Inventors Are Everywhere

Invention has long been a democratic process. The economist B. Zorina Khan of Bowdoin College has noted that the U.S. Patent and Trademark Office has always endeavored to allow essentially anyone to try their hand at invention. From the beginning, the patent examiners didn't care who the applicants were—anyone with a novel and useful idea who could pay the filing fee was officially an inventor.

This ethos continues today. It's still possible for an individual to launch a tech startup from a garage or go on "Shark Tank" to score investors. The Swedish inventor Simone Giertz, for example, made a name for herself with YouTube videos showing off her hilariously bizarre contraptions, like an alarm clock with an arm that slapped her awake. The MIT innovation scholar Eric von Hippel has spotlighted today's vital ecosystem of "user innovation," in which inventors such as Giertz are motivated by their own needs and desires rather than ambitions of mass manufacturing.

But that route to invention gets you only so far, and the limits of what an individual can achieve have become starker over time. To tackle some of the biggest problems facing humanity today, inventors need a deep-pocketed government sponsor or corporate largess to muster the equipment and collective human brainpower required.

When we think about the challenges of scaling up, it's helpful to remember Alexander Graham Bell and his collaborator Thomas Watson. "They invent this cool thing that allows them to talk between two rooms—so it's a neat invention, but it's basically a gadget," says Eric Hintz, a historian of invention at the Smithsonian Institution. "To go from that to a transcontinental long-distance telephone system, they needed a lot more innovation on top of the original invention." To scale their invention, Hintz says, Bell and his colleagues built the infrastructure that eventually evolved into Bell Labs, which became the standard-bearer for corporate R&D.