey, 1999, 2001; Thompson, Smith, & Iacovou, 2007). In the case of CONFIRM, it could have been terminated or redirected earlier—thus saving millions in organizational resources—had senior executives known about its actual status and been willing to deal with the situation. Perhaps as a result of encountering situations like the CONFIRM project, some organizations now audit their IT projects to avoid the surprises that can occur when senior management is unaware that a project is failing until it is too late or too costly to rescue. The idea behind auditing projects is simple: if employees know that their projects are under scrutiny, they will be less likely to withhold or misreport status information, and—even if they do—a good auditor will be able to determine the project's actual status. Little is known, however, about the effects that such auditing arrangements have on the dynamics of project status reporting and, in particular, whether auditing is an effective tool for reducing misreporting.

Although the exact frequency of misreporting in IT project status reporting is unknown, researchers have asserted that such misreporting happens often—principally when individuals must deliver bad news about the project—and that it is detrimental to IT project success (Guinan, Cooprider, & Faraj, 1998; Iacovou, 1999; Keil & Robey, 2001; Keil, Smith, Pawlowski, & Jin, 2004; Smith & Keil, 2003; Smith, Keil, & Depledge, 2001; Snow & Keil, 2002; Tan, Smith, Keil, & Montealegre, 2003). In terms of research associated with this phenomenon, a variety of techniques (experiments, cross-sectional surveys, etc.) have been employed. Without question, this previous work has moved us forward in our understanding of misreporting. However, no previous study has examined whether misreporting occurs in a context in which IT projects are routinely audited. Moreover, there has been no systematic examination of the process through which status information is being reported on IT projects and the manner in which misreporting can become a part of that process. This represents a significant gap in our understanding.

To address this gap, we used a grounded theory approach in which we examined the dynamics of the project status reporting process in the context of a U.S. state government's attempts to audit IT projects undertaken by various state agencies. To gain interpretive understanding (Lee, 1991), we interviewed 95 individuals who were either responsible in some form for the implementation of these

projects or who received status information about the projects in an auditing context. The core theme that emerged from our research is that a "self-reinforcing cycle of distrust" can develop between those responsible for reporting project status and those responsible for auditing projects. Paradoxically, we found that, in the case of the IT reporting process, attempts to reduce misreporting by investing in greater scrutiny of project reports and activities can actually lead to even more misreporting. Thus, this paper makes two major contributions to the literature on IT project status reporting: first, it provides some real-world evidence that the distortion phenomenon can occur even in a context in which IT projects are routinely audited and, second, it reveals the underlying process through which this phenomenon occurs.

2. Background

IT project status reporting refers to the communication (either verbal or written) of information about the state of a project's activities to interested parties. In their communications, reporters frequently describe the state of their project activities (with respect to budget, schedule, functionality, quality, and other dimensions) by comparing actual status versus planned status (i.e., by making reference to baseline estimates and milestones established at the outset of the project).

The IT project status reporting process can be challenging because gauging the true state of project activities can be difficult and often requires subjective judgment-calls and considerable expertise. As Snow and Keil (2002) point out, this is an inherently error-prone process. Even ignoring the potential difficulties associated with assessing project status in an objective sense, certain behaviors by reporters can degrade the quality of reporting in IT projects.

Researchers began to focus on misreporting of IT project status information in the late 1990's, and we identified about fifteen studies to date that have addressed the subject. Most of the prior research in this area, which often draws on whistleblowing theory, has examined the reluctance to report bad news. Keil and Robey (1999, 2001) provide some of the earliest evidence on the phenomenon by using interview data to show that even IT auditors are sometimes hesitant to report bad news on troubled projects.

Starting in 2001, several studies based on laboratory experiments (Smith et al., 2001; Keil et al., 2004; Tan et al., 2003; Keil, Im, & Mahring, 2007; Park, Im, & Keil, 2008; Park, Keil, & Kim, 2009; Park & Keil, 2009) began to appear on bad news reporting. In each of these experiments, participants were presented with one or more hypothetical scenarios involving a troubled IT project and asked whether or not they would be inclined to report the bad news. Based on these studies, several factors (e.g., organizational climate, information asymmetry, failure impact, morality, fault responsibility, time urgency, and opportunity for blame shifting) have been shown to influence individuals' willingness to report bad news. More recently, a conjoint study (Keil, Tiwana, Sainsbury, & Sneha, 2010) with practicing managers was conducted to better understand the relative influence of various factors (e.g., personal reporting responsibility, trust in supervisor, reporting anonymity, management responsiveness, and organizational climate conduciveness) that can influence reporting intentions.

While the previous work on reluctance to report bad news certainly touches on one aspect of misreporting, it focuses only on the binary decision of whether to withhold or report negative status information, but withholding (Fulk & Mani, 1986) is not the only way in which misreporting can manifest itself. Withholding is the deliberate omission of relevant metrics, facts, or issues related to the state of project activities (Roberts & O'Reilly, 1974; O'Reilly, 1978).

Another form of misreporting involves misrepresentation (Keil & Robey, 2001; Smith & Keil, 2003; Snow & Keil, 2002). Misrepresentation refers to the misstating of the condition of project activities and/or the magnitude and causes of problems (and, at times, achievements) to provide an altered representation of the project's state (Athanassiades, 1973; Bavelas, Black, Chovil, & Mullett, 1990; O'Reilly, 1978). Snow and his colleagues (Snow & Keil, 2002; Snow, Keil, & Wallace, 2007) have examined reporting distortions that can arise from the combined effect of errors in ascertaining true status and bias in reporting perceived status (i.e., misreporting). This work, which grew out of a simulation model

grounded in the opinions of a few risk experts and a sample of 56 project managers (PMs), suggests that status reports on high risk IT projects are biased 60 percent of the time and that the bias is twice as likely to be optimistic as pessimistic. Based on responses from the PM's to an open-ended survey question, Snow, Keil, and Wallace (2007) identified reasons for both optimistic and pessimistic biasing of status reports (referred to as selective reporting by Iacovou, Thompson, & Smith, 2009).

More recently, Smith and his colleagues (Smith, Thompson, & Iacovou, 2009; Iacovou, Thompson, & Smith, 2009; Thompson, Smith, & Iacovou, 2007) have published several studies on misreporting based on large-scale surveys that they conducted. Thompson, Smith, and Iacovou (2007) show evidence supporting a linkage between reporting quality and project outcomes, which suggests that misreporting can indeed have negative consequences, a finding that Iacovou, Thompson, and Smith (2009) confirm. Iacovou et al. (2009) show that optimistic biasing has a negative effect on reporting quality and that a project executive's power and communication, and the trust that the project manager has in the executive, can influence misreporting. And, in the Smith et al.'s (2009, p. 577) study, "project members who perceived their organization to be one in which rules are followed strictly tended to misreport less, while those operating in an environment dominated by personal self-interest tended to misreport more". Additionally, Smith, Thompson, and Iacovou (2013) found that individuals who had a higher propensity for risk-taking were more likely to misreport. They also found that the higher an individual's career aspirations, the more likely they were to misreport a project's status.

From the studies that have been conducted to date, we have learned much about various *factors* that may promote or inhibit misreporting, but there has been no attempt to understand the *process* by which misreporting occurs on live projects in actual organizational settings. In many organizations, IT projects are subjected to some level of auditing, and the implicit assumption is that the auditing process can reduce misreporting. Given the very real difficulty of gaining access to organizations willing to engage in field research associated with reporting behaviors, it is not surprising that there is a dearth of knowledge regarding the *dynamics* of IT project status reporting in an environment in which IT projects are subject to such auditing. In this study, we address this gap in our understanding by examining the IT project status reporting process in a rich interpretive sense (Lee, 1991) to build a grounded process theory. Process theory focuses on the sequences and patterns of events in processes, and includes theorizing about how and why they evolve in a certain way (Van de Ven & Poole, 1995; Pentland, 1999)

Therefore, we address the following research question: How and why does misreporting occur in a context in which IT projects are routinely audited?

3. Methodology

Since our primary interest lay in understanding the dynamics of IT project status reporting, we deemed a grounded theory (Glaser & Strauss, 1967; Strauss & Corbin, 1998) inspired approach to be appropriate for our study. According to Martin and Turner (1986, p. 141), grounded theory is "an inductive, theory discovery methodology that allows the researcher to develop a theoretical account of the general features of a topic while simultaneously grounding the account in empirical observations or data". In IS research, "grounded theory has proved to be extremely useful in developing context-based, process-oriented descriptions and explanations" (Urquhart, Lehmann, & Myers, 2010, p. 358). We refer to our approach as being inspired by grounded theory because we consciously deviated from the formal method in some respects. Thus, while we adhered to grounded theory's spirit as much as possible, there were constraints that prevented us from fully following a grounded theory approach (see Sections 3.1 and 3.2).

We studied the project status reporting process in the context of one U.S. state government, and our research was sponsored by that state's IT oversight board (ITOB). The ITOB was an independent body created by the state's legislature, and was empowered to certify (and, more importantly, to de-certify) all major IT projects in the state. For IT projects over a certain size (or with certain strategic implications), the state controller was prohibited from disbursing any funds without the ITOB's active

certification of the project. Hence, agency heads and agency IT executives were forced to respond to the ITOB's requests for information and to provide updates regarding their progress.

3.1. Sampling Strategy

In terms of our sampling strategy, we had to obtain approval up-front for the number of projects we wished to examine and also had to obtain permission from the CIOs in the state agencies in which the projects were being undertaken. At the time that we negotiated access with the state, there were 37 IT projects under ITOB oversight that were being worked on across 17 different agencies. We intentionally chose to sample a basket of nine projects (spanning six agencies) that were in progress at the time and that would give us some diversity in terms of total estimated cost (as a proxy for project size), stage of development (in particular, projects that were only in the planning stage were omitted), and the newness of the technology being employed. At the time that we selected the projects, they were all (with one exception) perceived to be in a "green" state by the ITOB; ITOB regarded one project as being in a "yellow" state at the time we began our research[1]. We settled on nine cases because we felt that this number represented a reasonable tradeoff between depth and breadth. For reference, Appendix A lists the projects that we included in our sample along with information concerning duration in years, number of state employees on the project, number of vendor organizations, approximate number of users, total estimated cost, and the ITOB's assessment of the project's status.

The ITOB's management contacted the head of each state agency that had a project on our list and asked for the individual's support in that agency. We asked each of the agencies for a list of all individuals (executives and managers, IT professionals, users, vendor employees) who were associated with that project. From those lists, we selected up to fifteen names (for each project) based on the individuals' background and project involvement. Our agency contact (frequently the agency CIO, who had been asked by the agency head to cooperate) would then co-sign (with one of the researchers) a cover letter to each of these potential interviewees. The letter explained the study and included a copy of our university's informed consent document. Noting that participation was voluntary and that anonymity was assured[2], the letter asked the potential interviewee to commit to a 60- to 90-minute in-person interview along with a possible 30-minute follow-up interview.

Following the precepts of grounded theory research, we entered the field with some theoretical sensitivity but with no pre-formulated hypotheses (Urquhart at al., 2010). While one may view project status reporting as an organizational-level phenomenon, we decided to focus on individual managers' perceptions regarding status reporting. Communication patterns in organizations clearly result from the sharing of information among individuals. It is this information sharing that helps to define and shape organizational communication. Therefore, we believed that it was important to begin exploring project status reporting from the perspective of individual managers.

