Escalation in Information Technology Projects: A Discounting Theory Perspective

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ABSTRACT

According to the information systems literature, many information technology (IT) projects go wildly over budget, drag on long past their originally scheduled completion date, and do not deliver according to initial specification. Theories that have been used to understand the escalation phenomenon in general are the self-justification theory, the prospect theory, the agency theory, and the approach avoidance theory. These theories have contributed to a considerable insight in the phenomenon of escalation, but divergence among them indicates that there are still some unanswered questions. Discounting describes how the subjective value of an outcome is altered because its outcome is either uncertain and/or delayed. Since a key factor in IT project is the uncertainty and/or delay associated with cost, schedules and functionality of the IT solutions that are made, the authors decided to introduce the concept of discounting to expand understanding of escalation behavior in IT projects.

Keywords: Decision-Making, Discounting, Escalation, Hyperbolic Discounting, IT Projects

Can we afford to quit or do we have to continue? Shall we fix this bug now or shall we implement new functionality? These are often relevant questions when working with information technology (IT) projects.

Many IT projects fail, and as a consequence time and money have been wasted. In early 1993, the London Stock Exchange abandoned the development of its Taurus paperless share settlement system after more than 10 years of development. USD 134 million was wasted, and almost all of the 360 or so workers involved in the project were jobless. In addition, USD 670 million were used in other organizations preparing for the new system (Drummond, 1996b). Car rental company Avis Europe canceled in 2004 an Enterprise Resource Planning (ERP) system after spending USD 54.5 million (Best, 2004). Up until then, the ERP project was substantially delayed and as a consequence increased costs related to problem with design and implementation. In 2008, the airline carrier Qantas pulled the plug after spending USD 40 million on its Jetsmart parts management system (Krigsman, 2008). Challenges in this project started in 2004 when employees were alerted that the...
system would increase workload. Decision-makers continued the project nonetheless. As these examples and others (Drummond, 1996a; Ewusi-Mensah, 2003; Mähring & Keil, 2008; Simon, 2009; Udechukwu, Stuart, & Melanie, 2012; Wright & Capps, 2010) illustrate, many IT projects go over budget, drag on long past their originally scheduled completion date, and do not deliver according to initial specifications. For example, Miller, Dawson, Miller, and Bradley (2008) found that only 42% of the IT projects covered by their study were completed within 10% of initial schedule, cost and functionality and the Standish Group International (2009) state that in 2000 and 2008 28% and 32% of IT projects were executed according to plan. Software- and trade magazines regularly publish a list of the top-ten corporate IT failures (Baker, Johnson, & Bickel, 2003; Nash, 2000).

Escalation in decision-making is a challenge in general, and it is a frequent and global problem. It is therefore important to gain further knowledge of the escalation phenomenon at the individual, organizational, and social level. IT projects that escalate run over schedule, exceed budget, and do not produce the right product (El Emam & Koru, 2008). The failures that get public attention are often the large government projects that cost unbelievable amounts of money. However, failure within public and private companies, especially small- and medium sized, can have a larger impact on the overall state of the company than for government projects. According to Udechukwu et al. (2012) IT projects are associated with a high failure rate. Why is this? Is it possible to reduce the failure rate? Why are the projects allowed to continue despite negative feedback? The Taurus project, Avis project, and the Jetsmart project, along with lots of others, indicate that decisions are not the clear-cut set of preference curves classic economics teaches us, and that decisions are context-dependent and are subject to biases. We do not always follow the best possible path of action.

Rationality implies obedience to the laws of logic, economics or mathematics. Decisions, along with judgment and choice involve the concept of rationality (Rachlin, 1989). Classic economic theory assumes that we behave rationally, but instead the opposite often occur. The interesting question then is why individuals often make repeated mistakes without learning from their experiences. According to Donahoe and Palmer (2004), “Questions about why different people behave differently on the same occasion are fascinating, and the answers are important for the interpretation of complex human behavior” (p. 153). Why then, do some people continue to allocate additional resources to a seemingly failing course of action far beyond the prescriptions of economic rationality? A single decision rarely causes a business failure, but a series of wrong decisions may lead a project onto a path of escalation. More precisely, escalation involves a continuing cycle of active reinvestment in response to negative feedback (Drummond & Hodgson, 2011). Escalation in personal and professional lives may be revealed in everyday life, but in spite of this and all the research, the nature and causes of the phenomenon still remain unanswered (Hantula, 1992).

Decision-making is a fundamental part of human life and choices that involves comparing outcomes that occur at different points in time and/or outcomes that are more or less likely to occur, is within behavioral economics referred to as intertemporal choice and risky choice (Myerson, Green, Hanson, Holt, & Estle, 2003). “Intertemporal and risky choice represent traditional topics in microeconomics and are critical for understanding many aspects of decision-making” (Myerson et al., 2003, p. 620).

Intertemporal choice and risky choice can be analyzed within a discounted utility framework. Intertemporal discounting indicates that rewards and costs occurring at different points in time may be comparable by discounting future utility. For instance, an individual with an annual discount factor of ninety percent would be indifferent between an option of receiving USD 90 today and an option of receiving USD 100 in one year, because USD 90 is 90% of USD 100. This utility value is the value of the reward decreased with a given factor over time.
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