

'Imagine how you would use teleportation': Drone delivery unicorn Zipline's CEO on plans for \$250 million funding

Zipline aims to cover a population of 40 million people by the end of 2021, up from 25 million

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[RYAN DUFFY](#)

[EMERGING TECH WRITER](#)



Zipline

This morning, SF-based Zipline announced a \$250 million financing round, bringing the drone delivery company's valuation to \$2.75 billion.

As far as commercial drone operators go, Zipline leads the pack in real-world deliveries and exited the pre-product phase years ago. Founded in 2014, Zipline built its first on-demand drone delivery network in Rwanda two years later.

Now, Zipline operates nine distribution centers globally that cover a population of 25 million. By the end of the year, Zipline CEO Keller Rinaudo told us, the company will be operating 17 distribution centers covering a population of 40 million.

- Each distribution center operates 24/7 and does hundreds of deliveries a day.
- Zipline's drones are autonomous. They can fly 300km on a single charge.
- The company says it has flown ten million autonomous miles cumulatively and has completed 150,000 commercial deliveries.
- In Africa, the company is active in Rwanda and Ghana, and in the process of expanding to Nigeria. In the States, it is flying in North Carolina and building a distribution center in Arkansas. Zipline also said it will provide drone logistic services to Toyota in Japan.

We sat down with Rinaudo to discuss Zipline's expansion plans, their airdropping Covid vaccines, and more. Find the full conversation below.

You've been at this for a while. Why did you start the company, and what did you know back then that others might not have?

We started building in 2014 because it seemed pretty obvious to us that somebody was going to build an instant logistics system for the planet. Given our backgrounds in robotics, automation, and software, it seemed like it was possible to build a logistics system that would move things around as quickly and efficiently as the internet moves around information. From a mission perspective, this was always super exciting because we felt it was an opportunity to serve all equally.

What have you learned since you started in Rwanda?

We originally served one hospital there for nine months. We learned a lot, including that we didn't know how to operate this kind of technology on a national scale yet. Over the next couple years, we expanded dramatically. Today, we serve 2,500 hospitals and health facilities across Rwanda, Ghana, and the United States. We deliver 75% of the national blood supply in Rwanda outside of Kigali using autonomous aircraft.

Your runway has extended by quite a bit with these fresh funds. How do you plan to deploy them?

Our Africa business is exploding. We've now been operating for five years at scale in Rwanda. It's not a secret, and neighboring countries are noticing. Earlier this year, we signed service contracts for five new distribution centers in Nigeria alone, plus four in Ghana.

What's really exciting is that our early distribution centers in Ghana are achieving or close to achieving sustainability. In other words, they're paying for all their own costs. For the people who think this is just for data-gathering for US operations or philanthropy, that's not correct. These systems will be able to operate in sustainable ways in African countries in the same way they'll be able to in the US. It's important to show that this is an investable business model.

There's also a huge amount going on here in the US this year. Zipline has signed multiple large contracts over the last six months. Not just the ones that we've announced, but others

that we'll be revealing over the next couple of months. We also recently made the Japan announcement.

We're definitely trying to capitalize the company to be ready to make investments on all these fronts over the next two years.

Back in February, we covered your announcement that you'd deliver Covid vaccines in Africa. At the time, given geopolitical realities on the ground, I remember being skeptical that you'd have enough supplies for facilities in Africa. Based on subsequent developments, it seems like you are moving the needle. Say a bit about what it was like getting set up to deliver the Covid vaccine.

When we came into the pandemic, things were going pretty great. We were delivering 250 different medical products. Then, traditional supply chains failed. People stopped coming into work since they had to quarantine. In the first few weeks, we saw demand for traditional vaccines spike in Ghana. We went from delivering a small amount of vaccines to 2.6 million doses over the last 9–12 months. We also began delivering Covid-19 test samples from rural areas to Kumasi and Accra.

Finally, when the [Covax Facility](#) became available, Ghana was ranked as the No. 1 supply chain in Africa ready to begin delivering those vaccines. They were the first country to receive the Covid-19 vaccines via the COVAX facility. Zipline then played an important part in delivering those vaccines to hospitals and health facilities throughout the country.

We plan to deliver over 2.4 million Covid vaccine doses, assuming they're available, by the end of the year. You also might have seen Pfizer just announced that they're making 500 million doses available internationally. They also [announced](#) that Zipline is a partner in doing that.

What's the tempo at the typical hospital you serve?

Hospitals will do 2–5 deliveries a day; primary care facilities will do 2–5 a week. Something like that. It's not like they're ordering something once a month. Some facilities are getting many, many deliveries a day. Imagine how you would use teleportation...that's how these systems use Zipline.