3.2. Interviews

As indicated above, we relied heavily on in-depth interviews. As Table 1 shows, there were 95 interviewees and 118 interviews overall (including follow-up interviews). We conducted the majority of the interviews in person, but we conducted a few over the telephone. Most interviewees agreed to allow us to make audio recordings of the interviews (79 of 95); where this was not possible, we took especially copious notes.

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[1] ITOB status reports were produced monthly. At the time of our project selection, the ITOB assessed each project monthly as green ("routine"), yellow ("needs agency attention"), or red ("needs ITOB attention").

[2] Our "memorandum of understanding" with the ITOB requires that we not reveal the names of the state, the agencies, the projects, or any interviewees.

Table 1. Interview Summary

Project	# Interviewees	# Interviews[3]	Interviewee characteristics
A	15	18	Project managers, agency executives, senior project staff members, user liaisons, local users (pilot), vendor employees
B	9	9	Project manager, senior IT executives, users
C	9	13	Project manager, senior IT executives, database manager, analysts/programmers, senior user liaison, vendor project manager
D	12	13	Project sponsor, project managers, senior IT executives, IT professionals, user representatives, vendor project manager
E	8	10	Project sponsor, project manager, CIO, team leaders, project management officer, users
F	7	9	Project sponsor, project manager, CIO, user representative, IT consultant, vendor employees (including vendor project manager)
G	8	8	CIO, project manager, project sponsor, project supervisors, IT professionals, users
H	8	9	Project manager, CIO, user managers, IT professionals
I	10	10	Project sponsor, project manager, IT professionals, business systems analysts, users
Other[4]	9	19	QA personnel, CTO, ITOB members
Total	95	118	

Three of the four researchers conducted the interviews for our first case together, and we used it to guide the investigation of the subsequent cases, which were, for the most part, pursued in a parallel fashion. As we gathered and began to sift through the interview data from our cases, distrust between reporters and auditors surfaced as a recurring theme in our data, and the process through which such distrust became self-reinforcing (i.e., the cycle of distrust) emerged as our core category (Holton, 2007). Because we had to obtain approval for a specific number of cases up-front, we were constrained from following a pure grounded theory approach. Thus, while we could (and did) go back into the field on several occasions to conduct additional interviews, we were not in a position to add new cases (projects). Following the principle of theoretical sampling, we identified additional interviewees with the explicit aim of further developing our grounded theory. These additional interviews provided further details regarding the cycle of distrust and the process through which miscommunication occurred in the projects we studied, and these interviews also shed light on specific miscommunication tactics. Following the concept of saturation, we stopped scheduling additional interviews when we were convinced that we had reached the point at which no new theoretical insights were emerging from our data (Charmaz, 2006).

For all interviews conducted in the study, we prepared in advance a set of general (and, in some cases, specific) probes based on our understanding of that interviewee's involvement in the project. Of course, as the interviews progressed, we often modified our interview questions based on an interviewee's comments and perspective. And, although we sometimes created a list of documentation that we would request in advance of our interviews (e.g., project planning documents), the interviewees' comments

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[3] We interviewed some interviewees multiple times.
[4] Individuals not associated with any specific project but who had a role in the status reporting process.

frequently led us to ask for additional documents (e.g., memoranda). Because we were most interested in misreporting in an auditing context, we focused on the reporting regimen between the agencies and the state's ITOB. In particular, interactions between the agencies and the group of state-level quality assurance (QA) personnel were quite important. The QA group, providing technical assessments and evaluative comments as further input to the ITOB, reviewed all project applications and reports. Thus, toward the latter part of our study period, we scheduled an extensive set of interviews with the state QA group, with the state's chief technology officer (CTO), and with two members of the ITOB itself. These were in addition to our interviews in the state agencies, and they focused particularly on projects with reporting challenges. The interviewees in this category—who were not assigned to any particular project or agency—were often able to provide comments that helped us to either generalize or bound the phenomena we were observing on specific projects. These interviewees also provided useful triangulation of (or, in some cases, alternative perspectives on) some of the information that we obtained during project and agency interviews.

3.3. Analytical Process

Consistent with our grounded theory-inspired approach, we analyzed the interview transcripts and notes following traditional grounded theory guidelines, and we engaged in "constant comparison" by constantly comparing instances of data with other instances of data in the same category (Urquhart et al., 2010). In terms of analysis, we began with open coding, which we followed with an extended period of "selective coding for process" with iterative movement between data collection and analysis (Eisenhardt, 1989). Three of the four authors participated in the first round of interviews for two of the projects and engaged in joint data analysis. We assigned the remaining seven projects to three of the authors who conducted the interviews independently, with each author coding two or three cases. Two authors engaged in discussions and consolidated the coding scheme for their assigned projects. A third author played "devil's advocate" in challenging some of the preliminary findings and then engaged in "selective coding for process" for the remaining projects. Each of the three authors who entered the field created "memos" with "code notes" (Strauss & Corbin, 1998) during the interview period. Later, as we sifted through our data to abstract additional insights, we wrote extensive "theoretical notes" in "memo" form (Strauss & Corbin, 1998) for all of the investigated projects. Throughout the process, we relied heavily on the recorded interviews and transcripts.

As we gathered and began to sift through the interview data from our cases and in the process of crafting our memos, we observed a pattern that was particularly interesting and potentially valuable and which caused us to focus more attention on the relationship between auditors and reporters. We describe this pattern, which emerged from our data, as the cycle of distrust, and we propose a process model based on this pattern. We observed the entire cycle of distrust in five cases and we observed pieces of the cycle in the four remaining cases.

3.4. Quality Criteria and Assessment

Following Flint, Woodruff, and Gardial (2002), we assessed the quality of our research by applying criteria that are associated with interpretive research (i.e., credibility, transferability, dependability, confirmability, and integrity) and grounded theory (i.e., fit, understanding, generality, and control) (see Table 2).

Table 2. Quality of the Research Based on Interpretive and Grounded Theory Criteria			
Quality criteria	**Definition**	**How we addressed criteria**	**Result**
Credibility	Extent to which the results appear to be acceptable representations of the data.	• Spent 10 months in the field carefully collecting data. • Three authors conducted the first round of interviews jointly. Thereafter, we all extensively discussed transcripts and interpretations. • We shared selected findings with several participants to confirm their credibility.	• Key informants discussed, refined, and validated emergent models.
Transferability	Extent to which findings from a given context will apply to other contexts.	• We employed theoretical sampling. • Data were collected until saturation was reached.	• We elaborated on and refined our theory until no new properties emerged to maximize the generalizability of our theory.
Dependability	The stability or consistency of explanations.	• Participants reflected on events, experiences, and behaviors that occurred both in the recent past and in the more distant past. • We investigated multiple projects.	• We found reporting patterns were relatively consistent regardless of the specific timeframe or project being discussed.
Confirmability	Extent to which interpretations are the result of the participants and the phenomenon as opposed to researcher biases.	• A database of more than 70 hours of recorded interviews and selected transcripts was generated and analyzed by multiple researchers. • Findings were shared with a fourth member of the research team who served as an auditor.	• We challenged and refined interpretations where indicated so as to minimize researcher bias.
Integrity	Extent to which interpretations are influenced by misinformation or evasions by participants.	• We conducted interviews in a non-threatening way, without placing any value judgments on reporting behaviors. • We assured participants of their anonymity and explained that the information they shared with us would be treated confidentially.	• There was no indication that participants were uncomfortable with the questions or trying to be evasive during the interviews.

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Table 2. Quality of the Research Based on Interpretive and Grounded Theory Criteria (cont.)

Quality criteria	Definition	How we addressed criteria	Result
Fit	Extent to which findings fit with the substantive area under investigation.	• Addressed through the methods used to insure credibility, dependability, and confirmability.	• The theory we developed was grounded and captures the complexities of the relationship between project managers and auditors.
Understanding	Extent to which participants acknowledge that the results are reasonable representations of their worlds.	• Executive summary of findings distributed to sponsor and key informants. We presented the summary in a public meeting that included both ITOB and agency participants.	• In general, participants agreed that our findings resonated with their own views of the reality in which they operated.
Generality	Extent to which findings reveal multiple aspects of the phenomenon.	• In-depth interviews conducted in a non-threatening manner enabled us to elicit complex facets of the phenomenon.	• We captured multiple aspects of the phenomenon.
Control	Extent to which aspects of the theory can be applied or influenced by managers or organizations.	• Some concepts that are part of our grounded theory represent aspects over which managers and organizations have some degree of control.	• Managers and organizations can influence reporting behavior.

4. Findings

As we indicate in Section 1, the core category that emerged from our data is the process through which distrust between those responsible for reporting project status and those responsible for auditing projects becomes self-reinforcing (i.e., the cycle of distrust). The entire cycle of distrust, or components thereof, appeared in all of the cases that involved misreporting. Table 3 provides examples of misreporting and auditing scrutiny that we observed in each of our cases. As Table 3 notes, there was only one case in which there was no misreporting. In this particular case (ProjE), the project personnel spent some time with the auditors and reached a meeting of the minds regarding expectations on reporting, and this seems to have led to honest reporting of project status. We observed no cycle of distrust (or components thereof) in this particular case. Based on this, we conclude that one way to avoid misreporting and the cycle of distrust is to have a clear understanding on the reporters' part regarding what is expected. In all of the other cases, we observed some degree of misreporting, and, as noted above, part or all of the cycle of distrust.

Table 3. Examples of Misreporting and Auditing Scrutiny by Project		
Project	**Examples of misreporting**	**Examples of auditing scrutiny**
A	ProjA managers and team members answered only the questions that they were asked and offered no elaboration or clarification; they referred to this as "self-censoring".	ITOB retracted overall certification and certified instead only a planning process. ITOB also established a special committee to monitor project.
B	ProjB managers reported schedule slippages but did not explain them, leading to 50% of the project's vendor budget being disbursed when only 10% of the function had been delivered.	The ITOB auditors threatened the ProjB managers with an external audit (to be paid for by the agency), leading to reporting changes; the auditors (eventually) reduced their scrutiny.
C	ProjC managers reduced actual function in delivered releases so that deadlines could be met but did not explain the reduced functionality in status reports.	After receiving four monthly reports with cross-footing errors and no explanations for delays, auditors asked many additional questions, including in an ITOB meeting, leading the senior agency manager to angrily tell ProjC managers he wanted to hear no more "chin music" about the project.
D	ProjD managers reported incomplete work as completed and created "phase 2" and "phase 3" of projects (for unfinished work) to remove it from the auditors' purview.	Unaware of the tactics being used on ProjD, the ITOB auditors engaged in little scrutiny of the ProjD reports.
E	None noted	Apparently, because they did not know the reputation of any of the managers on ProjE, ITOB auditors insisted on attending ProjE's monthly project steering meetings and on reviewing RFP requirements, angering the ProjE managers.
F	ProjF managers redefined a $500,000 expenditure for data records (overlooked in the original budgeting process) as an "operational expenditure". The ITOB auditors were unaware of this redefinition. Official project manager (for ITOB purposes) was a well-trusted, experienced project manager (the agency's associate CIO), although this person was actually uninvolved in the project; one of the end users acted as the actual project manager.	According to agency management, ITOB auditors "were looking at everything the agency did to hit them over the head" because, two years prior to the implementation of ProjF, the agency implemented a major system without ITOB approval.
G	According to the ITOB auditors, ProjG's managers initially provided "inadequate" status reports, with "12 pages of issues and no project tracking thereof".	ITOB auditors sent a "needs agency attention" letter to the agency's senior management, leading to appointment of a new project manager.
H	Due to inadequate communication between the project team and agency executives, actual status information was withheld by team leaders, who would provide only the information they felt was relevant to their own team. Thus, project reports were inadequate; one agency observer said the only way "to find out what is going on, is talk to people in the hall".	ITOB auditors issued negative evaluations regarding the reports and told us their questions were met with a "deer-in-the-headlights stare"/ Auditors threatened project de-certification and sent "needs agency attention" letters, but the agency executive who received them never informed the project team members of their receipt.

