

Chapter 9

Exploring the Use of Prediction Markets as Digital Games to Support Learning in a Project Management Context

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ABSTRACT

A growing area of study is the management of complex projects involving stakeholders dispersed across organizations. Key to the success of complex projects is encouraging stakeholders to learn and communicate useful information about work progress and potential risks. Increasingly, companies are using a gaming approach to encourage workers to learn and communication useful information. This chapter looks at one such gaming vehicle, namely prediction markets. Prediction markets are games in the form of marketplaces that adapt many of the same structures found in stock markets to aggregate information about the probability of future events. This chapter traces the developmental history and application of prediction markets, discusses issues in marketplace design, and explores how game-based learning principles can support the use of prediction markets in this context. The concluding section discusses the application of a prediction market to support the management of an IT project.

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INTRODUCTION

Encouraging continuous team learning and communication is key to completing projects successfully. Continuous learning is especially important to effective risk management, which involves identifying, monitoring and preparing responses to uncertain, and potentially disruptive events like cost overruns or missed deadlines. The identification of potentially disruptive events occurs throughout a project's lifecycle. Monitoring, the second step, includes assessing the likelihood and potential effects of identified risks. To assess the likelihood of an event, project managers must obtain three key pieces of information: 1) a clear definition of the risk, 2) an understanding of the variables likely to influence the event's occurrence and 3) the effect on the project if the event occurs. Obtaining this information is a time-intensive and learning-intensive endeavor that continues throughout a project's lifecycle. Managers must unceasingly monitor the environment to learn of new risk events and to update estimates for previously identified risks.

Project managers face challenges to learning the best available information. For example, it is not often politically acceptable for someone to express doubt about another team member's ability to complete a task on time, especially if that member believes the goal is attainable. In addition, cognitive biases, culture, group politics, and performance incentives can distort the information provided to the project manager. Even employees with good intentions cannot be helpful if they have focused solely on their individual component of the project and not learned much about the other tasks and team members. There is little incentive to spend time and energy attending to work not directly related to one's own. Adding an element of gaming to promote team members learning and communicating their beliefs about project progress can help project managers identify potential problems and adjust resource allocations and schedules. One approach to adding a game-based aspect to the normally staid process of project planning and control is to implement a prediction market as an additional communication tool.

Prediction markets are digital games in the form of marketplaces that adapt many of the same structures found in stock markets to aggregate information about the probability of future events. These markets have produced reliable estimates in a variety of settings, including both public and corporate environments. Like all markets, a key to success is participants learning relevant information and trading on that knowledge.

Private companies and researchers have been designing and developing digital games to support learning for more than thirty years (Clark, Tanner-Smith, & Killingsworth, 2016). These games address cognitive, emotional and behavioral learning, take many forms (simulations, case studies, etc.) and cover many disciplines (management, math, science, history, etc.). Insights from research on these efforts

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