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# IT Project Escalation: Translation Outcomes as Antecedents to the Four Factors of Escalation Theory

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## ABSTRACT

Recent IT project escalation research has seen a multi-method approach to understanding what causes escalation in IT projects. Specifically, Mähring, et al. (2004) examined the DIA Computerized Baggage Handling System failure using both the traditional four factor escalation theory model and Actor-Network Theory's (ANT) translation stage. Mähring, et al.'s findings suggested that both theoretical approaches provide complementary, albeit mutually exclusive methods for examining IT project escalation. This paper proposes an integrated view of the two theoretical approaches by examining the relationships between the four elements of Actor-Network Theory's translation stage and the four factors (project, psychological, social, and organizational) of the traditional escalation theory model. This paper reports on research-in-progress to develop an instrument to measure the outcomes of the problematization, interestment, enrollment, and mobilization stages. Discussion of the utility of such an instrument and hypothesized relationships between the translation stages and four factors will be discussed.

## Keywords

Actor-Network Theory, IT project escalation, translation stages

## INTRODUCTION

Escalation of commitment to IT projects is a serious issue for organizations, project teams, project managers, and project stakeholders. Escalation refers to a "phenomenon in which an organization or other acting entity persists in pouring resources into a failing course of action" (Staw, 1976). Research has shown that escalation in IT projects is common and expensive; according to Keil, Mann, and Rai (2000), "by most accounts at least one in four [software] projects ends in failure." As such a pervasive issue -- the Standish Group reported in 2003 "[t]he lost dollar value for US projects in 2002 is estimated at \$38 billion with another \$17 billion in cost overruns for a total project waste of \$55 billion against \$255 billion in project spending" (Larkowski, 2003) -- understanding the process of IT project escalation holds the promise of saving companies a lot of money.

Research on escalation of commitment to IT projects has focused on a four-factor model composed of psychological, social, project, and organizational factors as antecedents to escalation (Staw & Ross, 1987). Recently, Mähring, Holmström, Keil, and Montealegre (2004) compared the traditional four-factor model to Actor-Network Theory's (ANT) translation stage in examining the highly publicized Denver International Airport (DIA) Computerized Baggage Handling System (CBHS) failure. Their conclusions were that the two theoretical approaches could provide important, mutually exclusive insights into escalation behaviors (Mähring et al., 2004).

The purpose of our overall research program is to extend the theoretical arguments of Mähring et al. by suggesting that the outcomes of ANT's translation stages will serve as antecedents to the four factors of the Escalation Theory literature. Ultimately, our goal is to explore the mechanisms that may cause each of the escalation factors to become more or less salient during the entire project life cycle. The contribution of this paper is to report on research-in-progress to develop an instrument to measure the theorized outcomes of the translation stages. A discussion of the two theoretical bases follows. Four hypotheses are developed to attempt to explain the theorized relationships between the constructs of the two theoretical approaches to the escalation phenomenon. Then, a discussion of the development of our items, and our proposed methodology is presented.

**THEORETICAL BACKGROUND**

Several theoretical frameworks have been advanced to describe escalation behaviors (e.g. Staw & Fox, 1977; Whyte, 1986; Jensen & Meckling, 1976; Keil et al., 2000) that converge to reveal four groups of factors that contribute to escalation: (1) Psychological factors such as high personal responsibility for the outcome, personal attachment to the project, and history of success (Brockner, 1992); (2) Social factors such as a group’s rivalry with other groups, need for external justification, and behavioral norms (Brockner, 1992); (3) Project factors, which are objective features of the project and decision makers’ perception of those features, such as the likelihood of a large potential payoff and the perception of setbacks as temporary problems that can be overcome (Staw & Ross, 1987); And (4) organizational factors such as political support for the project and administrative inertia (Staw & Ross, 1987).

