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Motivational Determinants of Vendor Side Project Performance on Outsourced ISD Projects

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ABSTRACT

Existing research on Information Systems Development (ISD) contracts focuses on the stakeholder controlling the vendor on a single project. We extend this line of research and make three important contributions. First, we consider the fact that systems development organizations work on a portfolio of projects, and analyze how firms prioritize the effort expended on individual projects relative to other projects in their portfolio. Second, we consider the dynamics involved when performance on one project may lead the awarding of a future project. Third, we use Valence- Instrumentality-Expectancy (VIE) theory of work motivation (Vroom, 1964) to bring in valuable insight by analyzing this stream from the vendor side of the equation. These insights go beyond that provided by agency theory and organizational control mechanisms as they have hitherto focused on how clients control progress of ISD projects.

Keywords

Motivation, Information systems development, ISD Projects, Project management, Outsourcing.

INTRODUCTION

Past research on Information Systems Development (ISD) project management has studied ISD as individual projects. This study believes that this view provides limited explanatory capabilities due to the increase in the amount and specialization in ISD. First, the average system development business unit takes on more than a single project at a time. This is especially true in the case of information system outsourcing, where an ISD firm contracts with several clients. The effort that an ISD firm expends on any single project cannot be studied in isolation, but must be studied in terms of the demands and constraints imposed by the other projects in the project portfolio. Second, this view does not consider that the ISD vendors may exert greater effort on projects through which they hope to gain future projects.

Furthermore, previous research on ISD has approached the issue either through agency theory or through organizational control mechanisms. From the perspective of agency theory, the stakeholders of the project are the principals, vendors are the agents, and the stakeholders need to consider agency costs of contracting, monitoring, and controlling the behavior of the self-serving agents. From the perspective of organizational control mechanisms, the stakeholders need to consider whether they can measure the outcome of the development project or the behavior of the project vendor, and then decide on a mode of control.

While these theories provide important insights into IT project management, they often focus on one side of the IT project: the client or “controller” side of the equation. The other side: the vendor or the controllee side is rarely addressed and has been suggested as an important area for further research (Kirsch et.al, 2002). However, if vendors themselves are motivated to work on a project, it can be expected that the client costs associated with control can be significantly brought down with consequent increase in performance of the entire project. The two interesting issues to address are: in a portfolio of projects, what explains how project managers divide their resources between projects?” and ‘how does the prospect of future projects affect the effort on the current project?’ We approach these research issues through the lens of Valence- Instrumentality-Expectancy (VIE) theory of work motivation (Vroom, 1964). While studying an area of research from varied theoretical

perspectives increases our understanding of the area, we choose VIE theory of work motivation because it takes into consideration aspects of our research questions that agency theory and organizational control mechanisms do not consider. Specifically, VIE theory considers the fact that humans may not only be driven by economic rewards, but also be driven by needs for belonging, self-esteem, the esteem of others, and self-actualization.

We make three important contributions to the area of ISD project management. We are the first study to explicitly consider how individual ISD projects are affected by other projects in the portfolio. Second, we develop a temporal process view of ISD project portfolios, including future projects as a motivation to work on current project that may otherwise have little value. Third, while motivation was identified as an understudied aspect of ISD over two decades ago (Bartol & Martin, 1982), research has not responded to this call. We therefore make an important contribution by using motivation theory to study ISD project management.

VALENCE-INSTRUMENTALITY-EXPECTANCY (VIE) THEORY OF WORK MOTIVATION

Vroom (1964) was one of the first to develop an overarching theory of work motivation with his Valence- Instrumentality- Expectancy (VIE) theory. Valence refers to “affective orientations towards outcomes” (Vroom, 1964), i.e., a preference towards attaining an outcome to not attaining it. The difference between valence and motive is that valence reference to a preference for a single outcome while motive refers to a preference for a class of outcomes. Valence ranges from +1 (desired outcomes) to -1 (outcomes to be avoided). It is important to note that value, the actual satisfaction that an outcome provides, may differ substantially from valence, the anticipated satisfaction from the outcome.

