



IT TAKES MORE THAN MEMBERS TO MAKE A TEAM

TEAM SIZE STILL MATTERS

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How many scientists does it take to make a team?

Far from being just a riddle, the question is an important one for the way we build and manage the teams that are so central to realizing our organizational, scientific and technical futures. Add too many scientists and the presumed risk is of slowing down due to administrative complexity; settle for too few and we'd suspect a paucity of conversations that are fundamental for the birth of new ideas. After suffering some years of obscurity, team-size studies are enjoying renewed attention thanks to recent work by Lingfei Wu, Dashun Wang and James A. Evans, published in the prestigious journal *Nature*, which has concluded that team size still does matter and that small teams are more suited to greater risk-taking, while large teams are more suitable for the development of established ideas. In addition, larger teams appear to facilitate broader search, while smaller teams appear to search deeper. At a time when some researchers are suggesting that [ideas are getting harder to find, and research productivity is declining](#), such insights as to how best to structure innovation teams can take on strategic importance.

James Evans, a University of Chicago sociologist, who is also a co-author of the aforementioned study in *Nature*, puts it more poetically [when he suggests that](#): "Big teams take the current frontier and exploit it. They wring the towel. They get that last ounce of possibility out of yesterday's ideas, faster than anyone else. But small teams fuel the future, generating ideas that, if they succeed, will be the source of big-team development."

Utilizing large databases of scientific and technical work performed over several decades, including analysis of more than 42 million articles published between 1954 and 2014, 5 million U.S. patents, and 16 million software projects between 2011-2014, the authors have assembled a formidable set of empirical data with which to test their ideas. Most startling, for me, is [the finding](#) that over the past 60 years, the novelty of larger teams' outputs has declined markedly and monotonically with each additional team member added. In other words, all things being equal, the expected novelty of team work declines in a predictable (and consistent) fashion as a team adds each additional member. Interestingly, the analysis also challenges the now almost [universal dismissal of the sole-inventor](#), by [noting](#) that "solo authors are just as likely to produce high-impact papers (in the top 5% of citations) as teams with five members, but solo-authored papers are 72% more likely to be highly disruptive (in the top 5% of disruptive papers)." This contrarian conclusion challenges the very notion that complex customer experiences and ever-overlapping fields of science are making larger teams an unavoidable requirement; the so-called "[burden of knowledge](#)" that is seen as [inevitably leading to larger teams](#).

What is also particularly interesting is the finding that small teams and solo researchers rely upon ["older, less popular ideas"](#) whereas larger teams "... more often target recent, high-impact work as their primary source of inspiration, and this tendency increases monotonically with team size". Larger teams also receive citations to their work faster, as a larger audience appears more primed to follow what they are achieving. Both of these observations resonate with the idea that real novelty benefits from ["slower thinking"](#) in the sense of the term coined by Nobel laureate Daniel Kahneman.

So, is that it? Add more researchers and you get less novelty; reverse the equation and disruption is yours? Is a team merely a container for idea formulation and refinement: "Give me a big team, and we'll be able to take that idea and make it better, while if you want a new idea, best to employ a smaller group"? In fact, according to [Evans' and his coauthors' review of the existing literature](#), team size does appear to have a real effect on how members do behave, with members of large teams generating fewer ideas, and being more likely to reject external perspectives while also tending to neutralize each other's viewpoints more frequently. But, what about the myriad of leadership choices that determine how some big or small teams behave and others don't? What about the choices of who are members of our team, big or small? And, who are not? Who gets to speak, and who remains invisible?

Teams are built on more than members, they are built on choices, and these choices about how a team functions are central to their performance. The late J. Richard Hackman, whose explanation of team performance relies on [five factors of team construction](#), has argued vigorously for [the role of leadership](#) in achieving high-performing teams, even though the actual position may be of little consequence. It's the steering implicit in the role that is so necessary, no matter by whom or how it is operationalized

Similarly, Amy Edmondson speaks of [extreme teaming](#), where “the enormous potential of diverse experts com[es] together to innovate to overcome a nearly impossible challenge.” She prefers the verb “teaming”, rather than the noun “team” to capture the actions that are vital to a team’s emergence as an engine for generating and moving new ideas. It’s much more than just numbers of members, it’s the willingness to appreciate the subtle dimensions of how we’ll work together; it is what my IMD colleague [Jennifer Jordan](#) refers to [when she observes](#) that “innovation is not only about having good ideas, it is also about cultivating the best conditions in which our top teams can perform.”

Teams are essential engines of change that make them critically important organizational and societal assets. How well they function is a measure of how well we utilize our talent resources. Team size matters, but leadership choices are critical.

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