The core elements of our grounded theory (i.e., the self-reinforcing cycle of distrust) first emerged in our analysis of ProjA, but we confirmed that the behavioral (e.g., distortion of status) and perceptual patterns (e.g., distrust) were present in the other cases, too. Since ProjA was representative of the other projects in terms of the reporting behaviors we observed, we use ProjA to describe and illustrate our grounded theory. After briefly describing the project, we discuss the communication of project status, and then explain the cycle of distrust in detail.

4.1. ProjA Background[5]

ProjA's ultimate deliverable (ApplA) was envisioned as a state-wide system that would be used by all local (city-county) public safety personnel and by local and state public safety managers and executives. Almost all activities associated with fire, police, and rescue services—from service calls to dispatching to, in the case of law enforcement, booking and criminal adjudications—would be tracked by ApplA. ProjA represented a massive IT project that had already cost over $25 million and had been underway for five years before we began our fieldwork. ApplA was to be rolled out across the state, with over 50,000 state, county, and city employees eventually using at least one of the ApplA modules.

Many of ApplA's functions would replace those of some existing and aged systems (which were still being used across most of the state), but other functions would be new and would be used by employees who were not accustomed to online applications. Although ProjA was being managed at a state level with state funding for the procurement of the software, its local implementation was to be handled by employees of the counties and cities across the state. ProjA had faced many challenges during its life, and, as of the time of our interviews, it was being used (in pilot mode) in only three of the state's several dozen counties. The project had been "re-base-lined"[6] several times since its inception, and several audits (by external auditing firms) had been undertaken to identify problems and potential corrective actions.

Our interviews suggested that there were three root causes of ProjA's problems. First, the project's agency (AgcyA) planners had originally envisioned ApplA as being a simple state-wide implementation of a "commercial off the shelf" (COTS) product, SoftA. However, as they began to have discussions with local personnel across the state, they realized belatedly that SoftA relied on a number of assumptions that did not match their state's complex environment. As one example among many, SoftA was designed for only a single organization (say, a single city or county) in which all the user groups filed the same reports with the same frequency and with similar expectations regarding the "roll-up" of numbers. For a number of reasons associated with local autonomy, the local groups did not agree to the imposition of a single requirement in this regard, and AgcyA could not legally impose this.

Second, several interviewees asserted that SoftA was not actually a COTS product at all but, rather, a product that was being constructed by its vendor as time passed, largely through the integration of other existing applications. Unfortunately, according to AgcyA interviewees, there were no COTS packages on the market that matched the state's overall requirements, and AgcyA was powerless to force changes in local operating assumptions and procedures. (Our interviews with some local personnel in pilot test organizations confirmed this perception of autonomy.) So, ProjA managers had contracted with a large consulting organization to handle implementation; this consultant was, in turn, handling negotiations with SoftA's vendor.

Third, while AgcyA was funding the procurement of SoftA (and, eventually, its modification), it had not allocated funds for the improvement of local infrastructure elements. As it turned out, SoftA required a fair amount of bandwidth for communication—some via wireless media—and it also required a reasonably current desktop environment. In some local situations, neither of those were available, and AgcyA did not have the funds to facilitate upgrades.

All of our interviewees—local, agency level, state level, and vendor—agreed that ProjA had already extended far beyond what was envisioned originally in terms of its cost and timeline. However, the state was not likely to be able to meet some federal reporting requirements unless it upgraded its current system, and no suitable alternatives to SoftA had been uncovered. As one senior level agency interviewee put it, "failure is simply not an option".

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[5] Some details regarding ProjA have been disguised to preserve anonymity. However, the essential project characteristics and context have been preserved.

[6] "Re-base-lining" was a term used by the ITOB to refer to a restatement of the project's milestones and/or completion date. The ITOB allowed re-base-lining on a somewhat regular basis but generally demanded an explanation regarding any delays or changes in resources.

4.2. ProjA Status Communications

Over time, the relationship between the managers of ProjA and AgcyA, and the state QA personnel and ITOB itself, had become quite strained. Some of the strain was apparently a function of an earlier experience with a previous project.

4.2.1. The Earlier Experience[7]

The distrust apparently had its genesis in another project that had been undertaken by an earlier AgcyA CIO (since departed from the agency). This CIO predicted that the ITOB would not respond positively to that project, apparently because its architecture did not match one that was being promoted at that time by the ITOB; the CIO perceived that the ITOB was a dogmatic body that would not be open to negotiation. Rather than test this hypothesis, the CIO decided on a different reporting action: she[8] defied the ITOB by completing the project's development phases without taking it to the ITOB for certification. Our interviewees throughout the state government's IT circles recalled this incident. One ProjA manager commented that the prior CIO "was not a politically savvy person. She wasn't prepared for what would happen for taking on [a group] like that".

In fact, the ITOB's members did find out about the system just before it was to roll out across the state. Several interviewees reported that the ITOB perceived that the agency had challenged its authority and, therefore, that AgcyA could not be trusted. The ITOB responded harshly: AgcyA's new CIO (who had not been in office during the project in question) was "publicly interrogated" at an ITOB meeting, according to an executive in another agency. "They got caught…[the new CIO] said 'we made a mistake.'". The ITOB threatened that it might not certify the rollout, but eventually agreed that it could continue. "They wanted to make sure that they were not sending a signal to other agencies that it was okay to do this," said a ProjA manager. "I think we all suffered from it…we got spanked.".

Several interviewees claimed that, as a result of perceptions that were formed during this period of hidden IT activities, a public confrontation, and a forced apology, AgcyA was now receiving additional scrutiny on ProjA. Since that time, alleged one ProjA manager, the ITOB had been treating AgcyA worse than other agencies: "They are asking for way more from [AgcyA] projects, even when they are not as risky [as those of other agencies].".

4.2.2. ProjA Itself: Reporter's Perceptions

By the fourth year of the project, many ProjA personnel and managers perceived that they were being viewed unfavorably and were being persecuted by the ITOB through increased project scrutiny. "Sometimes the [ITOB] conversations make you believe that we are perceived as idiots," said one ProjA manager. "I see [another agency] doing whatever they want, because they are allowed to"; in contrast, this manager claimed, "we were bashed". ProjA managers perceived that the ITOB members were not reading the status documents that they were preparing and that the ITOB members needed to be "spoon-fed", in one ProjA manager's words. Further, one ProjA manager said that he had submitted a clarifying memo to the QA office but claimed that it had not been passed on to the ITOB members. The ProjA manager said:

> We've asked for specifics—if you have any issues with the documentation that's there…tell us what your issue is, and we'll address it. Otherwise, I can't address an unknown. [As an example,] the day before yesterday, [we] got a very high level e-mail that says "here are a few concerns…". Every one was addressed in the documentation that we sent them. So, we re-addressed them…

Of particular note in the ProjA managers' negative perceptions seemed to be what one termed the "public humiliation" of being questioned in open ITOB meetings, which he argued was:

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[7] Because the first experience had occurred quite some time prior to our interview period, we were forced to rely on recollections from several interviewees and were unable to reconstruct all the specific details at the same level as for ProjA itself, which was still in process during the time of our interviews.

[8] Rather than use the rather awkward "(s)he" or "s/he," we have used random gender references ("he," "she") to refer to interviewees and to other personnel.

> *disrespectful to the agency, and it affects agency staff. It's not over major issues and at times is based on hearsay…it's uncalled for. It makes staff not want to tell them information and to report on things that they should be reporting on, and it makes agencies do exactly what they should not be doing: start hiding things.*

With respect to hiding status information from the ITOB, this manager said:

> *You are damned if you do and damned if you don't. If you give it to them, it gives them more information for them to come back and hit you with; if you don't give it to them, they are saying that you are hiding things. Even when you do give it to them, they believe that you are still hiding stuff from them…there is a level of mistrust between* [the ITOB] *and us…I still don't trust some individuals.*

The ProjA senior managers were quite reluctant to confirm that they "hid" anything from the ITOB during our interviews. However, some of the ProjA senior managers did agree that they engaged in "self-censoring" in their meetings with the ITOB and QA staff; as one put it: "I am careful not to say something that could be the wrong thing. So, I guess I am censoring…you never know when something is going to blow up into something that is not necessary.". And there also seemed to be a determination, especially on the parts of some lower-level ProjA managers, to answer only the specific questions that they were asked and to offer little more in their interactions with the ITOB and the related QA personnel. A senior ProjA manager described one such incident that occurred just the day before our interview:

> *We had to go over there to walk them through one of our* [status plans]. *The* [lower-level project manager, PM] *was skeptical and was like "Why? Why do we have to do this?" He's a tough military guy. So, we go over there. One of them asks "Do you have a schedule about which* [counties] *will go next?" Well, we've had a schedule and a plan for a month, and he sits there and he says "no." We come back and then the next thing I know* [the state CTO] *is calling the agency. And* [the agency head] *is saying "these people don't even have a schedule!" Well, what we didn't have was a date. We know which* [counties] *will go next. Depending on their readiness (which we are not supposed to know until two weeks from now), the specific* [counties] *will be scheduled for implementation. Because of the mistrust we have towards* [the QA personnel and the ITOB], *this started from the PM only going to answer their question, to not really help them understand, to culminating that we were total idiots and that we had no plans…We did not want to answer their questions because of who they are.*

Some interviewees outside AgcyA claimed that ProjA executives had engaged in uncertified roll-outs of functionality to some counties and had not been forthright in reporting this to QA personnel and the ITOB. A QA interviewee said:

> *They violated their certification. They were told not to install any more* [local offices] *until they proved the product was scalable and affordable…They were told specifically a year and a half ago, "do not install any more* [local offices], *because we don't think it works." And they went into a couple of counties and installed some* [more offices]…*I turned them in and said "look, they're violating the terms of their certification – what do you want me to do?"*

Although it provides only suggestive rather than definitive evidence, the story of another lower-level ProjA PM may illustrate downward "auditing" pressure regarding project reporting in an earlier period. That manager, who had been responsible for producing the status reports to the ITOB and then interacting with the QA staff for a period of well over a year, had a reputation as a person who "has a lot of integrity", according to the state's QA personnel. At one point, QA personnel asked ProjA for an implementation plan, and they submitted the very same document that had been submitted almost a year earlier ("they didn't change a single word in it," said a QA interviewee). They questioned the PM

about it; reportedly, the PM said that "higher-ups" had directed the identical submission. Shortly thereafter, that PM was relieved of project reporting duties during the project's fourth (and extremely troubled) year, and he transferred to another project a few months later. "He's not in the job anymore, of course not," remarked one QA interviewee.