Expectancy is “a momentary belief concerning the likelihood that a particular act will be followed by a particular outcome” (Vroom, 1964). The difference between expectancy and instrumentality is that expectancy is an action-outcome association which can range from 0 (the act will not be followed by the outcome) to 1 (the act will be followed by the outcome).

Instrumentality, on the other hand, is an outcome-outcome association that can range from -1 (the first outcome is believed to be necessary and sufficient to *prevent* the second outcome) to +1 (the first outcome is a necessary and sufficient condition to *cause* the second) (Vroom, 1964).

Porter & Lawler (1968) extend Vroom’s theory to predict effort. Effort is a monotonically increasing function of the sums of the products of valences of the rewards, expectancies of actions leading to outcomes, and instrumentalities of the outcomes in gaining the rewards.

PROJECT PORTFOLIO VIEW

First, we specify that our level of analysis at the organizational level. We use the term ‘stakeholder’ to refer to the management, organization or business unit that is investing the system development project. We use the term ‘developer’ to refer to the management of the firm or business unit doing the system development. The term ‘developer’ used in this paper does not refer to an individual developer, who may be limited in terms of choosing or prioritizing between different projects. The stakeholder and developer may be part of the same organization, for example, a large, diversified company may have several projects given to its system development unit. With outsourced projects, the stakeholder and the developer are from two different organizations. The ‘developer’ in this case refers to the top management of the vendor organization, or it may refer to management a functional unit within the vendor organization. For example, with large vendors, the vendor may have separate business units handling financial projects, government projects, ERP projects, etc.

We now apply VIE theory to our first research question. Motivation theory predicts that project managers may have a variety of reasons for perceiving a project to be of high value. There are, of course, the economic gains that accrue from completion of the project. In addition to this, some projects may be more valued because it may improve visibility of the development team inside the larger organization, or within the community as a whole. For example, a project that has garnered industry or media attention may be more attractive than others. Project managers may also value a project because of personal beliefs and values. Charitable projects may be valued for contributing to society, government projects may seem important for patriotic values, and research projects may seem important for the value of contributing to science. There may also be the need for self-actualization, to pursue personal beliefs and ideals. For example, the creators of ‘agile methods’ may take a greater interest on projects on which they are given an opportunity to implement their ideas. All these reasons may contribute to a higher perceived value of the project, which may result in a greater effort on the project. Therefore, we arrive at hypothesis 1:

H1: Projects with a higher relative valence will have relatively greater development effort compared to other projects in the portfolio.

In applying VIE theory; we also have to consider moderating effects of expectancy and instrumentality. In the case of expectancy, the valence-effort relationship may be negatively affected when the expectancy that higher effort will lead to greater performance is low. This may be in projects that are small or have low complexity on which the developer is extremely confident of success even with very low effort. On the other hand, low effort-performance expectancy may also occur if the developer believes that the project failure is imminent due to extraneous, environmental or circumstantial factors outside the developer’s control. In these situations, the developer may believe that no amount of effort on their part may change the project performance. Therefore, effort on the developer’ part may be minimal even if the project has high valence.

H2: The relationship between relative valence and relative effort is positively moderated by relative effort-performance expectancy.

VIE theory also predicts that the valence-effort relationship may be weaker in situations where perceptions of the instrumentality of higher performance in achieving rewards is low. In these cases, the developer does not believe that a more successful system would result in the desired rewards. The developer may believe that the rewards will be forthcoming even if performance is low, because either the stakeholders cannot assess the quality of the system, or that the rewards are not dependent on high performance (as may be the case if the desired reward was experience, learning, or networking). On the other hand, the developer may believe that the rewards may not be forthcoming even if the delivered system is of high quality. This may be because the developers do not trust the clients to deliver the reward. Here, the developer may put in minimal effort in spite of high valence.

H3: The relationship between relative valence and relative effort is positively moderated by relative performance-reward instrumentality.

