Using Artificial Neural Network (ANN) to Explore the Influences of Number of Inventors, Average Age of Patents, and Age of Patenting Activities on Patent Performance and Corporate Performance

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Abstract-This study utilizes artificial neural network (ANN) to explore the nonlinear influences, average age of patents, and age of patenting activities on patent performance and corporate performance in the US pharmaceutical industry. The results show that number of inventors, average age of patents, and age of patenting activities of the US pharmaceutical companies have the nonlinearly and monotonically positive influences on their patent citations that are positively related to corporate performance. This study also proves that patent citations play a full mediator between corporate performance and the three antecedents: number of inventors, average age of patents, and age of patenting activities. Therefore, if US pharmaceutical companies want to enhance their patent performance and corporate performance, they should enhance their number of inventors, average age of patents and age of patenting activities.

Keywords-number of inventors; average age of patents; age of patenting activities; patent citations; corporate performance