

**University Patents Commercialization:
Managing the Co Evolution of Knowledge and Opportunity Discovery**

De Haan Uzi

Uzid@ie.technion.ac.il

Erez Miriam

meretz@ie.technion.ac.il

Fiengenbaum Avi

avif@ie.technion.ac.il

Sivan Tali

sivant@technion.ac.il

Miron Ella

mirone@technion.ac.il

Authors Institution Address:

Technion–Israel Institute of Technology
Davidson Faculty of Industrial Engineering and Management
Technion City, Haifa 32000, Israel

October 1, 2004

Abstract for

Interdisciplinary Conference of Entrepreneurship Research, 2005

Theme: Academic Entrepreneurship

Key words: University Patents Commercialization, Knowledge, Opportunity Discovery
Opportunity evaluation, Technology Transfer, entrepreneurship, entrepreneurial-
management team, expected value, Co Evolution

Abstract

The research proposes a new theoretical framework to enhance the economic value of universities' patents commercialization process. The role and contribution of universities intellectual property as a source for new start up companies, or innovation in established companies, has increased in recent years. The universities current practice in transfer of innovations is mainly via the establishment of an office for Technology Transfer. This office advances the patent mainly via licensing or directing the patent and the academic inventor to a technological incubator or venture capital. As such, the economic value at this stage is minimal since it is assumed that the main opportunity discovery and evaluation will be done in the next stages. In contrast, we propose an additional management intervention process within the university before it is presented to external interested parties. This process focuses on a thorough exploration of the opportunity discovery and evaluation. As a result, the patent's expected economic value and the overall expected economic value of universities entrepreneurship activities is enhanced.

The proposed process manages the co-evolution of knowledge and opportunity discovery (see figure 1). Support for the high interdependence between the two components relies on an extensive literature review, arguing that prior knowledge and experience play a major role in opportunity discovery and evaluation. While existing models propose a sequential process consisting of discovery-evaluation-exploitation, we propose a co-evolution model, consisting of a spiral, and iterative process of the discovery-evaluation-discovery relationship. This feedback loop from evaluation back to discovery is facilitated by new knowledge creation that stimulates the entrepreneurs to rethink the prior opportunity discovery and modify it on the basis of new knowledge. The model proposes two mechanisms for creating new knowledge. One is by using a team consisting of the entrepreneur and an entrepreneurial management team whose joint prior knowledge is greater than the prior knowledge of a single entrepreneur. Second, a support team consisting of venture capitalists and the course instructors who serve as consultants for the entrepreneurial management team, and provide input to the opportunity evaluation process.

The model was implemented in a pilot field study in an academic set up – Technion MBA program. Six teams of MBA students enrolled in a course on entrepreneurship served as the entrepreneurial- management teams. The students had a diverse academic background and work experience. The task of each team was to discover the business opportunity of a patent jointly with the inventor of the patent. Altogether, six patents were evaluated, and their prior business opportunities were modified until they reached the highest level of evaluation in terms of their business potential. The opportunity development process consisted of evaluating the opportunity discovery based on their joint knowledge, and on the external feedback received from the support team. This additional knowledge guided them to modify the opportunity discovery, on which they got new feedback from the external experts, and so on, until they reached the opportunity with the highest evaluation of business potential.

The findings of the inductive study illuminated the importance of the co evolution of both project's knowledge and patent's opportunity discovery. In this process, the entrepreneurial management teams, with its diverse prior knowledge, managed the the process of absorbing additional knowledge from the support team during the evaluation phase, and transforming it into new opportunity discovery, which was further evaluated, up to the point that it increased dramatically the expected value of the opportunity within given time constraint, resulting in seed investments for two of the patents.

Figure 1: Research Model