From the above, we may see a three-way interaction. If either relative effort-performance expectancy or relative performance-reward instrumentality is low, the relative valence-relative effort relationship will not hold.

These hypotheses are shown in the model in Figure 1.

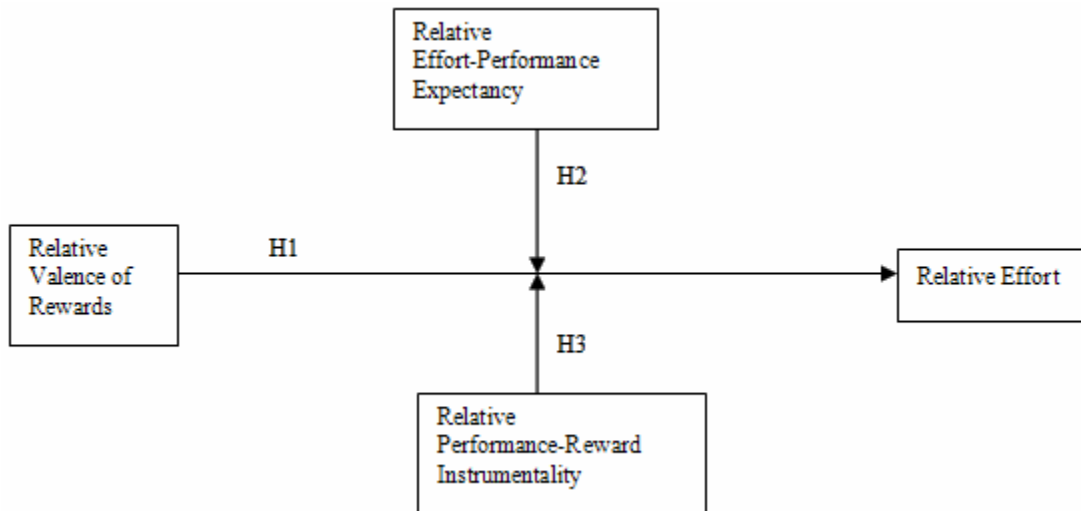


Figure 1. The Project Portfolio View of ISD Motivation

TEMPORAL PROCESS VIEW

In this section, we address our second research question by extending the earlier model to include the valence of rewards from a possible future project as a consequence of the current project. We posit that a developer may put substantial efforts into a project where the valence for the current rewards are low if they believe that a future project may be awarded on the basis of current project performance and the valence for the future project rewards are high. After controlling for the valence,

expectancy and instrumentality for the current project rewards, we expect that the prospect of future projects provide added motivation to perform on the current project. Therefore:

H4: The effort on the current project will increase with the valence for future project rewards.

This relationship, however, depends on the instrumentality of the current project on the future project. This instrumentality will be low if the future project can be obtained by means other than high performance on the current project. This may be the case when future projects are guaranteed because the developer and the client are in a long-term contract. This may also occur when future projects may be obtained through social network connections, for example when the management of the developer and the client has interpersonal contacts, or other dealings outside the projects. Instrumentality will be high when the future project can be obtained *only* if the current project performance is high. This may be the case when the awarding of the future project is explicitly tied to the current project. For example, the client and the developer may agree to a contract where specific outcomes of the current project, if met, will result in a contractual obligation on a future project.

H5: The relationship between valence for future project rewards and effort on current project will be positively moderated by current project – future project instrumentality.

