Chapter XI
E–Learning Business Risk Management with Real Options

Georgios N. Angelou
University of Macedonia, Greece

Anastasios A. Economides
University of Macedonia, Greece

ABSTRACT

E-learning markets have been expanding very rapidly. As a result, the involved senior managers are increasingly being confronted with the need to make significant investment decisions related to the e-learning business activities. Real options applications to risk management and investment evaluation of Information and Communication Technologies (ICT) have mainly focused on a single and a-priori known option. However, these options are not inherent in any ICT investment. Actually, they must be carefully planned and intentionally embedded in the ICT investment in order to mitigate its risks and increase its return. Moreover, when an ICT investment involves multiple risks, by adopting different series of cascading options we may achieve risk mitigation and enhance investment performance. In this paper, we apply real options to the e-learning investments evaluation. Given the investment's requirements, assumptions and risks, the goal is to maximize the investment's value by identifying a good way to structure it using carefully chosen real options.

INTRODUCTION

E-learning is the delivery and management of learning by electronic means. Various devices (workstations, portable computers, handheld devices, smart phones, etc.), networks (wireline, wireless, satellite, etc.) can be used to support e-learning (Wentling et. all., 2000). E-learning may incorporate synchronous or asynchronous communication, multiple senders and receivers (one-to-one, one-to-many, many –to many, etc.), multiple media and format independently of space and time.

Recently the e-learning markets have been expanding very rapidly and led to an unexpected revelation: the forces affecting higher education around the world are strikingly similar. This is true in at least four important areas: expanding enrollments; the growth of new competitors, virtual education and consortia; the global activity of many institutions; and the tendency for policy makers to use market forces as levers for change in higher education. Expansion of enrollments, accompanied by shifts in student demands and expectations, is a global phenomenon. The number of tertiary students worldwide doubled in size in just twenty years, growing from 40.3 million students in 1975 to 80.5 million students in 1995 (Newman and Couturier, 2002).

Previous research on e-learning cost analysis and investment evaluation does not consider the risk inherent in the business activity (Whalen and Wright, 1999; Downes, 1998; Morgan, 2000). In this work we apply a real option model to identify and control the e-learning investments risks in order to achieve a balance between reward and risk.

The real options approach applies methods of financial planning in investment valuation problems. An investment project embeds a real option when it offers to management the opportunity to take some future action (such as abandoning, deferring, or scaling up the project) in response to events occurring within the firm and its business environment (Trigeorgis, 1996). For example, by taking advantage of the option to defer the investment for some time the management can learn whether there are better alternative technologies (Li and Johnson, 2002). This management's flexibility (called active management) to adapt its future actions in response to altered future business conditions expands an investment opportunity's value by improving upside potential and limiting downside losses (Trigeorgis, 1999). Business condition either refers to market conditions or firm conditions depending on where the investment is focusing. For example, an investment of an e-learning infrastructure for providing educational services only inside the premises of a big organization mainly refers to firm conditions. On the other hand, an e-learning application, which mainly focuses on providing services in the market (by a university or other institution), refers to market conditions. Figure 1 is a schematic diagram showing the probability distribution of cash flows for a passively versus actively managed project.

Figure 1. Uncertainty under passive and active management of the investment project, (Trigeorgis, 1996).
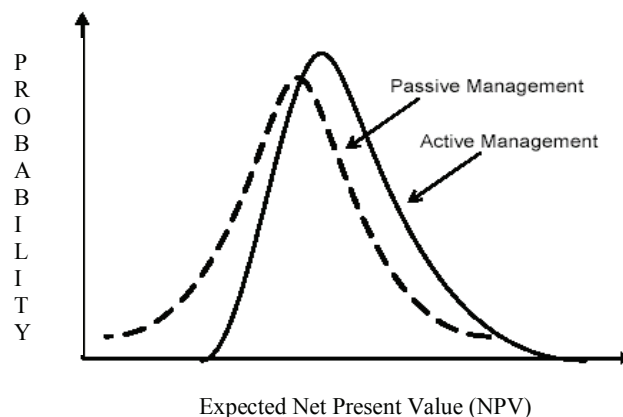
Related Content

Trust-Aware Recommender Systems for Open and Mobile Virtual Communities
N. Sahliand G. Lenzini (2010). *Information Resources Management: Concepts, Methodologies, Tools and Applications (pp. 326-345).*
www.irma-international.org/chapter/trust-aware-recommender-systems-open/54487

Information Technology/Systems Offshore Outsourcing: Key Risks and Success Factors
Mahesh S. Raisinghani, Brandi Starr, Blake Hickerson, Marshelle Morrisonand Michael Howard (2008). *Journal of Information Technology Research (pp. 72-92).*
www.irma-international.org/article/information-technology-systems-offshore-outsourcing/3693

Clustering Dynamics of the ICT Sector in South Africa
Sagren Moodley (2008). *Information Communication Technologies: Concepts, Methodologies, Tools, and Applications (pp. 2014-2021).*
www.irma-international.org/chapter/clustering-dynamics-ict-sector-south/22796

Understanding the Acceptance and Use of M-Learning Apps by Entrepreneurs: An Application of the Social-Cognitive and Motivational Theories
Silas Formunyuy Verkijika (2019). *Information Resources Management Journal (pp. 42-55).*
www.irma-international.org/article/understanding-the-acceptance-and-use-of-m-learning-apps-by-entrepreneurs/234442

Knowledge Management on the Web
Ruidong Zhang (2005). *Encyclopedia of Information Science and Technology, First Edition (pp. 1770-1777).*
www.irma-international.org/chapter/knowledge-management-web/14510