4.2.3. Auditors' Perceptions

No matter how ProjA's personnel and managers defined their own behaviors, it was clear that those who received their reports were forming negative perceptions regarding the reports' veracity and completeness and, in an obviously related vein, about the reporters themselves. A QA analyst said: "We tell them 'you are not telling us the truth, you are hiding stuff from us, you are not telling us what you are accomplishing'…That agency has systemic problems and just can't get work done.".

One member of the ITOB, who was cited widely by others as quite dedicated to reading all the submitted materials and to providing intense scrutiny of projects, told us that he had lost faith in the ProjA and AgcyA managers over time because they constantly portrayed their progress in an overly optimistic light:

> They were the biggest bunch of Pollyannas that I've ever seen. They were always so optimistic that the solution was just around the corner—just wait one more month, and then we'll have it for you… One more month, and we'll have the analysis for you. One more month, and we'll have that problem fixed. One more month, and we'll have the contract signed. One more month, and we'll have the hosting solution designed. That kind of thing—it was always something in the future that never materialized.

The same ITOB member indicated that ProjA managers tended to promise solutions to project problems but offered no details:

> Oh, I've heard "we have it!" We just haven't written it down for you; we'll get it to you next month. We've got it; we just haven't written it down. Or, even worse, we've written it down! And we'll get it to you, and it never comes. Cause they never had it written down. Or their concept of what "it" is is different from the rest of the world's concept of what "it" should be. Like "we'll get them a plan," and [the state CTO] gets it and says "this isn't a plan. This is insufficient for [us] to be able to judge what's going to take place."

4.2.4. Auditors' Behaviors

In response to the above perceptions, both the QA staff and the ITOB itself (i.e., the auditors) had increased their scrutiny of ProjA over time, with questions both in public (at the ITOB meetings) and in private (in many communications each month). But the frustration finally reached a peak when the ITOB took drastic action: after threatening to do so for several months, it retracted its overall certification of ProjA and substituted a scaled-back certification of a planning process. (And, as of the time of our interviews, ProjA's planning process was itself missing its target dates.)
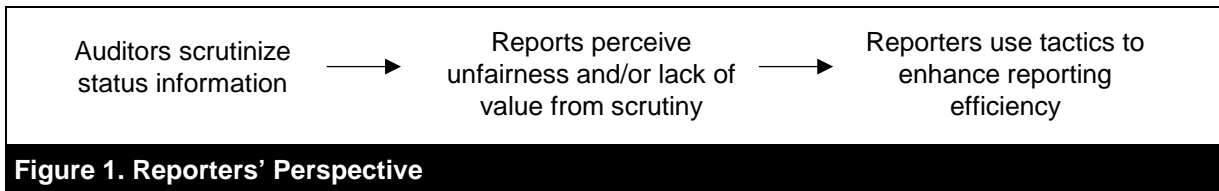
4.3. The Self-Reinforcing Cycle of Distrust: An Overview

Our investigation into ProjA status communications reveals evidence of a cycle of distrust that developed over time between reporters and auditors, creating a dysfunctional situation. Based on the interviewees' comments, there was a gradual process that drove the parties to distrust one another. For example, when we asked one ITOB member if he could describe the ProjA reporting incident that was the "straw that broke the camel's back" in terms of his own lost faith in their management and reporting accuracy, he replied: "I can't. It's taken place over a number of years. And it's just a gradual erosion of confidence.". It was the repeated nature of the interactions that enabled an accumulation of distrust to be manifested in behaviors that are consistent with that distrust. The result was what we observed as a "self-reinforcing cycle of distrust" between reporters and auditors.
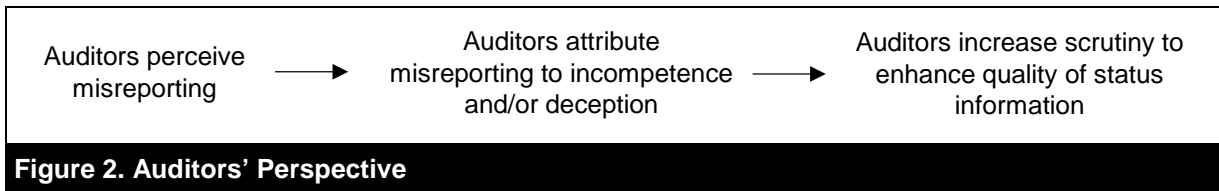
In terms of the IT project status reporting process observed in ProjA specifically (and across all state projects, in general), the auditors attempted to reduce perceived misreporting by investing in greater

scrutiny of status reports, which paradoxically led reporters to become more evasive (in response to the increased scrutiny as they did not see any value in it). In the ProjA case, both parties—reporters and auditors—behaved rationally in the context of their own perceptions. As Figure 1 shows, many reporters interpreted the scrutiny of their status information as being grounded in unfairness and as providing no value to their project. As a result, many concluded that the path to reporting efficiency lay in the use of some innovative reporting tactics, and they apparently assumed that their actions would not lead to a level of follow-up scrutiny that required even more time and energy. As an agency's senior project management officer said:

> *The monthly reporting doesn't provide value to the agencies. I think that's a given. So, sometimes people engage in actions to minimize its costs to them…Not to say that I don't do my job well, but I try to minimize my effort in preparing those reports.*

Auditors scrutinize status information → Reports perceive unfairness and/or lack of value from scrutiny → Reporters use tactics to enhance reporting efficiency

Figure 1. Reporters' Perspective

But, as Figure 2 shows, the auditors interpreted any evidence of such reporting tactics as an indication of either incompetence or an attempt to deceive.

Auditors perceive misreporting → Auditors attribute misreporting to incompetence and/or deception → Auditors increase scrutiny to enhance quality of status information

Figure 2. Auditors' Perspective

To the extent their resources allowed, the auditors then increased their scrutiny of the reports because they viewed this as necessary to enhance the quality of the status information. Taken in isolation, each party appears to have behaved rationally, but, the ultimate outcome, as Figure 3 shows, can be a self-reinforcing cycle of distrust that is dysfunctional.
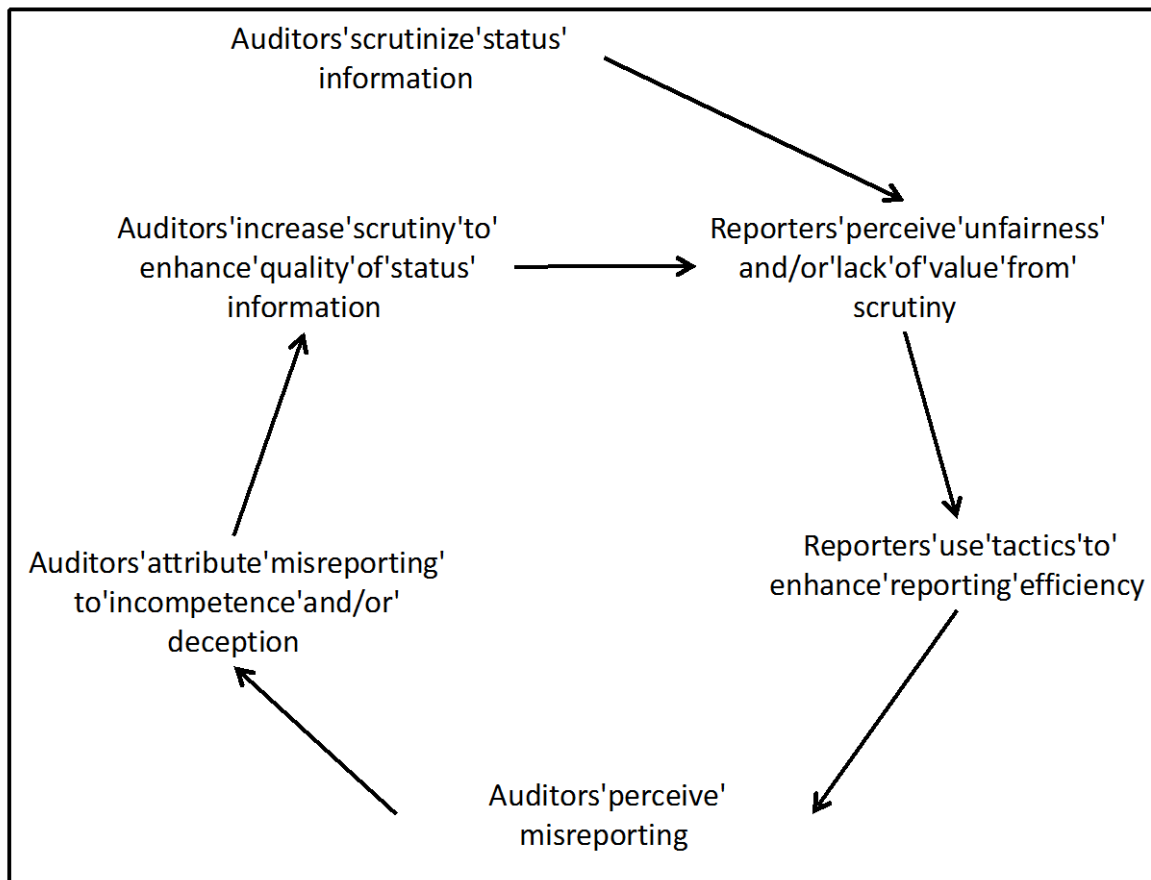
Figure 3. Self-Reinforcing Cycle of Distrust[9]

4.4. The Self-Reinforcing Cycle of Distrust: A Closer Look

Once such a cycle begins (either through scrutiny that is perceived to be unfair or through misreporting), each party reacts to its perceptions of the other. This leads to both misreporting behaviors by reporters and increasing levels of scrutiny (not all of which is effective) by the auditors. In the end, the organization expends extra resources in what it thinks will be a "check and balance" exercise, the reporters expend extra resources in modifying their own behaviors as a response to the additional scrutiny, and—because many of those responses entail some degree of misreporting—the organization winds up with even less-reliable information regarding the actual status of its projects.

Against that general discussion of the cycle, we now look across all the projects and interviews in our study to provide additional detail about the components of our grounded theory (shown in Figure 1c). The following is not intended as tracing of any particular project but, rather, as a synthesis of accounts associated with the various components of the process, in which perceptions accumulate over time and manifest themselves in behaviors.

