**Research Proposal: Effect of inventor diversification(specialization) on firm-level innovation**

**Research Question:**

How do individual traits of inventors affect firm-level innovative performance? Specifically, how does the technological scope of an inventor affect innovation?

**Literature Review**

* diversified inventors are better at exploration (Nagle & Teodoridis, 2019): only studies individual outcomes
* firms with more specialized inventors create narrower scope technologies (Toh, 2014)
* presence of generalist inventor in a team affects the economic relevance of innovation, contingent on level of domain uncertainty (Melero & Palomeras, 2015)
* The breadth and depth of expertise can influence innovation (Boh, Evaristo & Ouderkirk, 2014): also focuses on individual level outcomes

**Propositions**

**P1. Firms with more diversified inventors will have higher levels of absorptive capacity.**

Diversified inventors can contribute to firm innovation by recombining knowledge from diverse fields, and recognizing new opportunities for exploration beyond their expertise. Thus,

H1. The average level of inventor diversification in a firm will positively affect absorption speed of external knowledge.

H2. The effect of inventor diversification on absorption speed will be positively moderated by the technological distance between the firm and the external knowledge.

**P2. Firms with more diversified inventors will affect alliance performance.**

Inventors with wide scope can help bridge the gap between two firms with different knowledge backgrounds. For example, suppose an alliance tie has been established between firm 1 and firm 2. Firm 1 operates in technological fields A and B, whereas firm 2 operates in fields B and C. Both firms have a “common ground” field B, but whether the firms can leverage this “common ground” depends on the diversification of individual inventors. In the case where all the inventors in both firms are highly specialized and only commits to a single field, inventors in field A and inventors in field C will have a hard time working together (in the extent that the two fields have little technological overlap). However, if some inventors are diversified to field B as well, so that inventors in firm 1 are knowledgeable in fields A and B, and inventors in firm 2 in fields B and C, their shared knowledge in field B may act as a buffer to mitigate the technological distance between A and C. Plus, diversified inventors tend to be better at exploration, so those inventors will be better in joint projects.

H1. The average level of inventor diversification in a firm will positively affect its alliance performance.

H2. The effect of inventor diversification on alliance performance will be positively moderated by the technological distance between the focal firm and the alliance firm.

**P3. Firms with more diversified inventors will be better equipped to diversify to new technological** **domains.**

When diversifying to a new field, firms have the option to utilize their existing inventors to explore into the new domain, or to make new hires. Diversified inventors will be better at expanding their boundaries. Therefore, firms with more diversified inventors will be quicker to diversify.

H1. The average level of inventor diversification in a firm will positively affect the speed of technological diversification.

Ideas for moderators: Technological distance btw fields, technology cycle length, Technological uncertainty