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# EXAMINING THE RELATIONSHIP BETWEEN ACCEPTANCE AND RESISTANCE IN SYSTEM IMPLEMENTATION

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## Abstract

*Resistance to system use has long been recognized as a problem to successful implementation of information systems (IS). However, most studies have focused on studying system acceptance and construed resistance as being the flip side of it or have totally ignored its relationship with acceptance. As such, research models have been developed primarily to explain acceptance with the underlying assumption that non-acceptance would be tantamount to resistance or without any reference to it at all. Both these approaches are inadequate for a thorough examination of successful system implementations. Using several cases of systems implementation we argue that examining the relationship between acceptance and resistance is critical to an understanding of both constructs and analyzing factors influencing successful system implementation. To this end, we develop a framework to understand system implementations both from an acceptance and resistance perspective. Implications for IS researchers include the need to re-examine the construct of resistance vis-à-vis acceptance and study how well the models of acceptance explain resistance. For IS managers we offer some basic prescriptive measures to identify and manage various forms of resistance.*

**Keywords:** IS implementation, system acceptance, system resistance, organizational theory, technology acceptance model

## Introduction

Information Systems (IS) researchers have studied system implementation and concluded that user resistance can undermine its success (Joshi and Lauer, 1998). Ironically, most of the research on IS implementation is oriented around system user acceptance with resistance considered as the flip side of acceptance. In this vein, system implementations perceived as successful are symbolized by acceptance of technology and hence, there is little concern with regards to resistance. An examination of the reports of system implementation failures suggests that this perception could be illusory. In fact, behind this veil of success could lie several forms of resistance; in some cases they could be severe enough to result in tipping the scales from short-term success to long-term failure. Indeed, information technology executives report numerous forms of resistance after what they thought was a successful completion of system implementation.

If, as we argue, resistance as a construct cannot be conceptualized simply as the opposite of acceptance, it follows that studying acceptance alone will do little to provide insights into the phenomenon of resistance. It will be necessary to develop an understanding of resistance and its various forms in order to arrive at strategies for effectively implementing information technology solutions. In fact, resistance may in some instances co-exist with what has been previously classified as acceptance of information technologies and may manifest itself in several different ways. Using several cases of system implementation we argue that examining the relationship between acceptance and resistance is critical to an understanding of both constructs and analyzing factors influencing successful system implementation. To this end, we develop a framework understand system implementations both from an acceptance and resistance perspective. Despite a large body of literature in acceptance and resistance, to our knowledge, no study has examined the relationship between these constructs. In this study the focus is on understanding this relationship and its implications for managing resistance. Specifically, we examine the following research questions:

1. What is the relationship between acceptance and resistance?
2. What are the ways in which resistance manifests itself during systems implementation?
3. How can the different forms of resistance be managed?

The rest of the paper is organized as follows. In § 2 we summarize relevant prior research. Next, in § 3 we elaborate on our research method. Subsequently, we discuss resistance as a construct and draw from Accountability theory to describe ways it can manifest itself. We develop and validate a framework that will help us understand why conceptualizing resistance as non-acceptance could lead to misleading conclusions. In § 5 we discuss the implications of our study for IS researchers and practitioners. Finally, we present concluding remarks.

## Prior Research

Relevant prior research for our study comes from two related strands of literature – Acceptance and Resistance. Although related concepts, no study to our knowledge has looked at how research on acceptance views resistance or vice versa. In fact, our reading of the literature indicates that few studies in either area have addressed the relationship at all. All indications are that both sides, implicitly, view the other as being the opposite. We present a summary of relevant literature in both strands.

### *Conceptualizing Acceptance of IT*

Individual users of information technology could react in different ways to a new technology (Agarwal, R. 2000). They may reject it completely, partially use its functionality, actively resist, grudgingly accept or embrace it fully. Most of prior research has focused on antecedents of individual acceptance of IT (e.g., Davis,1989, Mathieson, 1991, Taylor and Todd, 1995a, 1995b). Our interest is less on the antecedents and more on how acceptance is defined. Various conceptualizations of acceptance found in IS literature include initial decision to use it or not, institutionalized usage (Rogers, 1983), (Cooper and Zmud, 1990), routinization (Hage and Aiken, 1970), continued-sustained implementation (Zaltman, Duncan, R., and Holbek 1973), assimilation (Fichman and Kemerer, 1999).