4.4.1. Reporters' Perceptions

Most of the reporters that we interviewed revealed that they had, over time, formed negative perceptions of the ITOB and the reporting processes. These negative perceptions can be generally sorted into two categories: unfairness (including self-protection and inequality) and a lack of value. **Unfairness:** Those who had dealt directly with the ITOB noted frequently that they perceived many of

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[9] The representational form of our process was inspired by Senge (1990)'s work on the nuclear arms race and takes the form of a reinforcing cycle.

the ITOB's actions were designed solely to protect itself and to indict others. For example, one project sponsor said:

> *They have become a nit-picking* [group] *that is more interested in not being caught with its pants down. So, they want to criticize the hell out of you just in case you do fail so that they can say "we told you so." As far as them becoming a partner and helping you become more successful, that's not in there…I view all that as an irritation and I try to keep the project team sheltered from it.*

Many interviewees argued that, in order to make it appear that it was providing useful oversight, the ITOB took advantage of public meetings to embarrass executives on various projects. For example, a senior project management officer in one agency said:

> *The atmosphere is very tense. Can you imagine being in a public room and having to stand up in front of the committee and there can be up to 50 people in the room and having to answer questions off the cuff about your project? It is not a comfortable experience…I did not expect the atmosphere to be like that. I have been there when not only inquiries are made about your project, but personal critical comments are made about you…The tone is very confrontational…Because of this, I would try to make every attempt to not put myself in that situation…So, if I am having problems on my project, am I going to this body and say "I need help"?*

Further, many of our senior agency interviewees perceived that the unpleasant treatment afforded to various projects and agencies was not meted out on a consistent basis. In particular, charges of favoritism were frequent. One CIO gave an example:

> *Two years ago, we put up a duplicate…license system on the web. It's a little system that allows you to request a new license if you lose it. During the same meeting,* [another agency] *took a similar project to them. It was an online permit system that allowed you to get* [other types of] *licenses over the web. And, we were hit over the head with it. They were like "why didn't you bring this forward before today? Why did you wait for so long?" By that time we had accepted 15 hundred requests for licenses in the system. And all of a sudden, they switch over to* [the other agency] *and theirs had been up longer than ours had and they were "oh, good job!" …I got the impression that they are looking at everything we do to hit us over the head…I think there is a bias. And I think we are hit harder. It does bother me.*

Lack of value: Some of our interviewees explained that they perceived a lack of benefits from the scrutiny and therefore attempted to limit it as much as possible. A CIO explained: "They are not really helping agencies run projects better. They basically want to show us…that we cannot run major projects. I don't see them trying to help…". One project sponsor said: "I view all of that [the ITOB reporting] as an irritation that's out here and I took that on to keep the project team from having to be subjected to any of that.". The CIO of another agency said: "I am not going to worry about it…I'm not going to worry about those people. They are second or even third priority for me. My users…are the first priority.".

As reporters formed perceptions that the ITOB was unfair and that there was little value in the reporting process, they responded with attempts to (in the words of one interviewee) "fly under the radar". We turn now to a discussion of those behaviors.

4.4.2. Reporters' Behaviors
Having formed perceptions of distrust regarding the ITOB, many reporters responded by attempting to mute the impact of the ITOB scrutiny. One agency CIO described the situation this way: "People went underground. You did whatever you could to stay out of the [ITOB] process.". To do this, reporters used several reporting tactics that they described in our interviews: selective highlighting,

reclassifying information, redefining deliverables, selecting numbers, and working with the labels. We discuss each below.

Selective highlighting: Status information can be reported accurately but in such a way that it is hard to find. Reporters often believe that this protects them since, even if the information is not discerned by auditors, the reporters believe that they can claim later they did indeed report the information. For example, a ProjI supervisor told us of a training agenda that could not possibly be completed by the deadline. He explained that the specifics of the training were included in the monthly reports, and a careful examination of the specifics would lead an auditor to the conclusion that the deadline could not be met—but he did not point this out, and the auditors did not focus on it. He said:

> *I know that we cannot roll the project out within the specified time…just physically crunching the numbers, it's impossible to do… We are all internally* [project supervisor, project manager] *aware of this. And* [this information] *has been sent to the ITOB. But it has not been identified as an issue. They can get that information if they look closer… It's there in black and white.* [But] *I didn't mark it as a risk factor…*

Reclassifying information: Another common technique is reclassifying tasks, expenses, and so on. For example, consider ProjF. Midway through the development cycle, it was discovered that the application would be somewhat useless unless a certain database was also purchased. The auditors were told of the need for this database and that its cost would be $500,000, reported as "record funds" that were an "operational expenditure"[10]. However, an executive of the agency told us:

> *There were a lot of technical things we had to work around…we had to get specialized equipment, hardware for it…we used a lot of the "record funds" to pay for the hardware…I thought about it and I was like "should we be purchasing stuff this way?" and I said* [to our director of purchasing] *"you know the purchasing rules, if you can justify this that is fine." But, the funds were used for system enhancements,* [some] *hardware, extra project training, and stuff like that…We didn't tell* [ITOB] *because they would want to know the scope was changing, so we said it was just for the data.*[11]

Another way in which information can be reclassified is that incomplete work can be reported as "completed", with the remaining tasks being shifted elsewhere. For example, ProjD was reported as "completed" even though some of the planned functionality (31 days' worth of work, approximately $150,000 worth) was still pending. A project leader said: "I don't know why this work is kind of going underneath the radar…We had a solution [as part of the original plan], but we realized that it was not feasible when we started implementing it.". Consequently, this functionality had been rolled into "phase 2" and "phase 3", both of which were so small that they were not subject to ITOB oversight.

Redefining the deliverables: In some cases, originally budgeted tasks were never completed at all because the deliverables were redefined. On ProjC, for example, several interviewees reported that, after schedule delays led to questioning during ITOB meetings, project managers substantially reduced the actual function in each delivered release so that deadlines could be met, but (according to these interviewees) the managers did not explain in their reports that they were reducing the functionality. Thus, numbered releases—which had been promised in the project plans—continued to roll out on schedule, but the actual functionality in many releases was far shy of what had been committed. It was believed that the auditors checked only that something was being delivered on each due date but did not ascertain exactly what was being delivered.

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[10] These expenses were often called "running" expenses by our interviewees; we use the more common term "operational."

[11] The auditors were apparently unaware that this tactic had been used on ProjF. We asked some of the QA personnel to tell us what had happened with ProjF; they described the missing database and the cost to secure it but appeared unaware of the other uses of the funds. One said "Believe it or not, they missed a component they needed…But, no, they didn't try to hide anything from us.".

Selecting numbers: One interviewee told us of projects keeping "two sets of books": one for internal purposes with actual cost/schedule data and one for the audit process with padded data. On another project, "standard/budgeted" costs were used in reports submitted to ITOB instead of actual costs, even though the actual costs were higher than the budgeted ones. A project manager commented on what she found had been done by a former manager:

> *When they developed the project plan, they used a budgeted hourly rate for contractors, 60 dollars per hour…When they reported to the* [ITOB], *they used that same figure, the 60 dollars per hour, independent of what they were actually paying…When I raised the question, the person doing the reporting told me that is how it was done.*

Working with the labels: Our interviewees frequently cited the technique of avoiding the label "project" for some IT activities. According to the ITOB guidelines, IT activities that exceeded $500,000 in budgeted costs that had a state-wide impact or that would be used by citizens were "projects" that were subject to the reporting process. "Some agencies break down their projects into smaller ones so that they are below the dollar threshold," noted one agency's senior project manager. An agency's CIO said:

> *There are some…agencies I have never seen there* [at ITOB meetings]. *The way I see it, they are keeping their projects small enough to stay underneath the criteria for size and stay out of* [ITOB's] *reach. I don't want to say* [agency name] *is doing that, but they are a $140 million business and I have never seen them there.*

These reporting tactics—selective highlighting, reclassifying information, redefining deliverables, selecting numbers, and working with the labels—appeared frequently to be the result of the reporters' perceptions regarding the value and fairness of ITOB and its auditing processes. The reporters concluded through rational calculus that they and their projects would be better off if they embraced some of these tactics.

In the minds of these reporters, because they saw little value to their own projects through the ITOB reporting and perceived unfairness in the manner that their input was scrutinized, it was perfectly rational for them to embrace actions that minimized the cost of the reporting as long as their actions did not lead to greater costs in some other form. But such behaviors also enabled the next step in the cycle: distrust on the parts of the auditors of the reports.

4.4.3. Auditors' Perceptions

Those who received the status reports did not always appear to have full knowledge of all the behaviors that had been embraced by all the reporters. Nevertheless, they had observed enough such behaviors to form distrustful perceptions of some reporters, projects, and agencies.

In order to collect some additional evidence of these perceptions, we asked two QA staff members to provide subjective ratings of their confidence in the monthly status reports that were submitted for all ITOB-certified projects in the state over a two-month period. (This analysis included all 33 projects that submitted reports in those two months. The nine projects from our sample were included among these.) Prior to engaging in any interchange with the reporters, the QA staff members (first individually, and then collectively to reach consensus) recorded their level of confidence in the status information that was submitted for each project using 10% increments from 0% to 100%. We asked them to consider their perceptions of completeness and accuracy as they assigned their subjective confidence levels (see Table 4).

Their ratings ranged from 40% (two projects each month) to 90% (two projects each month), with a mode of 70% each month (see first two columns for each month in Table 4). While these auditors' levels of confidence varied quite a bit across projects, they had full confidence (that is, at a 100% level) in none of the status reports.

Table 4a. Auditors' Confidence/Scrutiny—Status Reports, Month 1

Level of confidence	Frequency (n = 33)	Effort expended in scrutiny		
		High	Medium	Low
40%	2	0	2	0
50%	3	3	0	0
60%	8	4	3	1
70%	11	2	4	5
80%	7	1	3	3
90%	2	0	0	2

Chi-square likelihood ratio = 19.882 (d.f. = 10); significant at p < .05 (two-tailed)

Table 4b. Auditors' Confidence/Scrutiny—Status Reports, Month 2

Level of confidence	Frequency (n = 33)	Effort expended in scrutiny		
		High	Medium	Low
40%	2	0	2	0
50%	3	2	1	0
60%	6	3	3	0
70%	12	2	6	4
80%	8	0	5	3
90%	2	0	0	2

Chi-square likelihood ratio = 20.652 (d.f. = 10); significant at p < .025 (two-tailed)

In an attempt to understand these auditors' perceptions of what was creating their "confidence gap" (that is, why they did not have 100% confidence in the reports), we asked them on several occasions (and over the course of follow-up interviews) if they believed that the reporters were "lying". We concluded that the auditors were uncomfortable with that word. Frequently, their response was "they aren't *lying*" (note the emphasis), with explanations that they were "sending the best thing they can" or that "they aren't lying, just withholding". One of these auditors said:

> I would not ever challenge [them] *and say "you're lying to me"/ I've only done that on one project. Because I do not believe they're intentionally lying. I believe they just don't want to give you bad news—but, hell, I don't want to give anybody bad news. I think there's a natural instinct to say "hey, I can overcome this problem, so I won't report it this month, I'll report it next month".*

> I never found anyone who blatantly lied. I had people who said "gee, I don't want to tell you the whole truth", which is a big difference.

Trying to avoid using the word "lie", we asked these QA interviewees for their perceptions of the "creative techniques" that the reporters use. They called out the following (a specific interviewee quote is included for some techniques):

- Removing specific deliverables, milestones, and "planned accomplishments" from the relevant sections of the monthly status reports without any explanation—"in one

month they tell you what they plan to do during the next month, and the next month they say nothing about them"

- Re-scheduling intermediate deliverable and milestone dates while keeping the project completion dates as originally scheduled—"they don't change the end date, but they change all the dates leading up to it"

- Reporting "planned" hours of work completed instead of the actual hours for the reported period—"because the project is going slow and they don't want to reveal that"

- Allowing dates for "pending issues and actions" to pass but not explaining why they are still in the report—sometimes claiming they "sent the wrong file"; when the auditors perceive that "cosmetic editing" has occurred, they scrutinize the next report in more detail

- Calculating incorrectly on a fairly consistent basis—with errors that are attributed to the same source (i.e., agency, project, individual reporters)—"some [reporters] have 'calculation errors' all the time…they have systemic problems"

- Providing vague commitments on dates—date ranges instead of actual dates is a "sign of trouble" for one auditor, and

- Submitting status reports at the very last minute—"Good projects submit reports early; the later you submit the report, [reporters hope] the less chance I have to detect errors"—the auditors claim that there is a correlation between a report arriving late and it being inaccurate.

