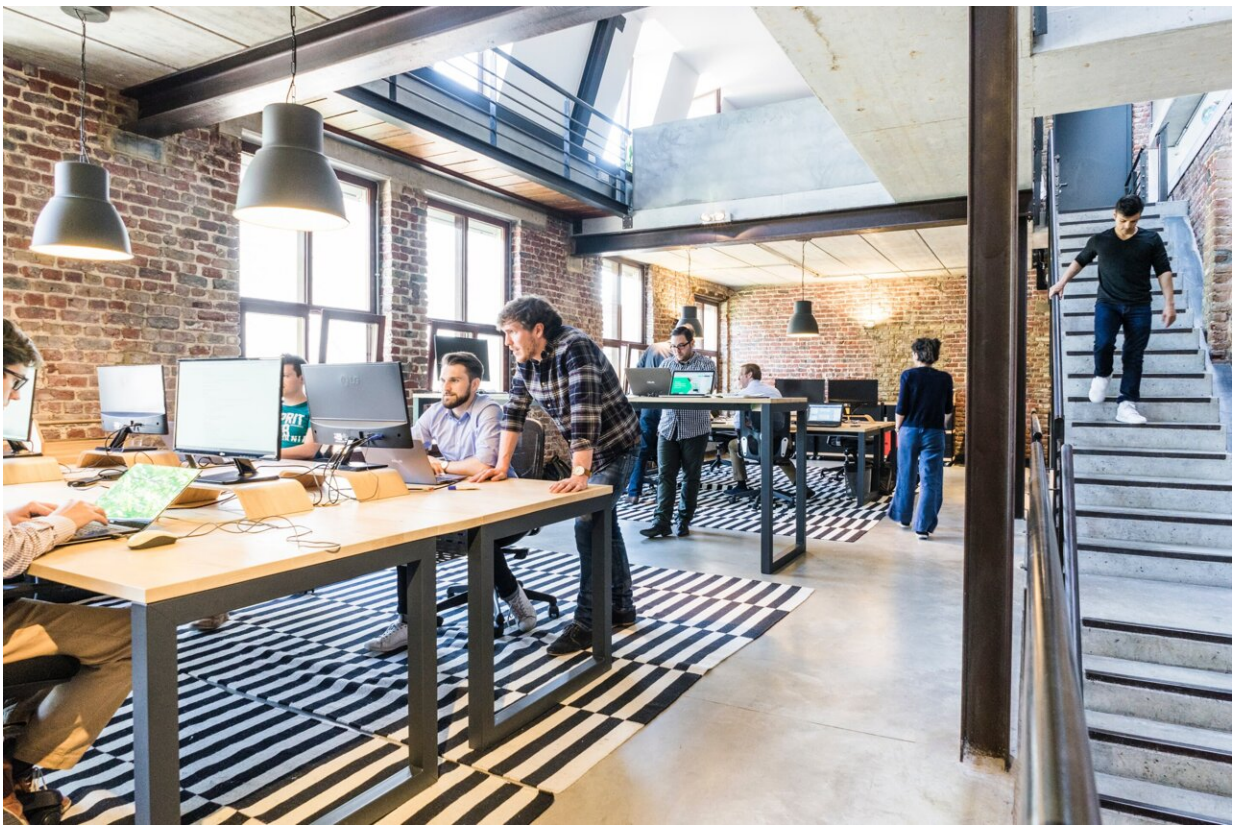


Startups spark more innovations in emerging industries than established companies do, according to new study

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Startups are best known as innovation labs, disruptors that bring new products, services and technologies to market. But their reach goes

beyond the products or services they create, according to new research from Texas McCombs.

The work is [published](#) in the *Strategic Management Journal*.

These fledgling companies inspire others in emerging industries, helping to accelerate the development of new technologies, finds Francisco Polidoro Jr., professor of management. They spur more future inventions than established companies do.

"Consumers benefit from the work of startups well beyond what is immediately apparent to them," Polidoro says. "These startups generate a lot of knowledge spillovers. Other entities can build on their ideas to create subsequent inventions, some of which may eventually benefit consumers in product markets."

But that spillover effect can be a double-edged sword for [tech startups](#), he adds. Unless a startup has enough resources to build on its own inventions, it may be hard to profit from them. Established companies with deeper pockets may take the next steps.

"There is a silver lining to being an entrenched player when it comes to adapting to a new technology that supports the emergence of a new industry," says Polidoro.

Spotlight on solar cells

Polidoro and co-author Charlotte Jacobs of Louisiana State University looked at patents in one emerging industry: photovoltaic (PV) cells, which convert sunlight into electricity. The industry attracts a combination of startups and established companies from other industries, such as oil and gas.

The researchers analyzed 6,116 patents from the mid-1970s to 2016. They counted the number of citations these patents received in subsequent patents filed by other organizations: an indication that the initial patents led to more innovations.

The study found that although startups accounted for only 13% of patents, they had an outsized number of future citations.

- In any given year, a startup's patent had 8.5% more citations than patents of established companies.
- Over nine years, startups' patents received 21% more citations than those of established companies.

Polidoro suggests several potential reasons startups' inventions spur more [innovation](#) by other companies.

Resource disparities

Larger competitors may have more resources for building on a startup's innovations than the startup itself does. In the analysis, companies were more likely to cite a startup's patents when the startup had a poor record in building on its own innovations.

Academic citations

In emerging industries, university research helps identify which inventions are most promising. When a university cites a startup's patents, it draws more attention to the company—measured in more citations—than when a university cites [patents](#) from an established company.

Prior lawsuits

Established companies can benefit from a reputation for filing patent infringement lawsuits, as rivals are less likely to build on inventions of litigious companies. But startups do not enjoy the same deterrent effects.

"Startups have a hard time building a reputation for toughness," Polidoro says. "They may lack sufficient resources to sustain a litigious strategy."

Although rivals may profit from a startup's innovations, it can still come out on top, he says. By sparking a flurry of innovation, it might attract attention to itself and bolster its industry position. Even though he looked at PV cells, Polidoro believes his findings have implications for other rapidly evolving technology industries, such as artificial intelligence.

He says, "This dynamic interplay between startups and established companies is vital for the development of emerging industries fueled by new technologies."

More information: Francisco Polidoro et al, Knowledge diffusion in nascent industries: Asymmetries between startups and established firms in spurring inventions by other firms, *Strategic Management Journal* (2024). [DOI: 10.1002/smj.3568](https://doi.org/10.1002/smj.3568)

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