### *Conceptualizing Resistance to IT*

We draw on Accountability Theory (AT) developed by Tetlock and his colleagues (e.g. Tetlock, 2000, Tetlock 1999, Lerner, J. & Tetlock, P.E. 1999) over the past fifteen or so years to conceptualize resistance in our study. AT takes as a foundational premise that people are accountable for their social identity. They describe it as a theory of social judgment and choice and present it as an alternative to comparable theories from the behavioral decision theory tradition. Core propositions of accountability theory include the following.

1. Trust and norm internalization are necessary for organizations to function smoothly.
2. People in organizations seek audience approval most often when they are subject to asymmetric resource dependency.
3. Additional motives that compete with audience approval are: a) causal mastery, b) minimization of cognitive effort, c) maximizing benefits and minimizing costs of social relationships, and d) remaining true to internal principles.
4. Coping strategies are influenced by motives that can be amplified or accentuated by interpersonal and institutional contexts.

Our primary interest is the insight AT gives regarding how implementation resistance manifests and why it occurs. Tetlock (1999) gives the following types of resistance to an implemented program: a) voiced objection, b) decision avoidance including buck passing, procrastination, and obfuscation, c) corner cutting such as work-arounds, d) sabotage, i.e. active efforts to subvert the intent of the implemented program, e) exit from the organization, and f) grudging compliance. Resistance will occur roughly in the above order with voiced objection preceding the other manifestations. One reason resistors may escalate beyond voiced objection is if management prohibits any criticism. Resistors may have an ethical compunction that prevents them from engaging in corner cutting or sabotage and the employment climate may not permit them to exit. This can lead to grudging compliance, a condition in which the worker is demoralized and may continue to look for opportunities to exploit loopholes or to engage in destructive behavior. Accountability does not specifically address IS implementation. However, it identifies the following conditions that lead to resistance to a new performance appraisal standard: it is unreasonably high, it was set using unfair procedures, or it was not necessary for organizational survival but works to the advantage of a select group.

**Table 1. Forms of Resistance**

| Type of Resistance | Form of Resistance | Description |
|---|---|---|
| Active | Voice | Individuals voice their concerns and opposition |
| | Exit | Individuals leave the organization unwilling to adapt to the new system |
| Passive | Grudging Acceptance | Individuals grudgingly accept the system |
| | Workaround | Individuals find ways of working around the system |
| | Sabotage | Individuals make concerted efforts to ensure the failure of the system |

## Method of Inquiry

> "Our individual methods may be flawed, but fortunately the flaws are not identical. A diversity of imperfection allows us to combine methods…to compensate for their particular faults and imperfections." Brewer and Hunter (1989, pp. 16-17).

Our methodology bears a number of similarities to the approach described in Sabherwal and Robey 1995), namely, the use of students, the generation of multiple cases, and the interest in both process and variance data. We acquired data for this study from descriptions of resistance to the implementation of IT implementations in ninety organizational settings. Descriptions were generated by students in four MBA information systems classes over a two-year period. The assignment asked the students to describe the implementation of an information system or a new version of an information system where someone or some group resisted its implementation. They were required to include a description of the functionality of the system, the environment where it was implemented (company, department, etc.), the resistor or resistors (job function, tenure with the company, age) and how and why they resisted. The use of hierarchically organized teams of multiple investigators (Eisenhardt 1989, Miles and Huberman 1994) enables the development of multiple cases, all aimed at understanding a single phenomenon, for this research, implementation resistance.

A study utilizing multiple cases falls between two prototypical research designs, the case study utilizing a single case and the laboratory experiment, lying closer to the single case study. Like the single case, multiple cases occur in natural settings in the absence of manipulation of variables. However, the use of multiple cases differs from the single case in that it is amenable to both exploratory and confirmatory investigations (Eisenhardt 1989) and is appropriate for studying the global nature of a phenomenon (Yin 1994) such as implementation resistance. Multiple cases can be used in studies concerned with understanding both process and variance (Sabherwal and Robey 1995). Different cases may illustrate complementary aspects of either the phenomenon or its context that the researcher may then use to extend the theory to yield a more complete explanation (Eisenhardt 1991). These characteristics point to the appropriateness of using multiple cases to study implementation resistance. This study is exploratory in that it aims to elucidate how resistance occurs and to some extent why it occurs. It is also confirmatory since it examines how well extant theories of implementation explain resistance. We are also concerned with both process and variance in that resistance involves sequences of actions as well as variables that may be present or absent.

