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# The Role of Management Incentives in Successful Information Systems Development and Implementation

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## ABSTRACT

Because organizations are making large investments in Information systems (IS), efficient IS project management has been found critical to success. This study examines how the use of incentives can improve the project success. Agency theory is used to: identify motivational factors of project success, help the IS owners to understand to what extent management incentives can improve IS development and implementation (ISD/I). The outcomes will help practitioners and researchers to build on theoretical model of project management elements which lead to project success. Given the principal-agent nature of most significant scale of IS development, insights that will allow for greater alignment of the agent's goals with those of the principal through incentive contracts, will serve to make ISD/I both more efficient and more effective, leading to more successful IS projects.

## Keywords

Management Incentives, Project Management, Agency Theory, Project Success, Project Performance.

## INTRODUCTION

Many organizations are making large investments in, and are devoting substantial resources to information systems (IS) that are intended to deliver significant performance gains (Yetton et al., 2000). Both successful IS project development and implementation are prerequisites for realizing gains in organizational performance and avoiding losses attributed to ISD/I failures. LaPlante (1995) found that 50% of finished projects exceeded budget by 60-190%, while only 25% were completed on time, within budget, and to client's satisfaction.

The debate on the root cause of ISD/I failure has increased levels of interest in the role of "non-technical" aspects of ISD, specifically organizational issues (Doherty et al., 2003). Previously, agency theory has been used to understand failures in projects other than ISD and to suggest improvements to practices in those areas. Recently, a study has showed how agency theory can be applied to understand the failure of IS projects and found that through increased awareness of the role of incentives, project managers or team leaders can reduce the failure rate of IS development projects (Mahaney and Lederer, 2003)

## PURPOSE OF STUDY

This research builds on the work of Howard and Mendelow (1991), Martinsons and Chong (1999), and Yetton et al. (2000), and investigates the project managers' role of leading to determine a positive impact on project success and how the use of incentives in the project manager arena can improve the IS project success. An incentive is something that influences people to act in certain ways. Organizations use incentives to motivate their employees. Two types of incentives could be offered and are presented in Table 1, but not limited to these.

Given the lack of research in this area in IS, and the directions for further research proposed by Ba et al. (2001) and Mahaney and Lederer (2003), this study expects to contribute to the theory of successful ISD/I by: (1) identifying motivational factors of project success, that can reduce or eliminate the causes of failures, (2) helping the IS owners, human resources managers to understand to what extent the use of management incentives can improve ISD/I success rate, and (3) helping practitioners and researchers to understand how agency theory can monitor project management elements which lead to project success. We believe that the use of incentives can make a significant difference in how a management representative will approach assignment to an Information System (IS) project. In practice, the major benefit for organizations will be improving the rate of IS delivered on time and within budget by a better management of organizational factors and behaviors. These outcomes would be a reflection of the avoidance of IS failures and a reduction of the costs associated with ISD/I due to increased management commitment and efficiency.

Monetary	Non-monetary
Financial bonuses	Sense of contribution to organization
Salary increments	Job promotion
Favorable annual performance appraisals	Conference attendance
Other financial assets	Awards
Pay for non-work related study	Technical training and courses
	Flexible work schedules
	Opportunity to work at home

**Table 1. Types of Incentives**

## THEORY AND RESEARCH MODEL

Agency theory describes the relationship between principals and agents to ensure agents perform tasks efficiently and effectively via compensation-performance contracts (Gerhart and Milkovich, 1990; Roth and O'Donnell, 1996). IS development is a source of increasing cost and concern to management. ISD projects are often over budget, late, costly to maintain, and not done to the satisfaction of the requesting users. It has been suggested that these problems exist, in part due to the organization of the ISD process, where ISD is typically assigned by the user (principal) to a system developer (agent). Because these two parties do not have perfectly congruent goals, a contract is developed to specify their relationship.

IS project success is the desired outcome of the contract, which is the core idea of agency theory model. ISD/I projects are considered to have concluded successfully when they are completed on time, within budget, with the desired functionality, and are high in quality (DeLone and McLean, 1992; Pinto and Slevin, 1988). Banker and Kemerer (1992) have developed a principal-agent model that provides a common conceptual framework with regard to performance evaluation metrics for ISD. They found that budget and schedule metrics are in wide use, especially for short-term IS project development and implementation outcomes. In addition, Banker and Kemerer (1992) study concluded that given the principal-agent nature of IS development, insights that will allow for greater alignment of the agent's goals with those of the principal through incentive contracts, will serve to make ISD/I both more efficient and more effective, leading to more successful IS projects.