This model is shown in Figure 2

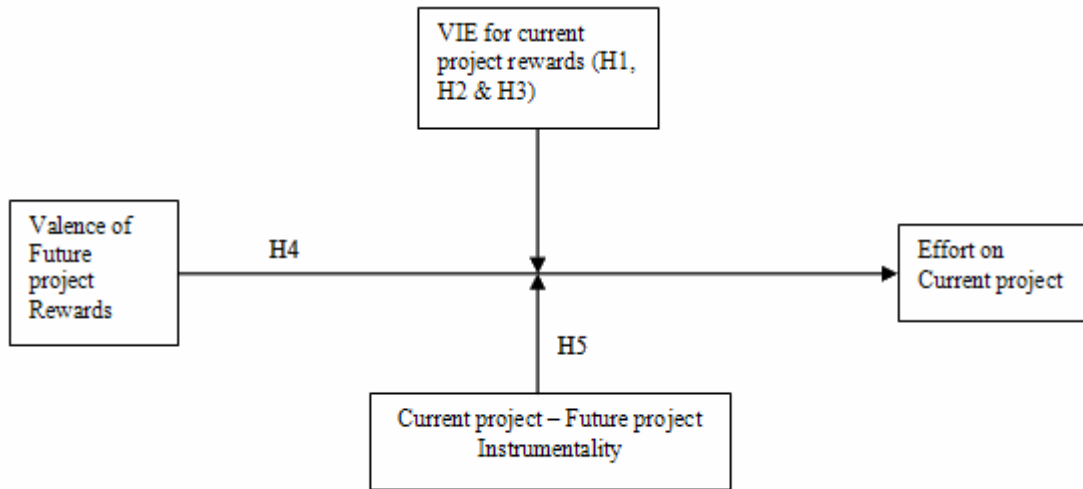


Figure 2. The Temporal Process View of ISD Motivation

METHODOLOGY

We plan to study these hypotheses through a scenario based survey. Scenarios-based data gathering has been used in management and has been applied in IS as well (Thong & Yap, 1998). The utilization of scenarios provides an effective alternative to improve the quality of data collected via questionnaires. The use of vignettes may help to “standardize the social stimulus across respondents and at the same time makes the situation more real” (Alexander & Becker, 1978)

Surveys will be sent out to project managers of system development business units with several scenarios that have different levels of the independent and moderating variables. We are currently conducting exploratory case studies to develop realistic scenarios.

CONCLUSION

In this study, we extend current literature on ISD project management to consider issues resulting from increased information system development and outsourcing of systems development to specialized developer firms. Specifically, we address issues of system development business units taking on large numbers of projects and taking on projects for long term goals. We see that the theoretical frameworks generally used to study earlier issues in systems development, namely agency theory and

organizational control mechanisms are inadequate to address the research questions that we pose. Therefore, we bring in VIE theory of work motivation, which provides us with a more comprehensive framework to understand the complexity of the issues involved.

The study makes important contributions to ISD project management. First, we see that the effort that is expended on any project is dependent on the other projects in the portfolio. Projects with higher relative valence, relative effort-performance expectancy and relative performance-reward instrumentality maybe prioritized over other projects in the portfolio. Second, we analyze the added motivation that the prospect of future projects brings. Projects that have higher valence for future project rewards and higher current project – future project instrumentality have greater effort expended on them than others. Third, motivation to prioritize a project depends not only on the economic incentive, but also on issues like personal values, added visibility, and needs for self actualization. In addition we see that the earlier focus on control was very limited. Control is one of several variables that affect the effort expended on by the developers on the project. Specifically, control affects one aspect the instrumentality of performance to reward, namely, the ability of the client to gauge performance. Control does not address other issues that may have a larger impact on effort, namely, the valence of the rewards of the current project relative to the other projects in the portfolio, the valence of future rewards, the developer's expectancy of project success depending on their effort on the project, and the instrumentality of the developer's performance on the current project in obtaining those rewards. Our research may additionally provide a pathway for reducing agency/control costs for stakeholders by affecting the developer's perceptions of valence, expectancy, and instrumentality.

There are several implications for vendor choice as well. While existing literature recommends that stakeholders choose vendors based on their ability to control the vendor and the vendor's reputation, we maintain that they also have to consider the other projects in the vendor's portfolio. This may make a large difference in the priorities that they may assign to the project. We also suggest a possibility to increase the effort that the vendor may expend on the project, by increasing the current project to future project instrumentality. This can be done by explicitly tying in the awarding of future projects to the performance on a current project.

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