



# Re-escalation Cycles in Large Scale Government Information Systems

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## ABSTRACT

*Government agencies and private sector businesses have spent billions of dollars on failed large-scale system implementations. Many of these projects escalated beyond original budget and schedule constraints before being terminated. In some cases, due to business or operational requirements, these projects begin again, only to re-escalate. This study examined this cycle via the Tax Systems Modernization (TSM) project at the Internal Revenue Service (IRS) to learn about the processes that lead to re-escalation cycles in large-scale IT projects. Based on our analysis, we believe that external agencies may play a role in both escalation and de-escalation based on the nature of their respective recommendations. Escalation may also be influenced by an inability on the part of management to adequately set priorities or feedback controls stemming from an additional lack of overall strategy. Finally, our research supports previous ideas that administrative turnover, cost awareness, and external shocks may be lead catalysts for beginning a period of de-escalation.*

## INTRODUCTION

Government agencies and private sector businesses have spent billions of dollars on failed large-scale system implementations. Many of these projects escalated beyond original budget and schedule constraints before being terminated. In some cases, due to business or operational requirements, these projects begin again, only to re-escalate. Unfortunately, we know little about why or how this occurs. This study will examine the escalation cycle via the Tax Systems Modernization (TSM) project at the Internal Revenue Service (IRS). What is of interest in the project is the escalation, de-escalation, re-escalation cycle present during the project's lifetime. The study takes a process-oriented perspective to examine this cycle and draw conclusions about the processes that lead to re-escalation cycles in large-scale IT projects.

This study attempts to understand the cycle of escalation, de-escalation, and re-escalation that occurs during the implementation of large scale information system projects within government agencies. Traditionally, escalation theory focuses on the continued commitment to a previously chosen course of action in spite of negative feedback concerning the viability of that course of action (Keil, Mann, and Rai, 2000), while de-escalation theory focuses on the factors or processes by which commitment to a previous course of action is reduced (Keil and Robey, 1999). While many factors influence project success and failure, many large-scale IT projects that fail often follow a pattern that begins with an escalation beyond original budgets and ends with termination (de-escalation). Some of these projects, out of functional necessity, are then restarted, beginning yet another period of escalation. Projects which reach the point of termination are normally classified as failures, and the failure rate for large-scale IT projects currently exceeds 50 to 70 percent (CSTB, 2000).

## PROJECT CONTEXT

With a history of three failed starts in the early 1980's, the TSM project currently undertaken by the IRS provides an excellent backdrop

for this research. After the initial failures, the project was re-launched in 1986 at a cost of over \$3.4 billion. By 1997, it was again cancelled for being inadequate, over-budget, and behind schedule. However, facing ever-increasing numbers of tax forms and audits that revealed discrepancies of over \$30 billion, pressure mounted for the agency to keep pace with technology. As such, it restructured and renewed the project during 1997 to 2001 to create a new project plan with an estimated cost of \$5 billion to \$7 billion, a 10 to 15 year schedule, and an uncertain future (Nelson and Ravichandran, 2001).

This study will look closely at the events and processes that occur during the re-escalation cycle. There is a need to better understand relationships between IT project risk factors, such as those that result in escalation or termination, and how they vary over time (Keil, Cule, Lyytinen and Schimdt, 2001). Limited escalation and de-escalation research exists in general, and an even larger gap exists in research that looks at how the processes of escalation and de-escalation relate to each other, or at situations of re-escalation. Furthermore, few studies have taken a longitudinal perspective focused on the processes involved; most likely because the lack of accessible longitudinal data from large-scale projects that have failed. Understanding the processes that lead projects to fail may help to improve the success rate of future endeavors. Although centered on government agencies, the context of this study has applications in the private sector, since evidence suggests that similar escalation behaviors occur in both government and business organizations (Staw 1976; Keil, et al. 1994-1995). Thus, this study has significance for both theory and practice.

## METHODOLOGY

The study reported in this paper is part of a larger plan to understand the processes that lead to IT project failures in government agencies utilizing data covering more than 15 years of the TSM project. Our initial research question focused on understanding the nature of the relationship between escalation and de-escalation in large-scale projects. This research focused on an in-depth case study which allowed us to study a large-scale project failure in a more natural setting. We selected an initial set of "potentially important" variables from a set of existing escalation and de-escalation theories. For instance, the de-escalation variables included change in top management support or the presence of publicly stated resource limits (Keil & Robey 1999, Montealegre et al. 2000). The purpose of selecting variables from multiple theories was to achieve Eisenhardt's (1989:536) suggestion that in this type of exploratory research one try to come "as close as possible to the ideal of no theory under consideration and no hypotheses to test." In taking this theory-building approach, we hoped to gain a better understanding of the relationship between escalation and de-escalation processes.