It is interesting to note that, while the auditors' view of "creative techniques" somewhat overlaps with the misreporting tactics identified by the reporters, their perceptions are not always isomorphic to the "flying under the radar" tactics described by the reporters. This may suggest that the reporters are more effective than the auditors might want to acknowledge. On the other hand, many things that lead to distrustful perceptions by auditors may not be known to reporters—for example, the fact that the auditors associate the lateness of a submission with a higher probability of inaccuracy. In that same light, the QA personnel provided us with a list of over 100 "checks" that they use in evaluating each project's status reports; however, they asked us explicitly not to share their checklist with anyone working in the agencies. They explained their belief that, if the reporters had explicit knowledge of the checklist items, they would then tailor their reports to the items.

Perhaps enabled by such intentional information asymmetries, the auditors formed perceptions over time of distrust towards some reporters, projects, and agencies. Those perceptions are eventually translated into behaviors, to which we now turn.

4.4.4. Auditors' Behaviors
The auditors applied varying levels of scrutiny to projects; in some cases, they accepted the reporters' input with few questions. In others, they engaged in significant interplay with the reporters by asking follow-up questions. But, on some other occasions, when they were convinced that the reporters had not endeavored to provide full input (frequently by engaging in some of the "creative techniques" described above), some refused to become involved in iterative dialogue. We asked one QA interviewee whether he called reporters who he believed had not provided complete and truthful input. He replied: "Hell, yeah, [I'll] call and say 'we're not taking this trash!'…What they want to do is say 'let me amend my report this month'…Me, I'll say 'you got the red mark, you come back next month and fix it.'".

In reality, contrary to this interviewee's remark, it appears that a common response from auditors was to invest time and energy—up to the point that their resources were exhausted—in follow-up scrutiny to improve their confidence in the status information. As a small confirmation, we asked the same two QA personnel (mentioned above) to estimate (using "low", "medium", and "high") the amount of effort they

expended in following up with each project's reporters for the same two months. As Table 4 shows, and as one would reasonably expect, they appeared to expend more effort in their scrutiny of the projects in which they had lower confidence (see chi-square test results at the bottom of the tables).

And, as a follow-on to this increased scrutiny, auditors could formalize their concerns through more specific evaluation markers such as "green," "yellow," and "red" status flags on monthly reports (the approach used by the QA personnel and the ITOB). As a somewhat intermediate practice in the ITOB cycle, QA personnel would frequently note concerns on a project's summary report page and would move to a higher color notation only if those concerns were not addressed in the project's report the next month (in effect, this meant that projects would "go yellow" only after at least 30 days' warning).

Ultimately, whether color-coded or represented only in a verbal form, questions about a project's status and the reported information in a contentious relationship formed the fodder for distrust to develop between the reporters and the auditors. In some cases, reporters and auditors indicated that the tone and approach was important. For example, one ITOB member asserted that the actual questioning need not be hostile in order to get the point across, particularly in a public setting:

> *Simply bringing up an issue in public is sometimes all you have to do. You don't have to do anything else – you just ask in the form of a question, and that is sufficient to generate some movement on that. So you don't need to confront, you don't need to catch them in a lie, you just need to say something that lets them know that there's an alternative version of events out there, and maybe following up offline.*

This ITOB member explained that, over time, he had moved much of his questioning into private interchanges to avoid as much public hostility and embarrassment as possible. Even so, some reporters expressed a different perception of this ITOB member's public comments and questions during our interviews and viewed some of his comments and questions as inappropriate and condescending.

So, while the style of questioning could have made some difference in terms of perceptions and behaviors, to the extent that the auditors apply scrutiny to the projects by asking the reporters for additional information, and/or to the extent that the auditors respond to the reports with skepticism, this provided fuel for the self-reinforcing cycle of distrust. We now discuss our findings and some possible approaches to breaking this cycle.

5. Discussion and Implications

Misreporting on IT projects is a problem that can lead to escalation and which has been shown to negatively impact project outcomes. In this study, we developed a grounded theory about how and why misreporting can occur in an environment in which projects are routinely audited. Paradoxically, our theory suggests that, while reporters and auditors both exhibit behaviors that are rational, together they generate a self-reinforcing cycle of distrust that is dysfunctional. Indeed, together they create a system in which additional costs are incurred by monitoring status information while the information is, in turn, becoming less accurate because reporters are embracing some defensive tactics. We are not suggesting that the cycle of distrust is the only pattern that can lead to problems between reporters and auditors, but we do suggest that such a pattern can manifest itself in the IT project context.

We believe that the cycle of distrust that emerged from our data constitutes a process theory that is capable of explaining important elements that shape the dynamics of misreporting. It is what Gregor (2006) refers to as a type II theory, in that it "provides explanations but does not aim to predict with any precision". The theory explains why and how relationships between reporters and auditors are prone to going awry. Specifically, reporters interpret the auditor's scrutiny as unfair and not adding value and respond with defensive reporting tactics, which the auditors interpret as indicating either deception or incompetence, leading them to increase their scrutiny of the reports and thus creating a self-reinforcing cycle of distrust.

A process theory approach is well suited for exploring the dynamics of misreporting and the self-reinforcing pattern of distrust that can emerge as auditors and reporters interact over time. Indeed, it would be difficult to capture these dynamics using the more-traditional variance theory approach. The process theory approach acknowledges that "the world is made up of entities that participate in events" and that the "temporal sequence of events is critical" (Van de Ven, 2007, pp. 156-157). In our process model, we show one sequence of events based on an observed set of actions and results. What we describe here is a first attempt at constructing process theory in this domain, and we fully expect that it will need to be revised and further developed as more is learned about auditing IT projects.

While process theories do not aim to predict in a causal sense, our grounded theory does suggest some simple and straightforward propositions that can be tested empirically[12]. While we offer these propositions, we leave it for others to develop and explore them further:

Proposition 1: A cycle of distrust starts when either a) reporters perceive a lack of value in the audit process or feel as though they are being treated unfairly, b) some misreporting occurs on the current project, or c) distrust carries over from interactions between the reporter and the auditor concerning a previous project.

Proposition 2: When the response to misreporting is heavy auditing, this can lead to more misreporting.

Proposition 3: Projects that exhibit a cycle of distrust between reporter and auditor are more likely to eventually experience negative outcomes and be less successful than projects that do not exhibit such a cycle.

We believe that our grounded process theory contributes not only to our understanding of misreporting in the IT project context, but also to existing knowledge on the longitudinal nature of trust/distrust processes, and can be theoretically integrated into a broader body of literature. As Komiak and Benbasat (2008, p. 730) observe: "it is also notable that we have not found any prior research on the distrust-building process". Consistent with Komiak and Benbasat's (2008) observation, a review of current trust literature suggests that the phenomenon uncovered in this study has not been addressed in depth win the organizational trust literature. One laboratory experiment did show that untrustworthy behavioral actions undermine trust but that the trust can be regained through a consistent series of trustworthy actions. However, if deception is also associated with the untrustworthy actions, trust can never be fully restored (Schweitzer, Hershey, & Bradlow 2006). In terms of theoretical integration, our own study, conducted in the field and encompassing a much longer time frame, provides a richer context for these laboratory results.

In addition, while the boundaries of this study were explicitly established as IT project status reporting, we find some conceptual similarity between the cycle of distrust that emerged from our data and Senge's (1990, p. 69) description of the perpetual cycle of aggression that propelled the US-USSR arms race. As Senge observes, this was a cycle in which each side perceived the other as a threat and thus invested in arms leading to a forty year cycle in which "the two mightiest political powers…engaged in a race to see who could get fastest to where no one wanted to go". As Senge explains:

From the American viewpoint, the Soviets [were] *the aggressor, and U.S. expansion of nuclear arms* [was] *a defensive response to the threats posed by the Soviets. From the Soviet viewpoint, the United States* [was] *the aggressor, and Soviet expansion of nuclear arms* [was] *a defensive response to the threat posed by the Americans.* (Senge 1990, p. 70).

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[12] We wish to thank the Senior Editor for suggesting a starting set of propositions

While the contexts are vastly different, there are some similarities between the cycle of perpetual aggression and the cycle of distrust. Indeed, one could argue that it is distrust that drives both cycles; each side acts in what it believes is its own best interest because of a deep distrust of the other party, and this process becomes self-reinforcing, ultimately making cooperative behavior very difficult to achieve. Understanding more about how such cycles form and how they can be broken has broad ramifications that extend far beyond IT project status reporting. Thus, we believe that our findings hold important implications for both research and practice, but, as with any research study, ours is subject to limitations and we discuss these first before turning to our work's implications.

5.1. Limitations

As with any research study, ours is subject to limitations. For example, because the projects were at various stages in their implementation cycles, with some having been in progress for over five years at the time of our study, it was sometimes difficult to reconstruct precisely what had occurred years earlier—not only because of hazy memories but also because the longer projects tended to have considerable personnel turnover. Although we were occasionally able to track down former project participants for interviews, this was the exception rather than the norm. Even with these constraints, however, we were able to understand the general process through which reporting distortion behavior emerged (and was sometimes detected and responded to) and to understand some specific forms in which this distortion behavior manifested itself.

Another limitation is that we conducted our study in a public sector IT context and this may limit our ability to generalize to other contexts. We therefore make no claim that scrutiny of project status information will always result in outcomes such as those observed in this study; further, we cannot say with absolute certainty that defensive tactics will always be perceived as they were by this study's auditors. However, a brief consideration of some of the structural conditions associated with the projects and organizations in this study may be helpful in considering the generalizability of our grounded theory.

In their 2004 interpretive study of knowledge brokering, Pawlowski and Robey (2004, p. 662) explain that structural conditions, while not causal in leading to certain practices, are "mutually implicated in the social process" and "enable" practices in that process. Similarly, in this study, certain structural conditions associated with the projects and organizations might have served as such enablers and might suggest the need for additional research to clarify the importance (or lack thereof) of those structural conditions.

First, all of the projects in this study were funded by the state, and the majority of the interviewees were state employees; as a result, the process might have unfolded differently in some for-profit organizations. While we cannot definitively rule out differences between the two domains in the context of our findings, we do note that the state agencies were all laboring under significant budgetary pressures at the time of the study, and pressures to reduce costs were strong, just as they are in most well-managed corporations. There had been staffing cutbacks in most agencies, and we observed pressures to produce more with fewer resources. Further, in some of the agencies, there actually were revenue-enhancing initiatives underway; these tended to take the form of additional fees for certain services (e.g., extra charges for the convenience of filing a document online by using a credit card). We acknowledge that an ideal follow-on study would be a replication in a for-profit company or companies. But we also argue that the phenomena observed in this study are more likely to be a function of organizational processes than of the organization's profit-seeking status.

Second, and related, the public nature of the reporting process in the state government could well be a salient structural condition in this study. Although some IT governance structures in private industry could mirror the one observed in this study (Rau, 2004), the fear of public discussion of project status in ITOB meetings did seem to have been important to some project managers in this study. If the scrutiny were less public, project personnel might interpret it differently. However, it should be noted that many project interviewees seemed to resent private questions from the QA personnel almost as much as the questions in the open meetings, so the importance of this structural condition is

somewhat unclear. A follow-on study in which the interactions between reporters and auditors were conducted under a veil of confidentiality would be an important addition to the literature.