You mentioned you're targeting 40 million people within your service areas by end of year. How do you pick where to expand or launch next? Is it rural areas with lacking infrastructure, less established logistics, and more remote towns? A conducive regulatory environment? All of the above?

I think people sometimes overestimate the differences between health systems in the US and Africa. We tend to think: 'Oh, it's completely different. They don't have roads or doctors.' The reality is that in many cases, you actually have pretty high performing health systems in these other countries. And there are good roads to almost all the hospitals and health facilities that we serve.

There's more in common in underserved areas of the US and underserved areas elsewhere.

A lot of the technology and use cases we've been focused on in Africa apply in very similar ways as we launched in the US. We launched in North Carolina last year. We're building our second distribution center in Bentonville, Arkansas. We'll be expanding pretty dramatically over the US in the next two-to-three years.

The reality is that critical access hospitals are closing at a record rate in the US. If you live in certain rural areas of the US, your life expectancy has declined over the last ten years. You have the highest rate of maternal mortality of any developed country on Earth. There's a lot that we need to do better. Health systems in the US typically have had screwed up incentives. I think, as a result, that a lot of hospitals have been conservative and slow in adopting new technology.

The important thing is that the pandemic is changing a lot of that behavior. We're seeing so many healthcare systems transforming to value-based or outcome-based care.

I'm guilty of invoking the cliché that the pandemic pulled forward the future, with telehealth, mRNA vaccines, and the like.

Health systems thought they had a decade to do home delivery and remote care, but they had one year. Telepresence is this huge lever, but most of these health systems see Zipline as the other half of telepresence. You can immediately talk to a patient in a rural area to prevent them from driving hours to a hospital and check in. But you still need to get the person what they need, immediately to their doorstep in a matter of minutes.

While we're in the US, what are your thoughts on the regulatory environment?

People sometimes focus on milestones, like Remote ID or various types of aircraft certification, when in fact that's not what's required for the technology to serve people. For this to operate at scale, you need certifications, you have to fly beyond visual line of sight without a pilot watching every single aircraft. If you're not doing that, then your operations won't scale economically. Zipline is the only one in the world that does all of this at scale.

I think the vast majority of companies out there are trying to get the FAA to approve something sort of sight-unseen. That's going to be really hard. The FAA is asking questions like: "How do we know it's safe? How do we know it flies in all weather? How exactly does it integrate with customers? What problems will we discover in the first year of operation?"

It's really helpful when Zipline can say: "Well, here's hundreds of thousands of hours of safe flight data, with the technology operating at a multinational scale." In a way that's directly saved a huge number of lives, where there's been zero human safety incidents. To safely manage airspace, the FAA is going to need precedents and data. Zipline is the only one that has those two things.

Show, don't tell.

Zipline has been working with the FAA for two years now. Suffice it to say, we've made really exciting progress. We're operating in North Carolina; we're about to be operating in Bentonville, Arkansas. We'll have some big announcements of FAA milestones over the next couple of months.

Zipline is fairly vertically integrated. How has that helped you?

The main reason why Zipline has the safety record that it does is because we design every part of the vehicle from scratch: the flight computer, the avionics, the aircraft, the recovery system, communications architecture. We design the aircraft to be redundant in a similar way to how a 787 is redundant.

We experience hardware and software failures in real operations. The vehicle can take that into account, handle the exception, and either complete the delivery or turn around and go home. We also have a paraland system that can basically bring the vehicle gently down to the ground, if it's definitely not going to make it back safely to the distribution center. We have used this in the past.

Where's your manufacturing done? Near you in California?

Hold that thought.

<Leaves conference room, carries laptop downstairs and Zoom call momentarily cuts out. When the connection is restored, we have teleported into Zipline's manufacturing line. It looks something like this:>



Zipline

You can see fuselages and aircraft. The ones with "INT" on them are international, and they're heading out to Nigeria, Ghana, and possibly Japan. These US ones are heading for Bentonville or Charlotte.

[Ed. note: we'll spare you from the rest of the tour since you weren't on the call]

Any final thoughts?

This mission that we're focused on is a hell of a lot harder than what most technology companies are working on. At this point, 25 million people depend on us with their lives and the lives of their kids. That will be 40 million by the end of the year. That's a huge responsibility and everyone here takes it very seriously.

Finally, especially looking at Africa, all the infrastructure will be built on this continent over the next decade. Right now, China is doing all of that with One Belt One Road (*Editor's note: also known as the Belt and Road Initiative*). There's massive influence campaigns through all of the fastest growing economies on Earth, using Chinese developers, technology, and loans from Chinese banks. The US is kind of nowhere to be seen.

I think there's really a role for the US to play in these countries. Zipline takes this really seriously, helping the US and Africa form closer bonds.