The initially selected variables were applied to over 750 historical documents, including audits, reports, and testimonies using the techniques for grounded theory research as specified by Strauss and Corbin (1990). As noted above, this process began by developing some agree-

ment as to what variables to include and the meaning of those variables. A coding experiment was then conducted where multiple people coded text with the variables and the results compared for consistency. Due to language and other issues, we experienced initial difficulty reaching a high level of inter-rater reliability. Once we agreed to a coding structure, we began coding the main data set, which consisted of over 750 documents. Coding was facilitated using NVivo, a software package designed to specifically support grounded theory and closely related qualitative analysis methods. Unfortunately, we were unable to code the entire data set in the time available to participating researchers. In addition, we were also inhibited by the corruption and loss of one researcher's contributions to the coding database during the project. Thus our analysis focused on only a portion of the full document set.

Consistent with the grounded theory approach, we kept journals of our work and had regular meetings to discuss our observations and develop hypotheses. It is from this stage that our findings began to emerge as we searched for patterns, or what Yin (1989:14) called a "chain of evidence," among the variables over time. From this analysis of the coded data we identified a few hypotheses that may help explain the nature of escalation cycles in large-scale IT projects in government agencies.

## FINDINGS AND DISCUSSION

Through our analysis of the TSM project, we discovered that the IRS experienced distinctive stages of both escalation and de-escalation. We observed many of the factors identified in previous research as contributors to the escalation cycle; however we believe there are several additional causes which have yet to be fully explored.

Common to nearly the entire set of project documents were evaluations and subsequent recommendations by several external entities, including the General Accounting Office (GAO) and the Office of Management and Budget (OMB). During periods of escalation, the GAO documents focused on the shortcomings of current projects and recommended suggestions for additional features and components that expanded upon existing work. The recommendations served to increase the scope of the TSM project and required additional resource allocation in addition to those projects already underway. Without common direction and constancy of purpose from the GAO, OMB, or Inspectors General, agency executives were left reacting and responding to advice and directives that were often at cross purposes. Perhaps in order to appear cooperative, the IRS attempted to implement the GAO recommendations while continuing with their original plans. The final effect was continued escalation resulting from an increase of new projects, often without the elimination or correction of the original poor performers. Based on these observations, we believe there is evidence to support the idea that external agencies play a role in escalation and de-escalation. To further strengthen our hypothesis, we noticed that during times of de-escalation, the nature of external recommendations changed to suggestions for project cutbacks, rather than additions.

A large number of GAO recommendations focused on process failures within the IRS. Foremost among these was a lack of comprehensive strategy accentuated by a failure to provide any type of management control. A reasonable hypothesis can be advanced that the IRS took on too many ambitious business goals and did not set priorities to appropriately control for escalation and overload. The result was a policy wherein all projects appeared to have equal priority. As such, more projects may have been concurrently attempted than the IRS could effectively manage. Left without effective forms of managerial feedback or connection to an overall strategy, the projects were able to continue escalating.

The question then focuses on what occurred that caused the projects to break from constant escalation and begin a period of de-escalation. Our research on the topic reinforces previous suggestions that administrative turnover, cost awareness, and external shocks may have a large effect upon project de-escalation. Our belief is that one of the top influences is turnover at the highest levels of management. In this case, the entire TSM project was cancelled almost immediately after Charles Rossotti began his term as the new IRS commissioner. Around the same

time, the actual costs of TSM were finally becoming widely available, and resistance to the project was growing vocally within Congress and among GAO recommendations. As noted earlier, we believe this provides evidence that external agencies may have a similar effect upon de-escalation as we believe they do upon escalation.

We have indicated that there is evidence to suggest that the IRS project both escalated and de-escalated. Although we can say nothing conclusively about the phenomena of re-escalation, we have observed several factors indicative of escalation that we believe will return the project to an escalating state. First of all, as the new administration began to settle in, they continued to fail to implement feedback controls that could indicate troubled projects or over-spreading of resources. Also, although the TSM project was eliminated, a new project was created that continues to carry certain management problems forward. We expect that lower level management and workers that have not changed jobs may be tempted to incorporate parts of the old project and begin to follow their old methods if controls are not put in place. There have been several recent occurrences where time and cost estimates have increased, which may indicate that re-escalation has already begun.

## DIRECTIONS FOR FUTURE RESEARCH

Our observations have revealed several interesting findings that we feel could be the basis for future research opportunities. Foremost, we believe there is still much to be learned about the role of external agencies on project escalation and de-escalation. How does the internal agency react to conflicting opinions from external agencies? Do the internal or external processes receive priority? Similarly, do congressional acts that mandate informational change have an effect on the cycle of escalation? We believe there is great potential value in understanding how these external agencies affect the decision making process within the internal agency.

We are also interested in the effect of managerial overload on escalation, including consideration for lack of prioritization and failure to provide management feedback controls. It appears that when management does not have a grasp on project outcomes, it may be a factor in causing projects to escalate. It would also be interesting to learn whether certain organizational structures promote escalation more than others.

