**Baseline Hypothesis: the effect of the proportion of generalists in an inventor team on the impact of the innovation**

Prior literature diverges on whether generalist inventors have a positive or negative effect on team innovativeness.

On one hand, generalists can contribute to the innovativeness of the team output.

1) Generalists are better at knowledge recombination

* Innovation involves recognizing and recombining existing knowledge to come up with novel combinations.
* Generalists have a wide array of expertise, albeit with less depth compared to that of specialists, which they can use to recognize distant knowledge components and recombine them.
* Thanks to the diverse knowledge they possess, generalists are better positioned to see the ‘big picture’: they can recognize distant pieces of knowledge and evaluate potential combinations better. They also have less of the ‘tunnel vision’ problem that specialists face.

2) Generalists can facilitate teamwork

* Generalists can act as a ‘bridge’ between inventors: their experience in a wide array of domains can help coordinate inventors from distant domains to communicate and work together as a team.
* Generalists can also mitigate any free-rider problem that may arise by monitoring their peers’ efforts.

*Hypothesis 1a: The proportion of generalist inventors in a team responsible for an innovation will have a negative effect on the impact of the innovation.*

On the other hand, generalists may not be suited to innovation as well as specialists.

1) Generalists lack the expertise that specialists have.

* By definition, generalists have less expertise in each domain compared to specialists in that particular domain.
* Burden of knowledge (Jones 2009): In order to innovate on a technological field, one should first bring oneself to the frontier of knowledge through education.
* As the stock of prior knowledge grows, the amount of knowledge that has to be accumulated to reach the knowledge frontier in a certain domain also grows, increasing the education burden.
* The depth of knowledge a generalist inventor has may not be sufficient to contribute towards a significant innovation.
* In effect, generalist inventors will have little to add to the collective knowledge pool of the team than do specialist inventors.

2) Generalists are less productive in team settings,

* Collaborative innovative effort calls for ‘division of labor’: each individual is expected to demonstrate their expertise in their respective domains, producing knowledge that can be recombined at the team level.
* The expertise that generalists lack of includes not only the depth of knowledge on the domain, but also domain-specific problem-solving and memory skills.
* The lack of domain-specific problem-solving and memory skills makes the generalist less productive in producing and combining knowledge within the domain.
* Thus, generalist inventors are not as productive as specialists in a team setting.

Thus,

*Hypothesis 1b: The proportion of generalist inventors in a team responsible for an innovation will have a negative effect on the impact of the innovation.*

**Moderation Hypotheses: When generalists can perform better**

Here, I focus on two roles that generalist inventors can play in a team: coordination and exploration.

* Coordination: Generalists are better than specialists at evaluating multidisciplinary ideas, and recombining knowledge components from various domains. Generalists can use this advantage to coordinate inventors from different backgrounds to work together in a team. Generalists can also leverage their experience in multiple domains to help the team overcome communication challenges.
* Exploration: Generalists are not limited to a single set of knowledge and problem-solving skills. Generalists have access to a variety of knowledge sources and can employ a broad set of perspectives, making them better at tackling new or unfamiliar problems.

I propose two moderation hypothesis, one each that demonstrates a condition under which each of the two roles of generalists is required.

1) When the technological distance between inventors is far

* When the team members have distant domains of expertise, the inventors will have different sets of knowledge, skills, and ways of thinking. They may also use different jargons, making communication difficult. Therefore, the condition makes the coordination more costly, calling for a ‘moderator’ (e.g., a generalist inventor) who can mitigate these challenges.

*Hypothesis 2: When the mean technological distance between inventors in the team is far, the effect of the proportion of generalist inventors in a team will have a more positive effect on innovation impact than when the mean technological distance is close.*

2) When innovating in a new, or less familiar domain

* Innovating in a new domain is, straightforwardly, an explorative process. It requires recognizing valuable knowledge outside the inventor’s domain of expertise and combining them together. Both tasks are better suited for the generalist inventor.

*Hypothesis 3: When innovating in a new, or less familiar domain, the proportion of generalist inventors in a team will have a more positive effect on the innovation impact than when innovating in a familiar domain.*