

Patents were meant to reward inventions. It's time to talk about how they might not

August 21 2023, by Rebecca Giblin, Anders Furze and Kimberlee Weatherall



Credit: AI-generated image ([disclaimer](#))

For hundreds of years, we've been told patents help deliver big new inventions, such as life-saving drugs.

They are meant to be a bargain between the inventor and the public: tell

us how your invention works, and we'll give you a fixed time—a patent protection period—in which you're the only person who can make use of it.

Such exclusive rights make it easier for inventors to profit from their investments in research and development, and in theory encourage innovation we wouldn't get otherwise, which benefits us all.

We've long had to accept this bargain on faith. But those core assumptions about [patents](#) are increasingly being subject to empirical testing, and—as we detail in a [new podcast](#) starting this week—often coming up short.

Many claimed inventions likely don't work

Consider the most basic assumption—that the public will benefit from patented technologies—both as products and services and as [building blocks](#) for more innovation. That's meant to be achieved by inventors coming up with inventions that work, then telling the [patent office](#) how they work.

But research by [Janet Freilich](#) from Fordham University in the United States suggests there is a "replicability crisis" in patent claims that rivals those in other fields.

Freilich graded the experiments said to back up 500 [life sciences](#) patents against the requirements of the journal *Nature*—and found as many as [90%](#) didn't stack up and probably couldn't be reproduced.

She says, "patent law relies on the assumption that, when a patent is filed, it has been "reduced to practice"—meaning that the invention works. The reality is that most inventions likely do not work, casting serious doubt on this assumption."

One of the reasons is the way the patent system works.

Under the "first-to-file" system, when two inventors are developing similar technologies, the inventor who gets to the patent office first gets the patent. Freilich argues this means that any experiments they do conduct will inevitably be quick and preliminary.

Worse still, only 45% of the patents she examined were backed up by any sort of experiment. The remaining 55% were supported only by speculative and hypothetical evidence. This is allowed under [patent law](#) at least in some countries, but it does raise questions about what exactly the public gets out of the system.

Research sometimes accelerates when patents expire

We're also told we grant patents to "incentivize" (encourage and reward) the kind of work needed to get expensive products, like new drugs, to market.

But again, this theory doesn't always match the practice.

Research led by [John Liddicoat](#) of King's College London finds that in the development of many drugs, the most expensive trials (Phase II and Phase III) actually accelerate once patent protection expires, when universities and hospitals feel free to step in.

This raises a number of serious questions:

- why aren't patents providing an incentive for patent holders to do these trials?
- should we shorten the length of patents to bring forward trials?
- are commercial organizations best suited for trials?

An AI-driven flood of low-quality patents

Artificial intelligence is set to make it easier to [find, and perhaps automatically enforce patents](#), which could frighten away more genuine innovators.

Generative AI could also lead to more patents: in the words of the government agency [IP Australia](#), it is likely to reduce "the barrier to creating novelty." This could potentially overwhelm patent offices with even lower quality patents.

It is also likely to mean patent examiners can no longer rely on the default assumption that the claimed [invention](#) is solely the result of human exertion, raising the possibility of needing to rethink the patent bargain.

Invention matters more than ever

More and more, new research and new developments are telling us we can no longer take the claims made for the patent system on faith.

Urgent challenges—including [climate change](#), [infectious diseases](#), political polarization and [artificial intelligence](#)—all require cutting-edge science that can be put to work quickly and at scale to solve real-world problems.

That makes this an ideal time to talk about whether our patent system is best equipped for that task, exploring a range of options for finding and applying the innovations we need—and bringing in voices and perspectives that are too often marginalized in intellectual property debates.

These ideas are discussed in the first episode of IP Provocations, a new podcast asking challenging and sometimes controversial questions around IP and data. [You can listen here](#), or via your favorite podcast platform.

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