According to agency theory, the more a principal rewards the agent for the results of his/her work, the more successful the project. An outcome-based contract compensates agents for achieving certain goals or outcomes. Lederer and Prasad (2000) suggested that the tying of performance evaluations and merit bonus payments to meeting project deadlines and staying within budget, illustrates an outcome-based contract. An outcome-based contracts ensure the agent works in the best interest of principal (Balkin et al., 2000). Mahaney and Lederer (2003) suggested that according to agency theory, outcome-based incentives motivate people and lead to more successful project outcomes.

Figure 1 presents the research model, drawn from an agency theory model. The principal manipulates agent performance via outcome-based contracts by offering incentives (financial and/or non-financial) to obtain greater IS projects' performance, success, by increasing managers' participation, attitudes, involvement, commitment, influence, and motivation toward IS projects. The research model is built to test the following propositions.

## PROPOSITIONS

### Participation

Cooper (2000) found that with no obvious incentives for participation in the project, and without having any workload decreased, users show indifference towards project success. By providing incentives to project managers, the managers will increase their level of participation to ensure the successful development and implementation of the system. Therefore:

**Proposition 1a:** High level of incentives will lead to a high level of project managers' participation throughout the ISD/I.

**Proposition 1b:** A high level of project managers' participation throughout ISD/I will lead to a successful IS project outcome.

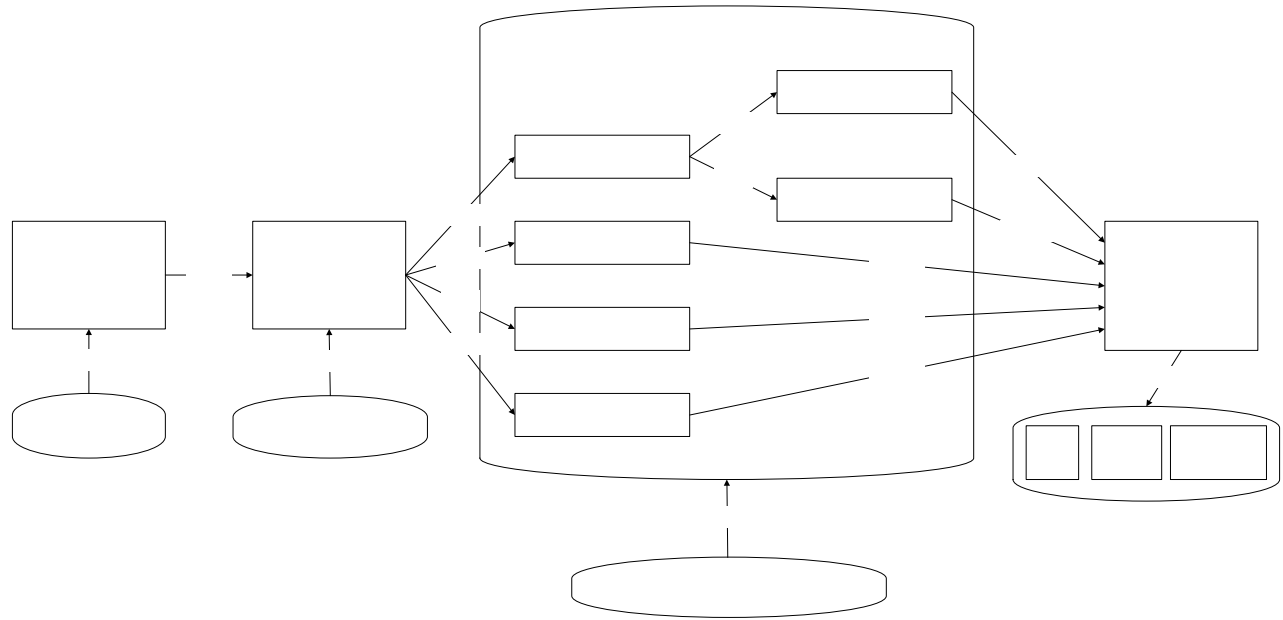


Figure 1. Research Model

**Attitude and Involvement** is **Represented by** **Corporate Top Executive Management**. **Offers** are **Represented by** **Outcome-based Contract with Incentives**. **Higher** **Commitment to Project** is **Represented by** **Higher** **Willingness to Influence Developers/members of the Project**. **Higher** **Motivation to perform** is also **Represented by** **Higher** **Willingness to Influence Developers/members of the Project**.