Some characteristics of the research compensate for the use of students in data collection. Strictly speaking our unit of analysis is a vignette. A vignette is a "focused description of a series of events taken to be representative…normally limited to a brief time span, to one or a few key actors, to a bounded space, or all three (Miles and Huberman 1994, p. 81)." In essence, the class assignment gave the students an outline for the vignette that they then completed. Of the 101 vignettes that were written, 90 were sufficiently with the vignette outline to be used. 97% of the students were employed full time at the time of the class and used their workplace as the source for their vignette. All of the students had been involved with the implementation of one or more IS.

## Cases of System Implementation

Brief cases or vignettes, describing instances of resistance to system implementation, were generated by graduate students. The students were asked to report on the circumstances surrounding the implementation of an information system where someone or some group resisted its implementation.

The following is a brief summary of the cases. The majority of the cases took place in manufacturing companies (manufacturing – 62%, finance/insurance – 6.5%, retail – 6.5%, healthcare – 4.5%, information systems – 6.5%, other – 14%). The percentages are a reflection of the student population. The cases described a wide variety of IS implementations including ERP systems, establishing a common desktop, accounting systems, logistics systems, inventory systems, scheduling systems, and a variety of specialized engineering systems. The majority of the cases involved multiple forms of resistance (73%). The majority of the cases described instances of passive resistance (60%). Of the cases where there was passive resistance, some form of active resistance accompanied 75% of them. Specific cases used to develop the framework in the next section were drawn from this body of cases.

## *A Framework to Understand Acceptance and Resistance*

To understand the implications of conceptualizing acceptance and resistance as simple antidotes we develop a framework. More importantly this also fosters an understanding the implications of such a conceptualization. Assimilation gaps, the difference between expected usage and actual usage, could be because of passive forms of resistance. Also, organizations tend to ignore resistance once there is evidence of short-term acceptance. Clearly there could be other reasons for low infusion and the assimilation gaps – for a good discussion of these see Fichman and Kemerer (1999) article on why such gaps occur.

We present a framework based on two dimensions: System Implementation and Resistance Type. System implementation can be perceived as being a success or a failure. The perceptions usually reflect reaction immediately following the completion of the system implementation. Resistance type is classified into two levels: Active and Passive. The crossing of these two dimensions yields four cells we label as: Rebel, Mutiny, Subversive and Coup. [See figure 2]

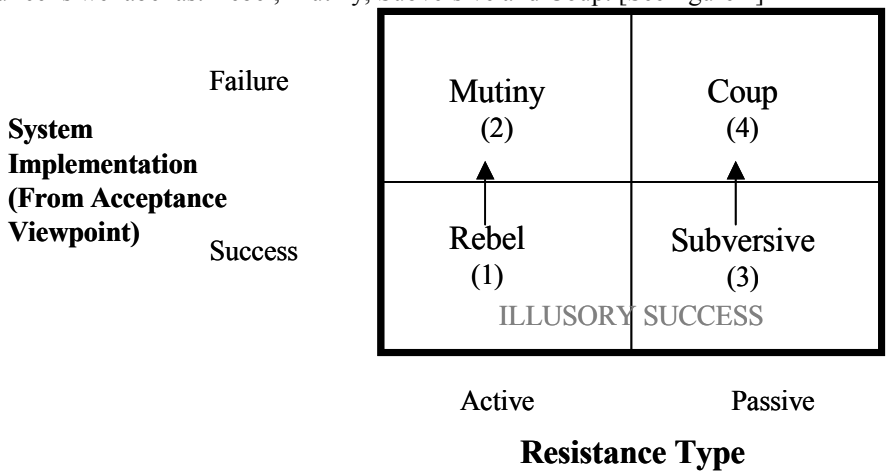


**Figure 2. Resistance to Systems Implementation**

***Rebel:*** This cell is characterized as a scenario where the system implementation is perceived as being successful but active forms of resistance are present. If this situation remains unattended, resistance can spread, leading to non-usage of the system and ultimately a long-term failure – a move to quadrant 2 denoted by *mutiny*. We present a case exemplifying the rebel quadrant.