Third, we intentionally chose to focus on reporting dynamics in an auditing context because we wanted to know whether auditing is an effective means of deterring misreporting. We are hesitant, therefore, to predict whether our grounded theory would hold under less-contentious circumstances or in those situations in which reporting is purely hierarchical (e.g., programmer to project manager). It is noteworthy, however, that many non-governmental organizations employ IT auditors or even hire outside consultants to provide independent auditing services on large IT projects. Still, replications of this study in other IT governance contexts would be useful avenues for future research.

Fourth, the agencies in this study were accustomed to operating with a large amount of autonomy, and the ITOB reporting process could therefore have been viewed as exceptionally intrusive. However, the same could be said for many business units (BUs) in many decentralized corporations. When such firms add a high-level IT oversight structure (Rau 2004), the same interpretations by BU employees might be expected. This suggests that an additional study in which this structural condition was examined in two different settings—one with somewhat autonomous BUs and one with a more centralized governance structure—would be helpful.

5.2. Implications for Research

Two important insights emerge from our grounded theory research on IT project status reporting dynamics. First, our findings show quite clearly that auditing is not a panacea when it comes to reducing misreporting. Indeed, our results suggest that auditing can actually promote misreporting behavior. This counterintuitive finding is noteworthy and has important implications for research. In particular, it suggests that researchers need to reexamine the efficacy of auditing in its various forms as it relates to IT project governance in general and project status reporting in particular. As Power (1997) suggests, there are clearly limits that are associated with the auditing approach and much that we do not know about its effects on people and processes. Our study underscores that, in the domain of IT project status reporting, "more accounting and auditing does not necessarily mean more and better accountability" (Power, 1997, p. 127). Thus, while it is tempting to implement more auditing to reduce misreporting, our findings suggest that this may actually exacerbate the problem. Our study reinforces how little we actually know about auditing and its effects on IT project status reporting, and the critical need for more research in this area. In Power's (1997, p. 142) words: "audit has put itself beyond empirical knowledge about its effects in favor of a constant programmatic affirmation of its potential". However, as our study suggests, such attitudes and approaches to IT governance may backfire. At the same time, it would be wrong "to conclude simply that less auditing is desirable" (Power, 1997, p. 144).

In our study, the self-reinforcing cycle of distrust started when reporters perceived a lack of value with the audit process or felt as though they were being treated unfairly, but this need not always be the case. In some instances, however, it may be that the cycle of distrust begins with failure to report accurate information regarding the project and its status. Further research is needed to determine more precisely the different ways in which the self-reinforcing cycle of distrust is initiated and their relative frequency of occurrence.

Based on what we observed as the trigger for the self-reinforcing cycle of distrust in our research, one key question is: are there ways to implement auditing that can be seen as valuable and non-confrontational in the eyes of the reporters and which would be less likely to trigger a cycle of distrust? What is sorely needed is a better understanding of the effectiveness of various forms and levels of IT auditing and whether such control-based approaches can be balanced with the benefits that may accrue from relying on trust-based relational governance mechanisms. Our findings also point to the need for further research to determine if there are interventions that can break the self-reinforcing cycle of distrust, or, better still, prevent it from developing in the first place by focusing on the value and fairness of the auditing process. One obvious avenue to pursue is to make the auditing process have more of a consultancy element to it. Indeed, our research suggests that, if auditors are

perceived as acting fairly and adding value, the self-reinforcing cycle of distrust may be avoided entirely. However, there is always the danger of the auditor developing too close a relationship with the reporter, creating an opportunity for serious misreporting to go unchallenged.

A second insight that emerged from our study is that there are specific strategies and tactics employed by both reporters and auditors. In particular, we found that reporters engage in a variety of tactics aimed at hiding bad news or "flying under the radar" of the auditors, while auditors employ a variety of heuristics aimed at identifying those who may be engaged in misreporting. This opens the door for further research into the effectiveness of these tactics and whether full disclosure of them would minimize the tendency of entering into a self-reinforcing cycle of distrust.

Finally, our process theory itself creates many avenues for future research. Additional research is needed in order to determine more precisely how the cycle of distrust is triggered and what conditions lead to misreporting in the first place. Once it begins, the cycle may be difficult to break. Therefore, future research should focus not only on how to prevent the cycle of distrust, but also on how to implement effective interventions that can break the cycle once it has begun. Indeed, we believe that through longitudinal observation or logs, it may be possible to develop a more-detailed process mapping that might lead to a larger set of possible interventions. In particular, it will be useful to gain a deep understanding of the dynamics associated with various intervention tactics: Does the sequence of actions matter? Are there things (e.g., actual project progress) that can serve as natural interventions? Are there components to either misreporting or (more likely) auditing that can change their effects[13]?

5.3. Implications for Practice

Reducing both the frequency and severity of IT project failures has long been a concern for managers. Too often, these projects escalate out of control and become costly nightmares, never delivering anywhere near the kind of value envisioned when they were initially approved. In some cases, these IT project failures come as a complete surprise to senior managers simply because they do not have an accurate handle on the status of the project due to misreporting. Misreporting of project status information is therefore a serious concern, and the results of our study can inform management practice by providing insight into project status reporting dynamics.

Given that the auditing of IT projects is now being touted as "best practice" (Rau, 2004), many managers may be unaware of the potential downside associated with this practice. We suspect, therefore, that the self-reinforcing cycle of distrust that we found in our research is something that many managers would find both interesting and surprising. It is after all, counterintuitive to think that auditing with the intent of reducing misreporting may in fact have the opposite effect. One implication for practice is, therefore, that managers ought to think very carefully about whether auditing is the best way to deal with misreporting. The self-reinforcing cycle of distrust that we identified is clearly dysfunctional. As is obvious from this study's results, one cost of distrust is a reduction in full and open disclosure of status information. A key question is: how does one prevent this cycle from starting—or stop it—once it begins? The self-reinforcing cycle of distrust has as its foundation the precept that the respective parties—reporters and auditors—interpret their decision making process as a straight line (as in Figures 1 and 2) and do not consider the full cycle (as in Figure 3). In fact, almost all of our interviewees confirmed this precept. This would suggest that, from the auditor's perspective, one way to prevent the cycle from starting is to take special care in establishing an audit process that is perceived as fair, transparent, and adding value. Since the cycle can, in theory, also be initiated by misreporting on the part of the auditee, it is incumbent on senior management to create a culture that values and rewards honest and accurate reporting.

To get auditors and reporters working together in a constructive way, it may be useful to create opportunities for interaction that go beyond inspection and evaluation, which would thus create positive exchanges that will encourage the two parties to develop some shared understanding and trust. For example, an organization could bring together the auditors and reporters on a quarterly

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[13] We wish to thank the senior editor for suggesting these questions for future research.

basis for intentional discussions of project successes, of "best practices", and of "lessons learned". This might also increase reporters' perceptions of the value associated with the audit process. In spite of the cycle of distrust that we observed in our research, we did see a few instances in which individual reporters were able to forge workable relationships with auditors. For example, one CIO told of taking proactive steps to improve the way that his projects were perceived:

> *I know most of the people* [on the ITOB] *and there is one in particular who asks 90% of the questions. So, I call him before the meeting. There is a lot of work that I do behind the scenes that I don't think a lot of my colleagues do. They show up at the meeting blind. They get hit—at a public meeting, standing at a podium—with a bunch of questions and they try to answer them unprepared…They hate going through it. I use it to my advantage…By calling* [one auditor] *and getting the questions ahead of time, you are 75% prepared.*

While it is encouraging that this reporter engaged in some proactive steps to improve the working relationship with an auditor, such an ad hoc approach cannot be expected to reverse the general cycle of distrust once it establishes itself. One radical approach that may be worth considering is to rotate employees from projects to auditing and back. In theory, this could improve the working relationships between reporters and auditors, though it might require some additional investments in cross-training employees. Another approach might be to create incentives for auditors to help produce successful project outcomes and for project managers to acknowledge and address issues raised by auditors. These types of approaches might be helpful in avoiding the cycle of distrust that we observed. The problem of what to do once the cycle emerges is a bit thornier.

One of the lessons that can be drawn from our research is that history matters. Indeed, we observed one case in which an earlier experience between the same two parties, but on a previous project, created distrust that carried over into the new project. Thus, from a practical standpoint, we suspect that, while either reporters or auditors can trigger the self-reinforcing cycle of distrust, once such a cycle is established, both parties need to be committed to breaking the cycle for any real change to occur. One approach that we recommend for breaking the cycle is to make both auditors and reporters fully aware of the specific reporting and evaluative techniques that are being embraced by each party—that is, each side's "secrets" are made known to those on the other side. It is likely that such awareness will lead to the use of fewer reporting tactics and, when they are used, a higher probability of detection by the auditors. We expect that this would lead to a reversal of the cycle, but it would take a different type of study (e.g., action research) to see if such an intervention actually works in practice.

6. Conclusion

This study makes three important contributions to the literature. First, it provides real-world evidence of distortion behaviors in IT project status reporting. Second, this study represents the first examination of the process of IT project status reporting and how distortion develops in that process in an auditing context. Third, it provides evidence of the differing perceptions on the parts of reporters and auditors—perceptions that enable the self-reinforcing cycle of distrust—and demonstrates that each party contributes somewhat to the cycle through its "secrets."

Of course, the existence of distrust in an organization is troubling in and of itself. However, the real casualty in the IT project domain is an impaired ability to manage projects in a way that minimizes the chance of costly failures that catch management by surprise. Project management decisions are made far more difficult by misreporting of project status information. To the extent that organizational distrust contributes to misreporting, the ultimate loser is the organization itself.

The first step in confronting the problem of misreporting and its drivers, of course, is gaining the knowledge that it can occur even in an environment in which IT projects are audited. We hope that this study will raise awareness of this phenomenon and will lead both researchers and practitioners to focus on developing improved practices to reduce misreporting.

Acknowledgements

References

Attanassiades, J. C. (1973). The distortion of upward communication in hierarchical organizations. *Academy of Management Journal, 16*(2), 207-226.

Ballard, M. (2011). NHS IT system condemned. *ComputerWeekly.com*. Retrieved from http://www.computerweekly.com/blogs/public-sector/project-failures/

Bavelas, J. B., Black, A., Chovil, N., & Mullett, J. (1990). *Equivocal communication*. Newbury Park, CA: Sage.

Bloch, M., Blumberg, S., & Laartz, J. (2012). Delivering large-scale IT projects on time, on budget, and on value. Retrieved July 16, 2013m from http://www.mckinsey.com/insights/business_technology/delivering_large-scale_it_projects_on_time_on_budget_and_on_value

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis.* Thousand Oaks, CA: Sage.

Eisenhardt, K. M. (1989). Building theories from case study research. *Academy of Management Review*, *14*(4), 532-550.

Flint, D. J., Woodruff, R. B., & Gardial, S. F. (2002). Exploring the phenomenon of customers' desired value change in a business-to-business context. *Journal of Marketing, 66*(4), 102-117.

