

Rockets are not good metaphors for research success

How we describe research groups can shape how we lead them. It's time we abandon images that normalise exploitation, says Anders Bach-Mortensen

Published on April 8, 2026

Last updated April 8, 2026

[Anders Bach-Mortensen \(/author/anders-bach-mortensen/\)](/author/anders-bach-mortensen/)

Twitter: [@AMBachMortensen \(https://twitter.com/AMBachMortensen\)](https://twitter.com/AMBachMortensen)

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All the excitement about the Artemis mission and the human endeavour that it embodies reminded me of a research leadership course I recently took in which rockets were depicted as a good metaphor for success.

I was required to attend the course in preparation for my new role as principal investigator. Over several workshops, my fellow awardees and I were presented with what we were told was state-of-the-art thinking on research leadership. Interestingly, this was taught not by experienced academics, but by management consultants from outside the sector.

Of all the models we encountered, the “rocket model” stood out.

We were asked to think of our research group as a rocket ship. The PI sits in the front, steering towards the stars. Below, in the engine room, postdocs and PhD students provide the thrust. This model was presented as appropriate for “highly ambitious groups with a clear destination”. What went undiscussed was the uncomfortable truth embedded in the metaphor: in a rocket, only the front module ever reaches the destination. Everything else is jettisoned after its fuel has run out.

In many ways, this metaphor is honest about how academia can be. The achievements of collaborative work are often attributed to single, often senior, scholars. But this represents our profession at its worst. It suggests that ambitious research leaders are those who design groups centred on propelling themselves into the scientific firmament.



Source: Joe Raedle/Staff/Getty Images

Instead, I prefer to think of academic leadership in terms of a more down-to-earth metaphor that centres around trees. In this metaphor, I distinguish between two types of research leader: those who grow as single, enormous trees, and those who cultivate growth around them.

Some trees grow very tall by virtue of monopolising the resources around them, making it impossible for anything else to flourish due to the lack of light, water or space. These towering oaks are successful in winning grants, prolific in publishing and magnetic in attracting talented staff. From a distance, they look like the perfect academics. But when you get up close, you see that beneath them, everything is stunted and bare. Postdocs remain postdocs. PhD students drift away from research entirely. Yet the tree just keeps growing taller because our systems of recognition do not sufficiently assess contributions to the wider research environment.

But then there is the other kind of research leader: the person who nurtures, rather than suffocates, sometimes even slowing their own growth. These are the people who give away ideas generously, dropping intellectual seeds wherever they go. They advocate loudly for their junior colleagues, helping PhD students to secure first-author papers and postdocs to secure independent positions. They share grant income and research credit in ways that truly reflect collaborative work.

When looking at conventional metrics, such academics may look like underperformers. Their h-indices may be lower. Their grant income may seem modest. But in reality, they are achieving something far more valuable: they are growing forests. And a forest will always amount to more than any individual tree, regardless of how tall it is.

The forest analogy is about building research fields that outlast single careers. It is about creating intellectual communities that can tackle the problems that matter. It is about developing the next generation of researchers – who will, in turn, grow forests of their own. This kind of shared, lasting impact is what we should cultivate and reward in academia.

I am not arguing that ambition is wrong, or that success is suspicious. But we need to be honest about how success is shared in academia, because too often it isn't. The rocket model tells us that junior researchers are means to an end, that their role is to fuel the principal investigator towards glory and then disappear. It normalises exploitation.

The forest metaphor offers something different. It suggests that leadership is not just about individually reaching for the stars but about creating conditions for growth. It confronts us with a question that all research leaders should ask themselves frequently: how am I benefiting those around me?

It is tempting for new PIs like me to dismiss this question by focusing on imitating the exploitative practices of others. I still have limited lived experience of the dilemmas of running a group. When I'm attributed credit for shared work simply because I'm the named grant holder, will I simply

accept that without pushback? Chances are that no one will hold me to account if I do. And in the absence of a system that holds us accountable for the growth we create (or suppress), it is easy to tell ourselves that the group's survival depends on lifting our own names into the light.

