6-6-2009

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Recommended Citation
Available at: http://digitalknowledge.babson.edu/fer/vol29/iss13/13

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SUMMARY

NOT FAST ENOUGH! MANAGING DECELERATING EFFECT OF NEW KNOWLEDGE ON SPEED OF NEW PRODUCT INTRODUCTIONS

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Principal Topic

Firms are under increased pressure to combine new knowledge and convert it into products at an accelerated rate. However, to generate adequate returns, such innovations must be more exploratory in nature. The necessity of exploration may result in decelerating effects in knowledge conversion processes, hence slowing up the conversion process. Yet, speeding up the process could result in increased returns for the firm. To address this duality of combining diverse knowledge and combining it at a faster rate, I propose that certain firms could be endowed with speed as a capability for successfully exploring at a faster rate. Extending prior literature on innovation speed, I propose four measures of innovation rates – speed, acceleration, pace, and scale. While speed and acceleration in prior product developments are important, pace refers to temporal distance between successive innovation events and density of such events. Scale refers to the variation in length of innovation times. I test the effects of these innovation rates measures on how they affect the speed of innovation for an innovation that is exploration or exploitation oriented.

Method

I examine the speed of new product introduction using all primary drug patents from 1985 to 1995 in the US. After eliminating firms with fewer than three prior product introductions and patents acquired from other firms, the final sample consisted of 672 primary patents from 89 firms. Of these patents, only 17.23% were eventually converted to drugs. The measures of speed, acceleration, pace, and scale are based on all approved drugs by the FDA for a given firm between 1950-1985. These measures are derived from Weibull distribution of innovations over time. I use an accelerated failure time Weibull regression to account for unobserved heterogeneity in the conversion process.

Results and Implications

Measures of speed of innovation are a key aspect to furthering our understanding on how firms can leverage innovation rate capabilities. Findings suggest that speed and acceleration are important at lower levels of exploration. Furthermore, pace and scale are important for more explorative ideas. Firms could be ambidextrous by leveraging appropriate capabilities. Finally, I extend innovation speed literature by proposing measures that account for different distributions of innovation activities over time.

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