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MIT Harnesses AI to Accelerate Startup Ambitions

Budding entrepreneurs can develop a fleshed-out business plan drawing on market research in a few days.

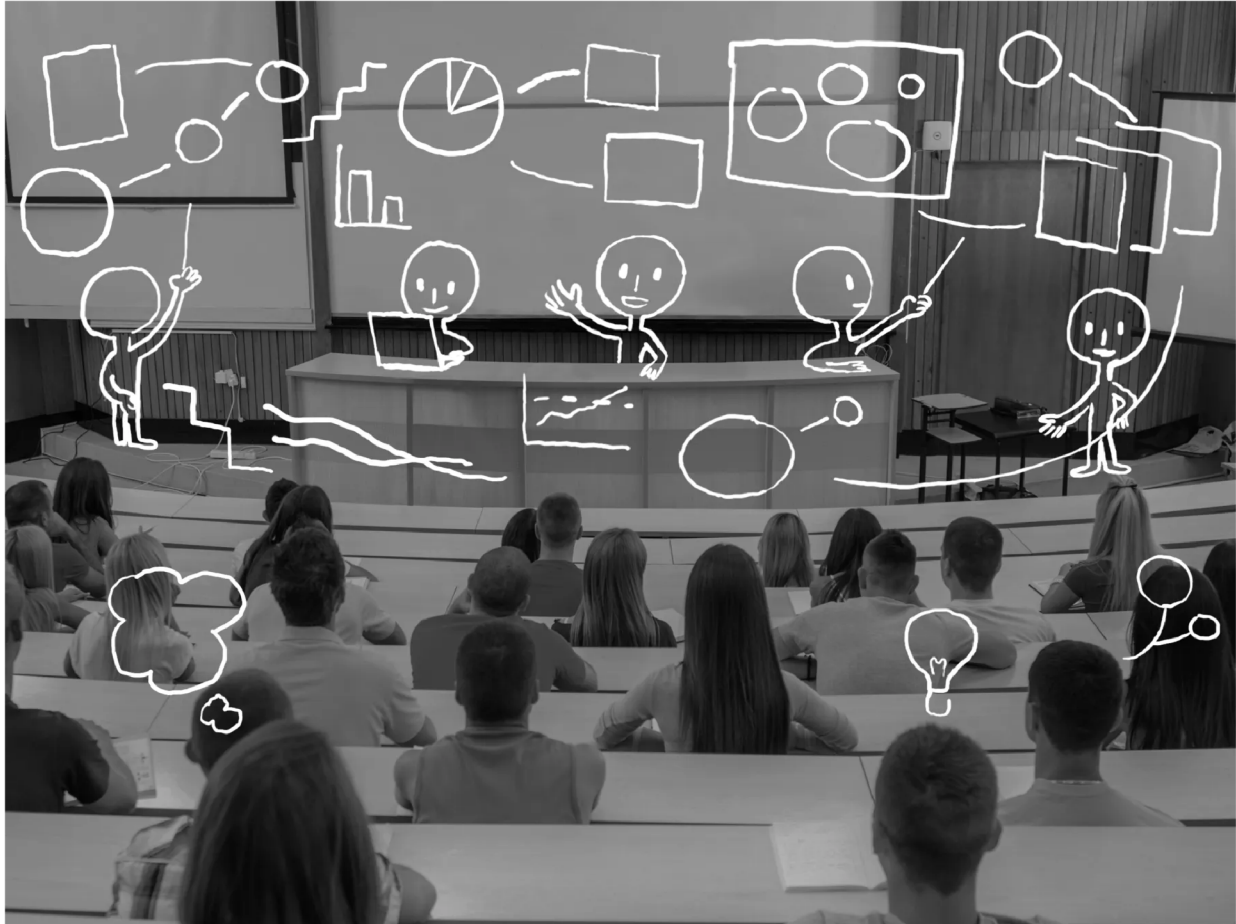


Photo Illustration: Oscar Bolton Green; photo: Getty Images

By [Robb Mandelbaum](#)

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Although he'd already started four ventures, Remington Hotchkis figured the Massachusetts Institute of Technology could teach him something new about launching a company. "I knew that they were teaching a disciplined approach to entrepreneurship, and I lack discipline in many regards," he says. But he didn't know it would give him a tool that, in just six days, could turn an idea that had come to him out of the blue into a fully fleshed-out business he hopes will help to defend Southern California against wildfires.

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At a January boot camp, the [Martin Trust Center for MIT Entrepreneurship](#) introduced students, including Hotchkis, to software that effectively automates starting a business by using artificial intelligence to do market research and analysis. “Somebody can sit down for an afternoon and get a very thoughtful output,” says [Paul Cheek](#), the Trust Center’s executive director and a senior lecturer at [MIT’s Sloan School of Management](#). After six days in the center’s Entrepreneurship Development program, where participants attend about eight hours of lectures each day, followed by several hours working with teammates and the JetPacks, as MIT calls the software, “people come out with a compelling business plan,” Cheek says.

“Having this tool 10 years ago,” says Hotchkis, “would have saved me my first year in entrepreneurship and hundreds of thousands of dollars in market research.”

In an era where artificial intelligence has [thoroughly transformed the startup landscape](#), MIT is using the technology as the foundation for new training programs for entrepreneurs. The school, of course, is known for nurturing startups. [A 2015 report](#) found that alumni across the university had started 30,000 then-active companies, generating about \$1.9 trillion in yearly sales. The [JetPacks](#) are part of an effort to support and connect the many entrepreneurs across the MIT campus in Cambridge—and around the world—through the Trust Center’s [Orbit website](#). “Our mission at the Trust Center is to advance the field of innovation-driven entrepreneurship everywhere,” Cheek says. “We can’t do it with intuition or by throwing stuff against the wall. We have to practice entrepreneurship in a rigorous, systematic way that increases the odds of success.”