Better metaphors alone do not change the system, but they offer a start – not to flatter our egos by calling ourselves forest-growers instead of rockets, but by helping us notice when we are casting shadows we cannot see.

Anders Bach-Mortensen (<https://forskning.ruc.dk/en/persons/ambm/>) **is an associate professor in social care and policy at Roskilde University** (<https://www.timeshighereducation.com/world-university-rankings/roskilde-university>) **and a senior research fellow at the University of Oxford** (<https://www.timeshighereducation.com/world-university-rankings/university-oxford>).

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#1 Submitted by d.j.... on April 8, 2026 - 7:37am

As interesting as this discussion might be, it skips an important question- where does the obsession with research groups in universities come from? The idea that you have research groups has acquired a cult-like status. In some disciplines research requires a team of people. In other one person with time to think is sufficient. Yet today before an academic post is advertised or appointment confirmed, the first discussion is "in which group does this post sit?" The expectation on academic development is that you will grow and lead a group, regardless of whether you need it for the work you are undertaking. As a result academics get drawn into questions of how you "manage" the group and then the hamster wheel of how you secure funding to sustain the group, to say nothing of the overhead that come with groups of communication, coordination. One of the early lessons in software development was that throwing more people at a project does not improve the outcome. This was concisely captured by Fred Brooks in his book "The Mythical Man Month" and applies far beyond the confines of CS. Get rid of the obsession with groups and the other problems highlighted in the article are reduced or become moot.

reply (/comment/reply/742253/77375)

#2 Submitted by shelli.... on April 8, 2026 - 8:21am

What I admired most about this article, was the way you were willing to disaggregate the metaphor, instead of taking it at face value. For example, you pulled apart what the rocket image actually assumes about power, labour, and success. So, for me, this kind of thinking feels rigorous and

generous; and the cultivated reframe seemed to grow naturally through careful unpacking. This left me seeing leadership as something lived and, crucially, not launched (how inspirational).

reply (/comment/reply/742253/77377)

#3 Submitted by ... on April 8, 2026 - 8:32am

Well yes exactly. This all started with the development of RSE/RAE/REF I think and which became a sine qua non for the discursive elements of REF. I don't think it was actually directed centrally at the time by HEFCE but became something individual Universities started to encourage and then impose on all disciplines across the board irrespective of whether these were useful descriptors, or sensible ways to structure and adminstrate research in a particular discipline. But yes, each group needed its own research leadership, research seminar, its research grant applications, its postgraduate students, its conferences etc etc

edit (/comment/77378/edit) reply (/comment/reply/742253/77378)

#4 Submitted by graff.... on April 11, 2026 - 2:27pm

How often are references to "rockets" actually used in relevant contexts? Very rarely. Why is there no awareness of rhetoric and jargon here? Can you explain?

reply (/comment/reply/742253/77415)


#5 Submitted by ... on April 12, 2026 - 4:42pm

Yes, it's not rocket science is it?

edit (/comment/77430/edit) reply (/comment/reply/742253/77430)

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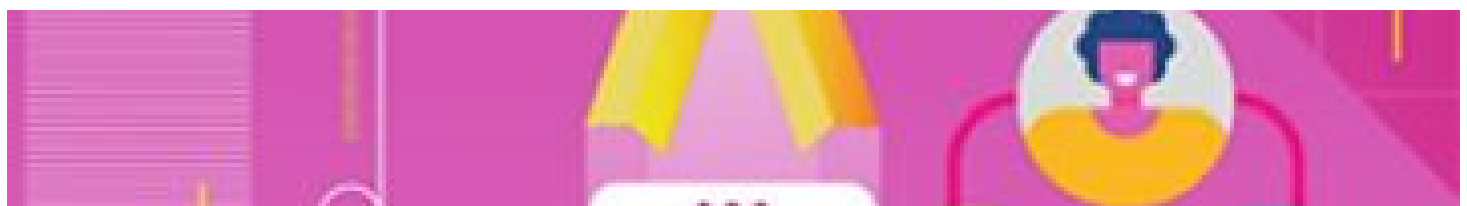


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