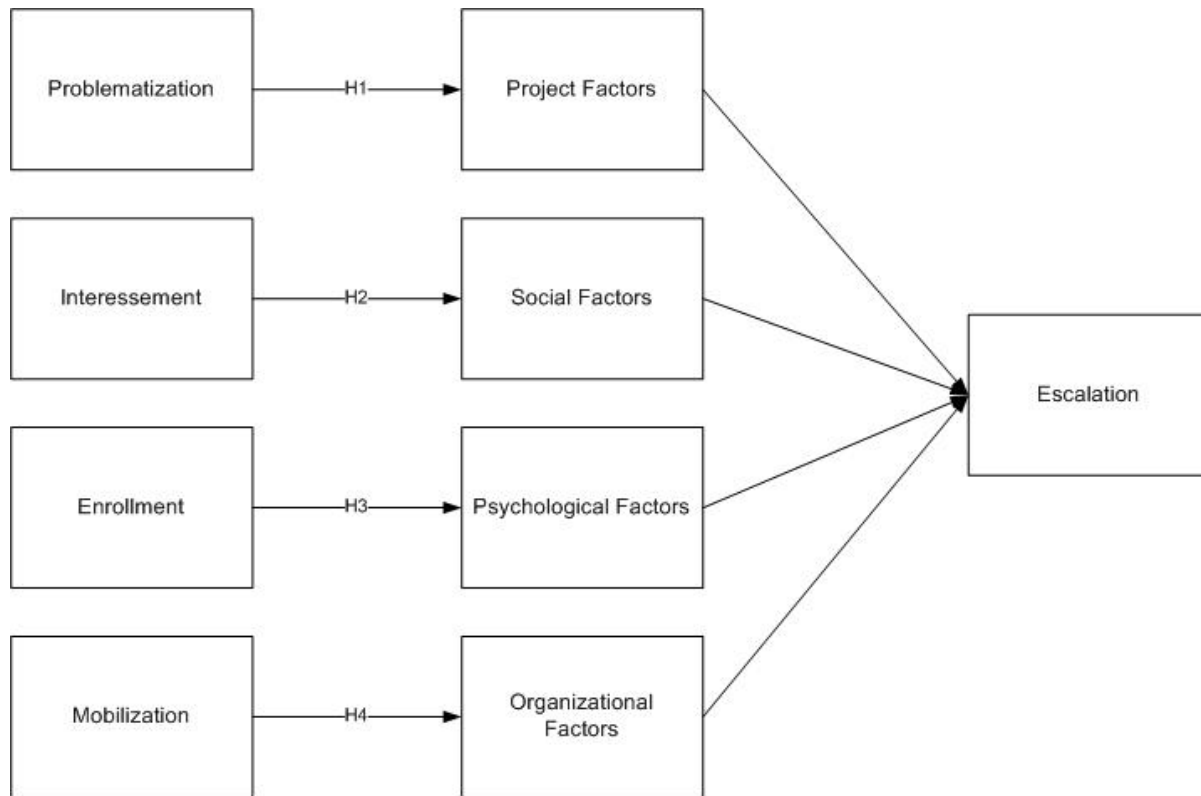
Actor-Network Theory’s translation stages were implicated by Mähring et al. (2004) in the failure of the DIA CBHS. In the context of ANT, translation refers to the processes that result in the creation of an actor-network (Callon, 1986). These processes; problematization, interessement, enrollment, and mobilization, describe how a network of actors develops, keeps its members working toward a common goal, retains members, and encourages actors to behave with the network’s interests in mind. Table 1 includes descriptions of each of the four translation stages along with the four escalation theory factors.

Translation Stage	Four Factors
<p><u>Problematization</u>: Focal actor initiates the process by identifying other actors to enroll and defines the other actors’ interests. This group decides on the problems that the actor-network should be concerned with and solutions to such problems, thereby positioning themselves as indispensable to the network as a whole. (Callon, 1986).</p>	<p><u>Project Factors</u>: Some project factors include: Whether a setback is considered temporary. Projected upside is seen as very large. Time delays between budget outlay and final economic gain. If further investment seems like it would be efficacious.</p>
<p><u>Interessement</u>: The process by which the initial group of actors then convince other actors that their interests are the same as the initiating actors’ interests and should “come on board.” (Sarker, Sidorova, &amp; Sarker, 2005).</p>	<p><u>Social Factors</u>: In an effort to maintain one’s image, with respect to one’s peers, a manager will escalate a project to not lose face or credibility with others. Persistence in a losing course of action can result in a “hero effect” for managers that persist to an ultimately positive outcome.</p>
<p><u>Enrollment</u>: The process by which actors that have agreed to pass through the OPP have their roles defined.</p>	<p><u>Psychological Factors</u>: Self-Justification Theory and Prospect Theory comprise the main theoretical arguments for psychological factors. The point is that individuals persist in a losing course of action to self justify previous behavior.</p>
<p><u>Mobilization</u>: The initiating actors seek to encourage continued support from enrolled actors.</p>	<p><u>Organizational Factors</u>: Usually identified as organizational inertia and political forces.</p>

**Table 1. Translation stages and Four Factors**

Both theoretical arguments suggest that there is *not* a temporal aspect to the stages or factors. That is, a project that has escalated did not do so because decision makers proceeded through a specific order of the four factors that contribute to escalation. In fact, a project could escalate as a result of only one of the factors. Furthermore, the stages of translation may not proceed in any particular order either. In fact, several iterations of the translation process could take place over a given project depending on the specific situational factors at play.