Paul Cheek lecturing at the Martin Trust Center for MIT Entrepreneurship. *Source: MIT Sloan School of Management*

To that end, the software compliments a pedagogy known in Kendall Square as “disciplined entrepreneurship,” developed by Sloan professor Bill Aulet, the center’s managing director. Disciplined entrepreneurship takes a founder through 24 steps to scale up a business. Nineteen of the 24 steps focus on the customers—who they are, how the entrepreneur can help them, how they would buy the startup’s product, and how to sell to them. “We prioritize market testing in advance of product development,” Cheek says. “With the two most precious resources that investors have, time and money, it doesn’t make sense to build a product until we know who we’re serving and whether they’re going to buy it from us.”

When a founder straps in to the Disciplined Entrepreneurship JetPack by typing a business idea into the prompt, the AI scrapes the web to compose five potential markets for the product—and further subdivide each one if you choose—then analyzes them to propose a priority “beachhead” market to concentrate on. It combs through additional data to suggest market sizes, conversion rates, pricing and more, until the founder comes out with a “minimum viable business product” and a plan to develop it. A second

JetPack automates a sequence of 15 “startup tactics” formulated by Cheek that guide founders through executing the plan.

The JetPacks funnel these queries through a platform developed by Stack AI, an MIT startup. “Stack AI keeps each user, and each idea from each user, separate from every other user and data,” says Doug Williams, who oversaw the software’s development for the Trust Center. And it prevents the AI from training on those queries. Currently the JetPacks use OpenAI, but, says Williams, “we’re continually evaluating the other models.”

At the January accelerator, Hotchkis used both JetPacks. A California native with friends and family who were displaced by the fires that had just swept through Los Angeles—his previous home was also destroyed by fire—Hotchkis found the germ for his idea in the embers carried in the wind that cause so much damage. “I had a vision—I have a vision—for creating an effective shield to protect the urban area from the fire spreading through wind driven ember events.” The vision crystallized about 90 minutes before he had to present it at the boot camp, along with the name: Ember Shield Technologies.


The JetPacks, Hotchkis says, helped his team quickly rethink its target market, which they initially thought would be property insurers. But the software pointed Hotchkis and his colleagues toward homeowners, “because the homeowner had the ability to make the investment” in fire prevention tools, he says, “faster than the insurance company had the ability to offer the discount.” Moreover, the software suggested that California homeowners didn’t have much faith in insurers. “Having that source of truth come out shocked all of us, but aligned all of us immediately on Day 1. We ended on Friday with a very cohesive culture in our team.”

The internet and AI being what they are, the data and conclusions the program generates can be wrong, contradictory or even absurd. Midway through the steps, the AI proposed pricing the service at \$200 for the first year and \$50 to renew. “I saw that and went, ‘that’s what I sold coffee to people for,’ so that’s wrong.” (Hotchkis’ previous company was a private-label coffee roaster for influencers building their own brands, which he sold in 2023.) So after a five-hour dive into market research—through Facebook, the team found homeowner associations in Los Angeles’ fire-prone areas that


were willing to distribute short surveys to thousands of people, and then it followed up with interviews—“we found people were willing to spend 1% to 3% of their home’s value on a total home solution.”

Williams says the answers the JetPacks supply aren’t as important as the questions they provoke. “These are the things you need to think about,” he says. But “you need to be steering it.” (Williams recommends taking the material developed by the JetPacks and feeding it to other chatbots. Perplexity AI “does a very good job with citations,” he says, and the latest version of ChatGPT can undertake more complex analyses, including projecting financials.)

The Orbit website and the JetPacks are currently available to the MIT community, including students, faculty, graduates, and one-off visitors such as Hotchkis. For everyone else, there’s a waitlist. Cheek says the school is giving priority to educators teaching entrepreneurship around the world. (Right now, Williams says, 200 schools teach disciplined entrepreneurship.)



Americas



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Kristen Fanarakis, who leads the small-business policy and innovation initiative at the Milken Institute, says the software will undoubtedly lead to more innovation. “Most aspiring entrepreneurs have more ideas than they can feasibly explore,” she wrote in an email. “A tool like this could help entrepreneurs more quickly assess which ideas are worth pursuing, and where they should direct their time and focus.”

For now the software is free, but Cheek says MIT plans to commercialize it to some degree, both to maintain the software and to improve it. (Williams says the school has invested \$1 million in Orbit and the software.) He and his colleagues have in fact fed the JetPacks into the JetPacks themselves. Besides developing specialized versions, including for businesses focused on climate

change and energy, Williams is working on tools to help founders prioritize their time and, as Cheek puts it, “present them with the thought-provoking questions that they need to consider but haven’t yet.” Still, says Cheek: “We’re a nonprofit. We’re not attempting to build a software company to scale this.”

Hotchkis, for his part, left Cambridge with a team and a well-defined market –but no product. Brainstorming for that “was what happened starting on Saturday after the course,” he says. Hotchkis intends to first sell an app to help homeowners assess their fire risk. Eventually, he aims to market fire-prevention technologies developed at MIT and Stanford University and elsewhere, some of which are already sold for aerospace and defense purposes. “It’s a shame that they haven’t been commercialized in the way our company envisions commercializing them,” Hotchkis says. But if he succeeds, that day is coming, and perhaps sooner than it otherwise would have.

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