Dialectic Approach in Dealing with Exploration and Exploitation

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Diversification has been the subject of much examination in agribusiness firms. According to behavioral research, firms diversify through a process of either exploitation or exploration. Exploration entails searching for ideas and technologies that broaden a firm’s established experiences. Such diversification not only exposes a firm to new technologies to which can be recombined with a firm’s pre-existing technologies. As Schumpeterian innovations are based on a discovery of novel technologies combinations, such explorative forms of diversification is central to discovering those combinations of technologies that are crucial to the innovation process. However, a challenge with such diversifications is that such novel explorations can expose a firm to technologies that are unrelated to a firm’s established experiences. In fact, a large body of diversification research has found that unrelated diversification reduces a firm’s performance. In contrast to exploration, exploitation focuses on a diversification where firms search for technological experiences that are close proximity to a firm’s prevailing experience. Such diversifications involve incremental refinements to a firm’s pre-existing technologies. Hence, unlike exploration, exploitation involves less risk but this risk comes at costs of diversifying into more radical sources of innovations.

As a result, while exploration and exploitation offers distinct diversification strategies, behavioral researchers (March, 1991) have argued that firms who engage in both exploitation and exploration draw on the benefits of each and thus are more likely to succeed than firms who focus on either of these diversification strategies. Yet the challenge of engaging in this type of diversification is that firms face a basic exploration-exploitation trade-off. A firm’s efforts to engage in exploitation yields a diversification for less risky and nearby technological experiences “drives out” a diversification for riskier and more distant technologies. While, a diversification based on exploration drives out an exploitation that leverages a firm’s established technological experiences.

The task of this research is to examine this exploitation-exploitation trade-off within the biotechnology sector. Specifically, this paper draws on a Teece et al. (1994) concept of coherence to explain a biotechnology firm’s diversification behaviors. Teece et al. (1994) shows that coherence involving the patterned relationships amongst the technologies of a firm influences a firm’s diversification.
While coherence has been used to explain diversification in a variety of technology related industries, coherence has not been used to explain the exploitive and explorative aspects of diversification. As a result, the purpose of this study is to empirically examine the influence of this coherence on a biotechnology’s firm diversification.

In order to achieve this purpose, this paper draws on a unique construction of a measure of coherence proposed by Ng and Sanchez (2015) where the use of U.S.P.T.O data is used to determine the pattern citation behavior of biotechnology firms. This measure of coherence is then used to examine its influence on the exploration and exploitive decisions of the biotechnology firm. This study argues that the proposed concept of coherence can offer insights to examining the exploitation-exploration trade-off. This study then concludes with its contributions and implications to diversification research.