

# Research Proposal

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My Ph.D. dissertation title was “A Science-based Approach to Entrepreneurship from Evolutionary Genetic Perspective.” Entrepreneurship has been given various definitions by researchers, while there is no structured theory covering the whole definitions of entrepreneurship which has been changed frequently over time. Even given the issues of pegging down one specific definition, most scholars and practitioners understand and fully acknowledge the necessity and importance of entrepreneurship not just for individuals, but also within organizations and firms. In fact, entrepreneurship within a firm has been shown to be a determinant for a firm’s success. Nevertheless, up until this point, there has been no systematic way to quantify entrepreneurship objectively within a firm.

In my dissertation, I proposed a novel mathematical model of firm’s environmental reaction mechanism to quantify entrepreneurship. Then, I coined a new term “*evolutionizer*” which manages and controls the firm's reaction propensities (entrepreneurial DNA) to optimize its reaction in accordance with environmental change. Encompassing all the existing definitions into a systematic theory, the new approach affirmatively overcomes the vagueness in the concepts of entrepreneurship.

Every firm has a certain entrepreneurial DNA. It is similar to the idea of biological DNA. Just as it would be difficult to change a person’s DNA, it can be difficult to change the entrepreneurial DNA of a firm. However, by introducing entrepreneurship principles into a firm, changes can be made in a way that optimizes the overall reaction. The new mathematical entrepreneurship evolution model which I have developed measures entrepreneurship quantitatively within a firm. This enables each firm to pinpoint and diagnose likely sources of their issues. Which in turn allows for a prescription of solutions that can be implemented. The expectation based on my research is that there will be a significant increase in the success rate of firms, particularly for venture firms.

Actually, I would like to expand my research by analyzing U.S. data. This will allow me to advance and upgrade my current mathematical entrepreneurship evolution model. The changes I make should allow the model to become robust enough to be applied to all types of firms, not just in Korea or U.S., but also around the world.

If you give me the opportunity to participate in Productivity, Innovation, and Entrepreneurship (PIE) Program at the National Bureau of Economic Research (NBER) as a postdoctoral fellow, I would like to contribute to the development of entrepreneurship theory and practice, and also publish our co-authored papers in top-tier journals such as Academy of Management Review and Academy of Management Journal. Through close collaboration with the Entrepreneurship Working Group members at the NBER, I believe that my new model will augment the NBER's current research as well as help U.S. venture firms increase their chances of success.

My plans for further studies are ongoing and include aspects such as improvement of accuracy in assessment of firm's characteristic attributes ("Entrepreneurial Base"), sophistication of compositional coefficient of reaction propensities ("Entrepreneurial DNA"), diagnosis methodology using "Fitness Factor" and threshold level, and "Entrepreneurial Genome Project." Tool kits based on the new theory and evaluation results also need to be developed to equip venture firms with field-proven advisory services. A study of why many firms die when they have a lack of entrepreneurship will be one of my future research topics.

I expect my collaboration with the NBER will allow me to focus on areas that are of key importance to me such as cross-cultural entrepreneurship studies. Given that my research interests are in line with the research culture at the NBER, I feel confident that working closely with you, my research will have a positive impact that will lead to a series of mutually beneficial accomplishments.

Thank you for your time and consideration. I really appreciate it, and I hope to receive a positive response from you soon.

Sincerely,

Jungwoo Lee