**Product Description Catalog**

The product description group (PDG) of a major auto manufacturer had difficulty tracking parts that belonged to a particular vehicle program. The task of adding new parts to a program required hours of manual checking through documents to insure that the part was needed for a particular vehicle build. To overcome these inefficiencies the information systems group in conjunction with the PDG developed a system to track product descriptions in minutes. The system implementation was considered a success. However, it soon became obvious that several individuals resisted the use of the system. Reasons for the non-usage included lack of knowledge of computers, lack of trust in the system output, fear stemming from prior experiences with systems, and the short time left before retirement for some individuals. The resistor group showed its resentment in several ways. Some rejected training offered to them. Others avoided performing tasks that required the use of the system. Several others waited out their time to retire and choose to exit before using the system. All of the resistors, in this case, vocalized their rejection of the system in some way. The management recognized the need to address this situation and quickly made efforts to deal with the resistor group. Having

identified the resistor group, management quickly focused on a strategy to convince the individuals of the importance of using the tool and the benefits of the system to them.

***Mutiny*:** This quadrant is comprised of cases where active forms of resistance have caused the failure of the system. Detection of this situation is obvious, but very difficult to remedy since resistance is so widespread. We illustrate this quadrant using a case.

**System Upgrade Controls**
The IS department of a major auto manufacturer was faced with the problem of system upgrades being carried out with few controls in place. This led to chaotic application of system upgrades leading to low system reliability and integrity. To solve this problem, management implemented administrative controls on upgrades. Resistance to the controls generated animosity between systems personnel and management. Deadlines for system implementation were missed and blamed on the new controls in place. Several individuals resisted by finding "back-door" ways of bypassing the controls. Others used the controls as a scapegoat for the problems being encountered in development. This led to long delays in system deployment resulting in huge production losses. Early warnings of resistance to the new controls were ignored resulting in a total failure of the system development efforts.

***Subversive*:** This quadrant consists of cases where system implementation is considered a success but there is an undercurrent of resistance that is passive in its form. If not identified and dealt with this can lead to long-term failure of the system. An illustration of this quadrant follows.

**Contact Management System**
A human resource management services firm offering office services, transaction processing, administrative and distribution support decided to implement a contact management system for field sales representatives. The system was intended to support tracking of sales contacts. The sales staff resisted the use of the system, but few voiced their resistance. The resistance manifested itself primarily in covert ways. Some found excuses to not have the software loaded on their laptops. Others claimed that the software did not function on their laptops. A few others put either too little data in or dumped massive amounts of data on their laptops and then argued that the system did not work properly. Although management considered the implementation a success, the usage pattern rendered the system far less useful than intended. With time the situation worsened leading to outright failure of the system. Clearly, what started off as a scenario in quadrant 3 moved to quadrant 4 – *coup*.

***Coup*:** This quadrant represents cases where the passive forms of resistance have undermined the system implementation and caused it to fail.

**Product Level Interchange System (PLIS)**
A leading automotive parts manufacturer supplying customers in the automotive, light truck, heavy-duty, railroad and industrial markets rolled out a system to manage their product applications. Interestingly, the product group manager responsible for a key group of intended users of the system, turned out to be the primary resistor. In a classic case of coup he managed to alter the incentive structure in a manner to dissuade system usage. This in turn led groups that relied on information from the product group to avoid using the system as they could not rely on system data that was incomplete and inaccurate. Although the actions of the group were overt the strategy of the manager to exploit the incentive structure was covert in nature and hence, rather difficult to detect. The system implementation was a total failure and the firm had to restart its efforts on building a new system.

## Discussion

We organize the discussion of our results into three sections. First, we report on some limitations of our study. Second, we discuss implications for IS researchers. Finally, based on our findings, we offer some prescriptive measures for IS practitioners to manage resistance.

### *Limitations*

It is conceivable that resistance occurs due to faulty implementation, technology problems – poor interface design, poor change management strategy etc…and hence could be construed as constructive feedback in that sense. However, our focus is on

scenarios where resistance could occur despite these being in order. So, our results cannot be generalized to situations where the primary motive for resistance is constructive feedback.