Fulk, J., & Mani, S. (1986). Distortion of communication in hierarchical relationships. In M. L. McLaughlin (Ed.), *Communication yearbook 9* (pp. 483-510). Beverly Hills, CA: Sage.

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory*. Chicago: Aldine Publishing Company.

Gregor, S. (2006). *The nature of theory in information systems. MIS Quarterly*, *30*(3), 611-642.

Guinan, P. J., Cooprider, J. G., & Faraj, S. (1998). Enabling software development team performance during requirements definition: A behavioral versus technical approach. *Information Systems Research*, *9*(2), 101-125.

Holton, J.A. (2007). The coding process and its challenges. In A. Bryant & K. Charmaz (Eds.), *The Sage handbook of grounded theory* (265-289). Thousand Oaks, CA: Sage.

Iacovou, C. L. (1999). *Managing IS project failures: A project management perspective* (PhD dissertation). University of British Columbia.

Iacovou, C. L. Thompson, R. L., & Smith, H. J. (2009). Selective status reporting in information systems projects: A dyadic-Level investigation. *MIS Quarterly, 33*(4), 785-810.

Keil, M., Im, G., & Mähring, M. (2007). Reporting bad news on software projects: The effects of culturally constituted views of face-saving. *Information Systems Journal, 17*(1), 59-87.

Keil, M., Mann, J., & Rai, A., (2000). Why software projects escalate: An empirical analysis and test of four theoretical models. *MIS Quarterly, 24*(4), 631-664.

Keil, M., & Park, C. (2010). Bad news reporting on troubled IT projects: Reassessing the mediating role of responsibility in the basic whistleblowing model. *The Journal of Systems and Software, 83*(11), 2305–2316.

Keil, M., & Robey, D. (1999). Turning around troubled software projects: An exploratory study of the deescalation of commitment to failing courses of action. *Journal of Management Information Systems*, *15*(4), 63-87.

Keil, M., & Robey, D. (2001). Blowing the whistle on troubled software projects. *Communications of the ACM*, *44*(4), 87-93.

Keil, M., Smith, H. J., Pawlowski, S., & Jin, L. (2004). Why didn't somebody tell me? Climate, information asymmetry, and bad news about troubled projects. *The DATA BASE for Advances in Information Systems*, *35*(2), 65-84.

Keil, M., Tiwana, A., Sainsbury, R., & Sneha, S., (2010). Towards a theory of whistleblowing intentions: A benefit-to-cost differential perspective. *Decision Sciences, 41*(4), 787-812.

Komiak, S., & Benbasat, I. (2008). A two-process view of trust and distrust building in recommendation agents: A process-tracing study. *Journal of the Association of Information Systems*, *9*(12), 727-747.

Lee, A. S. (1991). Integrating positivist and interpretive approaches to organizational research. *Organization Science*, *2*(4), 342-365.

Martin, P. Y., & Turner, B. A. (1986). Grounded theory and organizational research. *The Journal of Applied Behavioral Science, 22*(2), 141-157.

O'Reilly, C. A., III. (1978). The intentional distortion of information in organizational communication: A laboratory and field approach. *Human Relations, 31*, 173-193.

Oz, E. (1994). When professional standards are lax: The CONFIRM failure and its lessons. *Communications of the ACM, 37*(10), 29-36.

Park, C., Im, G., & Keil, M. (2008). Overcoming the mum effect in IT project reporting: Impacts of fault responsibility and time urgency. *Journal of the Association for Information Systems*, *9*(7), 409-431.

Park, C., Keil, M., & Kim, J. W. (2009). The effect of IT failure impact and personal morality on IT project reporting behavior. *IEEE Transactions on Engineering Management*, *56*(1), 45-60.

Park, C., & Keil, M. (2009). Organizational silence and whistle-blowing on IT projects: An integrated model. *Decision Sciences, 40*(4), 901-918.

Pawlowski, S., & Robey, D. (2004). Bridging user organizations: knowledge brokering and the work of information technology professionals. *MIS Quarterly, 28*(4), 645-672.

Pentland, B. T. (1999). Building process theory with narrative: From description to explanation. *Academy of Management Review, 24*(4), 711-724.

Power, M. (1997). *The audit society: Rituals of verification*. New York: Oxford University Press.

Rau, K. G. (2004). Effective governance of IT: Design objectives, roles, and relationships. *Information Systems Management*, *21*(4), 35-42.

Roberts, K. H., & O'Reilly, C. A., III. (1974). Failures in upward communications In organizations: Three possible culprits. *Academy of Management Journal, 17*(2), 205-215.

Schweitzer, M. E., Hershey, J. C., & Bradlow, E. T. (2006). Promises and lies: Restoring violated trust. *Organizational Behavior and Human Decision Processes*, *101*(1), 1-19.

Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York: Doubleday.

Smith, H. J., & Keil, M. (2003). The reluctance to report bad news on troubled software projects: A theoretical model. *Information Systems Journal*, *13*(1), 69-95.

Smith, H. J., Keil, M., & Depledge, G. (2001). Keeping mum as the project goes under: Towards an explanatory model. *Journal of Management Information Systems*, *18*(2), 189-227.

Smith, H. J., Thompson, R. L., & Iacovou, C. L. (2009). The impact of ethical climate on project status misreporting. *Journal of Business Ethics, 90*(4), 577-591.

Smith, H. J. Thompson, R. L., & Iacovou, C. L. (2013). An extended model of selective status reporting in information systems projects (Working paper).

Snow, A. P., & Keil, M. (2002). The challenge of accurate software project status reporting: A two-stage model incorporating status errors and reporting bias*. IEEE Transactions on Engineering Management*, *49*(4), 491-504.

Snow, A., Keil, M., & Wallace, L. (2007). The effects of optimistic and pessimistic biasing on software project status reporting. *Information & Management, 44*(2), 130-141.

Staw, B. M., & Ross, J. (1987). Behavior in escalation situations: Antecedents, prototypes, and solutions. In B. M. Staw & L. L. Cummings (Eds.), *Research in organizational behavior* (pp. 39-78). Greenwich, CT: JAI Press.

Strauss, A. L., & Corbin, J. (1998). *Basics of qualitative research: Techniques and procedures for developing grounded theory*. Thousand Oaks, CA: Sage.

Tan, B., Smith, H. J., Keil, M., & Montealegre, R. (2003). Reporting bad news about software projects: Impact of organizational climate and information asymmetry in an individualistic and a collectivist culture. *IEEE Transactions on Engineering Management, 50*(1), 64-77.

Thompson, R. L., Smith, H. J., & Iacovou, C. L. (2007). The linkage between reporting quality and performance in information systems projects. *Information & Management, 44*(2), 196-205.

Urquhart, C., Lehmann, H., & Myers, M. D. (2010). Putting the "theory" back into grounded theory: Guidelines for grounded theory studies in information systems. *Information Systems Journal, 20*(4), 357–381.

van de Ven, A. H. (2007). *Engaged scholarship: A guide for organizational and social research*. Oxford: Oxford University Press.

van de Ven, A. H., & Poole, M. S. (1995). Explaining development and change in organizations. *Academy of Management Review, 20*(3), 510-540.

Appendix: Project Summary

Proj	Description	Duration in years[14]	# state employees on project	# vendors	Approx. # users when application implemented	Total estimated cost	ITOB status assessment[15]
Table A1. Project Summary							
A	State-wide system to be used by all local (city–county) public safety personnel and by local and state public safety managers and executives. Complexity and conflict very high due to local autonomy with differing approaches and infrastructure elements.	8*	300	4	Over 50,000	Over $100 million	PLAN: Red RES: Yellow SCHED: Yellow BUDG: Yellow OVERALL: Yellow
B	Large database project intended for tracking of bridge weaknesses, failures, and maintenance. Although the database would include some data from local venues, system to be used only by personnel in centralized agency location.	6	20	1	50	$3 million	PLAN: Green RES: Yellow SCHED: Yellow BUDG: Green OVERALL: Green
C	State-wide system to collect geodesic information that would later be evaluated through data mining to uncover trends. Many implementation challenges because database relied on local input but provided little obvious benefit to local participants.	9*	200	1	3,000	$10 million	PLAN: Green RES: Green SCHED: Green BUDG: Green OVERALL: Green

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[14] An asterisk indicates that the project duration is an estimate because the project was still in progress at the conclusion of our study.

[15] ITOB status reports were produced monthly. The assessments in this table (with the exception of ProjF—see below) are from a monthly report generated midway through our data collection period. Beginning with a month halfway through our data collection period, ITOB assessed each project in five categories: plan, resources, schedule, budget, and overall. Each category was given a "traffic light" assessment of green ("routine"), yellow ("needs agency attention"), or red ("needs ITOB attention"). (Prior to this change, the ITOB provided only an overall assessment for each project each month.)

Table A1. Project Summary (cont.)							
Proj	Description	Duration in years	# state employees on project	# vendors	Approx. # users when application implemented	Total estimated cost	ITOB status assessment
D	Successful implementation of a new budgeting system to replace four legacy, non-integrated applications. The user group consisted of 1-2 budget administrators in each of the state agencies and the state budget office personnel.	4	15	1	55	$5 million	PLAN: Green RES: Green SCHED: Yellow BUDG: Green OVERALL: Green
E	A large implementation of an enterprise resource planning (ERP) system in a large state agency. It was a user led project. Due to multiple factors (such as the lack of executive support, poor planning, the limited role of a politically weak IT department, etc), the project suffered major challenges and setbacks resulting in overruns. The original project budget was $26 million; the actual is expected to reach $100 million.	9*	200	3	3000	$100 million	PLAN: Green RES: Yellow SCHED: Yellow BUDG: Green OVERALL: Green
F	Repair management system for machinery and equipment. This system contained part information and scanned copies of technical manuals for machinery purchased by the state. The application was hosted by the vendor and the database records were purchased from machinery suppliers. The users included repair shop technicians.	4	20	2	200	$3 million	OVERALL: Green[16]

[16] ProjF was completed in the month before the ITOB expanded its "traffic light" reporting to include five different assessments. In its final assessment before completion, it was assessed green, which is indicated here.

Proj	Description	Duration in years	# state employees on project	# vendors	Approx. # users when application implemented	Total estimated cost	ITOB status assessment
G	State-wide system used by local county health agencies and programs for administrative functions and to provide reporting to state and federal agencies. Mandated policy changes from federal government necessitated major modifications to a legacy system. Most users wanted a new system, not an enhancement.	3	10	1	500	$3 million	PLAN: Yellow RES: Green SCHED: Yellow BUDG: Green OVERALL: Green
H	State-wide system designed to consolidate and extend functionality of several existing systems, and also provide extensive new functionality. Vision of single interface to provide access to services currently administered by multiple state and local agencies. Very large scale project that has gone through four iterations, three senior management teams and wholesale project team personnel changes. Paid over $10 million to a consulting firm for one planning phase alone (budgeted for $2 million).	12*	30 (contractors were used extensively on this project in early phases)	2	10,000	Over $40 million	PLAN: Yellow RES: Yellow SCHED: Green BUDG: Yellow OVERALL: Yellow
I	State-wide implementation for automating several administrative functions in the court system. Involves integration with a legacy system, using legacy technologies.	7*	15	0	1,000	$5 million	PLAN: Green RES: Yellow SCHED: Green BUDG: Green OVERALL: Green

Table A1. Project Summary (cont.)

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