Finally, more should be done to study what causes a project to return to the re-escalation stage after transitioning from a period of de-escalation. After beginning anew with a "clean slate," how does an organization manage to entrap itself in the same situation it was in years before? Are the factors influencing escalation the same as the previous iteration or do agencies encounter new sets of problems?

This research project proposes several hypotheses regarding escalation cycles. However, no attempt was made to validate the hypotheses at this stage of the research. The IRS TSM project was selected initially because of the easy access to documentation from a variety of sources, and the public interest and attention to this particular IT failure. From this project we hoped to develop an initial theory of the relationship between escalation and de-escalation in large-scale IT projects in federal government and learn which sources of documentation are most useful in studying these projects. In subsequent research we hope to validate these hypotheses and confirm the generality of the current findings. To date, we have identified nearly a dozen similarly documented large-scale projects that are failing or have failed across a variety of federal and state agencies.

## RESEARCH AND PROJECT LIMITATIONS

Although we feel that we have covered enough documents to begin forming preliminary hypotheses, we were unable to validate our ideas over the entire data set because of the limited time constraints imposed by our researcher availability. As is often the case with this type of research, it is often difficult to gauge the total time investment needed prior to beginning work. Delays were compounded by software failures and data loss.

One must also keep in mind the basic limits on this type of qualitative research. Because there is no statistical evidence, we are unable to

convincingly state answers, but instead are able to offer theories or hypotheses to explain our observations. Subsequent research methods would normally be used to empirically validate the hypotheses generated by the qualitative methods. In addition, the nature of the documents themselves creates a limitation in our findings; because they are mostly public documents, some information may have been filtered or biased so as not to highlight some of the less appealing details.

Finally, the inter-rater reliability agreement was not as high as we would have liked for some of our variables. Although we spent a large portion of time developing our variable constructs for coding, it is hard to apply certain theories and concepts to a data set that was not created for that purpose (i.e., we were working with secondary data rather than primary sources). Therefore, we were forced to use our own knowledge to picture the circumstances surrounding the actions taken within the documents and apply the codes as such.

## CONCLUSIONS

Our research revealed several interesting findings that we believe deserve future consideration. Perhaps the most significant contribution is the evidence that large-scale projects can cycle between escalation, de-escalation and re-escalation, perhaps with multiple cycles. This opens a range of interesting questions regarding how cycles of escalation compare to each other, with implications for both escalation theory and knowledge management. We have found substantial evidence to suggest that external agencies may play a role in both the escalation and de-escalation cycles. On one hand, the effect of such agencies was that IRS executives were left reacting and responding to advice and directives from several outside sources, leading them to expand upon current projects and causing escalation. On the other hand, restrictive recommendations appeared to have led to de-escalation. We also believe that the IRS neither created an overall strategy nor set priorities to adequately control for escalation. From our observations, it appears that a lack of management and feedback controls contributed to information overload and in turn led to escalation within the project. Additionally, our research reinforced existing studies that point to administrative turnover, cost awareness, and external shocks as stimuli for a project to switch to a period of de-escalation. Further research would be useful to

determine what follows to cause the project to again re-escalate and how it relates to earlier cases of escalation.

## REFERENCES

- CSTB, "Making IT Better: Expanding Information Technology Research to Meet Society's Needs," Committee on Information Technology Research in a Competitive World, Computer Science and Telecommunication Board, National Research Council, National Academy Press, 2000.
- Eisenhardt, K. "Building Theories from Case Study Research," *Academy of Management Review*, (14:4), 1989, pp. 532-550.
- Keil, M., Cule, P., Lyytinen, K. and Schmidt, R. "A Framework for Identifying Software Project Risks," *Communications of the ACM*, (41:11), November 1998, pp. 76-83.
- Keil, M., Mann, J. and Rai, A. "Why Software Projects Escalate: an Empirical Analysis and Test of Four Theoretical Models," *MIS Quarterly*, (24:4), 2000, pp. 631-664.
- Keil, M. and Robey, D. "Turning Around Troubled Software Projects: An Exploratory Study of the De-escalation of Commitment to Failing Courses of Action," *Journal of Management Information Systems*, (15:4), Spring 1999, pp. 63-87.
- Montealegre, R. and Keil, M. "De-escalating Information Technology Projects: Lessons from the Denver International Airport," *MIS Quarterly*, (24:3), 2000, pp. 417-447.
- Nelson, M.R. and Ravishandran, T. "Understanding the Causes of IT Project Failures in Government Agencies," 2001 America's Conference in Information Systems, Association for Information Systems, Boston, MA, August 2001.
- Staw, B. M. "Knee-deep in the Big Muddy: A Study of Escalating Commitment to a Chosen Course of Action," *Organizational Behavior and Human Performance*, (16), 1976, pp. 27-44.
- Strauss, A. and Corbin, J. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Newbury Park, CA: Sage Publications, 1990.
- Yin, R. K. *Case Study Research: Design and Methods*, 2<sup>nd</sup> edition, Newbury Park, CA: Sage Publications, 1989.

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