### *Implications for IS Implementation Research*

We present the implications for IS implementation research in the form of two questions:

- Models of system acceptance like Technology Acceptance Model (TAM) and Self Efficacy are acceptance focused. Do these theories of acceptance help explaining resistance?
- Assimilation gaps – relatively low levels of infusion of a specific technology, is known to occur in the adoption of innovations (Fichman and Kemerer, 1999). Can passive resistance provide explanations for the occurrence of assimilation gap?

### *Managing Resistance: A Contingency Approach*

We propose a strategy for managing resistance based on three activities, **D**etect, **I**solate and **M**anage. Because of the frequency of passive resistance, detection or surfacing the resistance is often critical. If you can't see it then it is hard to deal with. Active resistance rather than being something to fear provides an opportunity for the implementer to turn it around – it has surfaced! In contrast, passive forms of resistance are much harder to identify. Efforts to detect them are critical to long-term success of the system. Absence of a visible form of resistance is not to be construed by management as a situation devoid of resistance.

Isolation may be important due to the risk of resistance spreading from small pockets of rebellious or renitent individuals into a full-blown mutiny or coup. With resistance, there may be something like a 'tipping point' or 'critical mass' that occurs when what had appeared to be a successful project with a few disgruntled complainers becomes a serious problem with widespread resistance that must be abandoned. In some ways this is analogous to a self-organized criticality (SOC) phenomenon. The archetype of SOC is a sand pile [Bak, P., Tang, C. & Wiesenfeld, 1988]. Sand is slowly dropped forming a pile. As the pile grows, avalanches occur that carry the sand from the top to the bottom of the pile. The falling sand is the resistance in our case. As it increases, the avalanches increase and the size of avalanches could also increase thereby destabilizing the system equilibrium. By isolating and dealing with a small number of resisters in a timely manner, it may be possible to head off the spread of resistance and the resulting avalanches.

How can resistance be managed? It may be tempting to suppress vocal dissension and various tactics aimed at avoiding using the new information system. However, as Tetlock (2000) points out, there is a natural progression from milder to more deleterious forms of resistance, suppression of voice leads to workarounds and then suppression of workarounds leads to sabotage or exit or grudging compliance. Early in the game it may be possible to identify and address equity issues for individuals as a successful response to voiced complaints or workarounds. Management, once resistance has spread to the point of being a coup or mutiny, can involve rebuilding the system, reverting to the old system, or forcing the implementation. Ultimately it is a cost benefit decision that involves political capital, human capital, and economic capital.

The framework shown in figure 1 suggests a contingency approach to managing resistance. Cells 3 and 4 emphasize detection since those who engage in passive resistance are attempting to appear innocent of actions to resist. Cells 1 and 3 describe situations where resistance is confined to a small number of individuals for the moment. This suggests isolation as an appropriate strategy since a major risk is the spread of resistance. For cells 2 and 4, the stakes are much larger since resistance has become widespread and implementation failure may be imminent. A strategy of rebuilding the information system may be necessary to address valid complaints of the resisters. The least cost option may be to revert to the old system. This option may be appropriate if the costs of rebuilding are too great, the benefits of the new system are not particularly large, or the risk of failure from rebuilding or forcing the new system is too great. Forcing the new system may be an appropriate choice when there is strong management support for it. For example, during mergers and acquisitions, it is often necessary to select between two competing systems, each with supporters from the two companies involved. For the losing group, implementation of the other company's information system is like a new implementation. Had the choice been made to use their own information system, in all probability, there would have been a group of resisters from the other company. Since it is unlikely that there will be a win-win choice in this situation looking for one will merely prolong the agony. Forcing the implementation is like undergoing a lesser pain to avoid a greater pain.

## Conclusions

Although the constructs of system acceptance and resistance have been widely studied in IS few have looked at the relationship between them. We argue, using a framework and validating it, that it is critical to understand this relationship in order to fully comprehend system implementation. System acceptance assessed at a point in time may give the illusion of success where failure is imminent because success and failure in this domain are determined over the long haul. A system may seem to be a success, but may be heavily resisted and eventually less used thus resulting in failure. Similarly, a system may be initially resisted, but as a result of effective management the system may be used to good benefit, a success.

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