**Proposition 2a:** High levels of incentives will lead to senior project managers displaying a high positive attitude towards IS project development and implementation. **Agency Theory**

**Proposition 2b:** High project managers' positive attitude towards IS project development will lead to a successful IS project outcome.

**Proposition 3a:** High levels of incentives will lead to senior project managers displaying a high commitment towards IS project development and implementation.

**Proposition 3b:** High project managers' commitment towards IS project development will lead to a successful IS project outcome.

**Commitment and Influence**

Commitment to an ISD/I project is an important factor to its successful completion. Project managers must be committed to ISD/I and believe that IS project is valuable to organization. Previous research identified that an organization commitment to its employees represented by rewards, compensations, or sharing profits, in turn creates a more committed and responsible workforce (Moorman et al., 1998).

**Proposition 4a:** High levels of incentives will lead to a high level of project managers' commitment to an IS project.

**Proposition 4b:** High level of project managers' commitment will lead to a successful IS project outcome.

Also it was found that organizational commitment refers to identification with organizational goals and willingness to exert effort on behalf of organization (Moorman et al., 1998). To promote success, the project managers should lobby for more

organizational resources, and ensure effective communication with all team members, effective team building, effective planning and monitoring performance against expectations. Therefore high commitment leads to high willingness to influence over factors that affect success of IS projects. Project managers have discretion over those activities, thus incentives are expected to positively influence these discretionary activities to promote project success.

**Proposition 5a:** High levels of incentives will lead to a high level of willingness of project managers to exercise discretionary influence over factors that affect the success or failure of an IS project.

**Proposition 5b:** High level of willingness of project managers to exercise discretionary influence over factors that affect the success or failure of an IS project will lead to a successful IS project outcome.

### Motivation

From incentives theory, where appropriate incentives are tied to managers' performance, their motivation to perform the task increases. Performance-based incentives have the effect of motivating individuals to work harder to achieve a higher level of performance with the task.

If incentives are awarded, with the goal of delivering the system on time, within budget, and satisfying user's demands, the managers will display higher motivation to ensure that the IS is successfully developed and implemented. Therefore:

**Proposition 6a:** High levels of incentives will lead to a high level of project managers' discretionary motivation to act positively towards factors that contribute to ISD success.

**Proposition 6b:** High level of project managers' discretionary motivation will lead to a successful IS project outcome.

### RESEARCH METHOD, ANALYSES, AND EXPECTED RESULTS

This study will utilize a survey instrument, drawn from previously validated instruments from IS and psychology arena, to collect data for statistical analysis and structured case study interviews to scope and confirm constructs and empirical indicators (Galliers, 1992). Survey data will be used to test the paired propositions detailed above while case study data will be used to triangulate the survey data and help explain unexpected results from the statistical analysis (Yin, 1994).

Participants from various organizations that have implemented or are implementing a variety of information have been chosen. Projects in various stages of completion, or completed project situations where incentives have been provided, and others where no incentives have been provided are investigated.

All propositions will be tested using structural equation modeling based on the model depicted in Figure 1. The instrument will be also tested for reliability, and we expect a sample of around 120 respondents. Initial interviews have already been held. The online survey and interviews are conducted with people involved ISD/I phases of the projects (as well as after completion) to achieve optimal insights. All propositions are expected to be significant.

### CONCLUSIONS

This research-in-progress project attempts to determine the usefulness of incentives applied in the project manager arena in an effort to test the validity and applicability of agency theory to ISD/I projects. Given that organizational incentives are currently embedded in organizational processes, one of the key directions for this research is to develop incentive alignment policies for ISD/I and provide specific suggestions and directions for improving the management of IS projects. Specifically the organizations should think about using incentives and rewards identified as potential motivators for project managers to produce the desired outcome.

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