## INTEGRATION



**Figure 1. Research Model**

The pairing of translation stages to factors in Table 1 is deliberate. For example, imagine an actor-network forming to conduct a project. During the problematization stage, the focal actor recruits the ‘initiating group’ of actors and decides on the problems to confront and how to conduct that confrontation (Mähring et al., 2004). If the outcome of the problematization stage is an initial group of actors that have been effectively recruited and are determined to solve the problems identified, we hypothesize that this strong problematization can result in project factors, such as the perception of a high payoff, that can result in escalation.

*H1: When problematization has been effective, project factors will be more likely to contribute to escalation.*

Consider a project where translation is currently at the interessement stage and the initial group of actors is recruiting other actors by convincing them that participating in the project serves their interests (Mähring et al., 2004). Over the course of the project, a human actor may be faced with making a decision to persist when there may be some evidence that suggests abandonment. We hypothesize that social pressure to persist can be seen as a direct result of the interessement stage where the decision maker was “brought on board” and his/her interests were made consistent with the initiating group of actors. Needing to “save face,” or desiring to be seen as a “hero” to keep the project on course may be some of the social factors at play in this situation as a result of the outcome of the interessement stage.

*H2: When interessement has been effective, social factors will be more likely to contribute to escalation.*

During the enrollment stage of translation, actors that have been recruited by the initial group of actors have their roles defined and are convinced to remain an active member of the network over the course of the project (Mähring et al., 2004). If, during the course of a project, enrollment is strong, we hypothesize that psychological factors will become likely to

contribute to escalation. In an effort to self-justify previous behavior, such as agreeing to the role definitions set forth in the enrollment stage, a decision maker will escalate the project.

*H3: When enrollment has been effective, psychological factors will be more likely to contribute to escalation.*

During the mobilization stage, the initiating group of actors encourages the enrolled actors to behave with the actor-network's interests in mind (Mähring et al., 2004). A decision-maker faced with making a decision to abandon a project, which is contradictory to the initiating actors' attempts at mobilization, may escalate the project due to organizational pressure to persist.

*H4: When mobilization has been effective, organizational factors will be more likely to contribute to escalation.*

## ITEM DEVELOPMENT

To generate items to measure the outcomes of the translation stages, items were developed to assess the perception of the degree to which each translation stage was completed, perceived by the primary decision maker. All translation outcome items are measured on a 7-point Likert scale. For the outcome of problematization, Callon's (1986) assertion that during the problematization stage a focal actor positions him or herself as indispensable to the successful completion of the project and defines other's roles (see Table 1), was the basis for the items. An example of these items is "To what degree did you position yourself as indispensable to the successful completion of the project?" Items for each of the translation outcomes were developed following this method.

## METHOD

The first step in our research program will be to validate the instrument described above. To conduct pilot testing, students from several graduate courses in Information Systems (e.g., IT Project Management, Systems Analysis and Design, Database Management and Implementation) that require a semester long group IT project will participate in a survey that will contain the developed items, along with existing measures for Escalation Theory's four factors. In this University context, the members of each of these groups hold equal decision making power over the course of the project. Considering this, the translation outcome items will be directed at each of the group members to assess any differences of perception within a collective decision making context. The survey will first be administered at the beginning of the semester, immediately following the group formation, then again in the middle of the semester, after several deliverables have been completed, and finally after completion of the project to assess any temporal effects or changes in escalation behaviors over the project life cycle that may have been induced by the translation process.

## CONCLUSION

There have been calls for incorporating more process theory into the existing variance theory approach to examining escalation behaviors (Montealegre & Keil, 2000; and Mähring et al., 2004). While the Mähring et al. paper compared and contrasted ANT's processes to Escalation's variance theory factors, this paper proposes an integration of the process with the variance factors. By examining the outcomes of the translation stages in concert with the behaviors associated with Escalation theory's factors, we hope to provide a more detailed theoretical picture of the entire escalation phenomenon, both the process that results in the behaviors, and the variance in actual escalation explained by the four factors.

This paper represents the first step in this process by proposing a theoretical argument for the development of items to evaluate the outcomes of the translation stages. Future research efforts will fully validate the proposed instrument and utilize the validated instrument to test the hypotheses proposed above. Practical implications of the development of such an instrument are to provide practitioners with a warning system that can alert project managers that escalation behaviors may arise depending on the outcomes of the processes of the formation of the project team.

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