

zipline

Capabilities
Statement



Ensuring on-demand access to critical commodities

Zipline is a mission-driven company founded to create the first logistics system that serves all humans equally. Zipline launched operations in 2016 through an innovative and first-of-its-kind partnership with the Rwandan government. What started as a service delivering emergency blood products to 20 hospitals has exponentially grown into one with multi-national reach and impact.

Today, Zipline makes a delivery every 2.5 minutes, providing blood, vaccines, and vital medicines to over 3,300 health facilities across Rwanda, Ghana, and Kaduna State, Nigeria, with additional operations launching in partnership with governments across Nigeria, Kenya, and Côte d'Ivoire in 2023. By Q1 2023, Zipline will serve more than 45 million people globally.



Following its initial focus on health, Zipline's infrastructure has become a transformative platform that serves multiple government agencies and economic sectors in each country of operations. Zipline's flight routes serve as "highways in the sky", reliably delivering critical commodities to the last mile across sectors including health, animal health, ecommerce, and humanitarian aid.



475K+
Commercial deliveries



8.6M+
Vaccine doses delivered



3,300+
Health facilities served

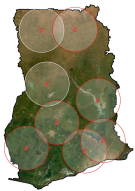


25M+
People reached

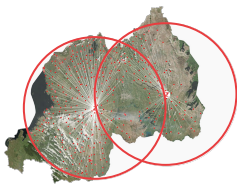
Operational Footprint

Zipline operates the world's largest autonomous delivery network, with 12 active distribution centers and 14 more under contract.

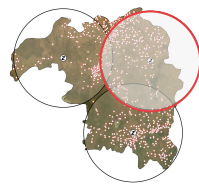
Current Service



Ghana



Rwanda



Kaduna, Nigeria



USA - North Carolina

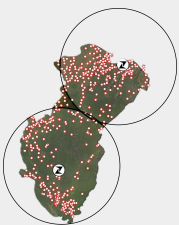


USA - Arkansas

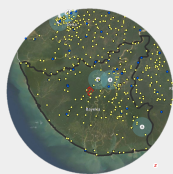


Japan

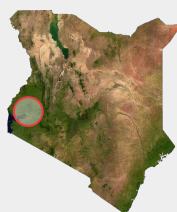
Launching Q1 '23



Cross River, Nigeria



Baylesa, Nigeria



Kenya- Kisumu



USA - Utah



Côte d'Ivoire

How It Works: Zipline's Solution

Zipline is the only company operating at national scale using an on-demand aerial delivery system to distribute commodities. Working in direct partnership with governments, our operations are embedded into national supply chains and offer an end-to-end supply chain and logistics solution.

What a typical order looks like

ORDER PLACED



A healthcare provider places an order via, text, mobile or web app.

8:00 AM

FULFILLMENT



Zipline receives the order, picks and packs the shipment.

8:05 AM

LAUNCH



Zipline immediately ships the order which customers can track live.

8:10 AM

DELIVERY



Zipline's autonomous aircraft delivers shipment to target facility or drop location.

8:25 AM

RETURN



The drone heads back to the hub to be recovered, recharged, and reloaded.

8:40 AM

End-to-End Logistics System

WAREHOUSING AND INVENTORY MANAGEMENT

Zipline builds and operates strategically located networks of pharmaceutical and medical-grade warehouses, equipped with ULT cold chain storage. Each central warehouse serves an unlimited number of points of care within a **23,000 km² radius**. This centralized hub-and-spoke model enables supply chain optimization – reducing stockouts, overstocking, expiries, and wastage. Zipline has an expiry rate of under 0.2% across our warehouses.

DATA AND PERFORMANCE MANAGEMENT

The data underlying our warehousing, inventory management, and logistics systems drives supply chain performance and improvement. Zipline's digitized system provides data insights and reports to improve planning and forecasting and ensures **100% accurate track-and-trace** of commodities to the end recipient.

DISTRIBUTION AND LOGISTICS MANAGEMENT

Zipline delivers shipments via the fastest, most reliable autonomous commercial aircraft in the world. This system extend last mile access to hard-to-reach populations. Each aircraft can hold up to **3 kgs** (which equates to 4 units of blood or over 100 vaccine vials) and fly a roundtrip distance of up to **200 km**. Deliveries reach healthcare facilities or community distribution points and their patients within **15-45 minutes**.

GOVERNMENT AND PARTNER INTEGRATION

Zipline works in partnership with local governments, small and medium businesses, and development partners to integrate our solution across each level of a supply chain and logistics system. Within our government healthcare work, we integrate into every level of the health system from communities to health facilities to regional and national-level coordination mechanisms and governing bodies. For example, Zipline routinely gathers feedback from health facilities, which is analyzed and used to tailor Zipline's service to client needs.

Local Workforce Development & Gender Equity

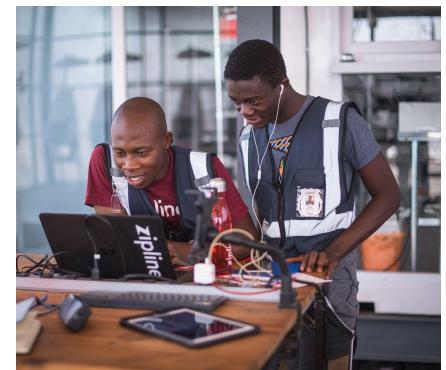
Zipline's operations in Africa are 100% locally-led with staff operating cutting-edge technologies to drive healthcare systems innovation.

Zipline's in-house training and certification offers pharmacists, engineers, and specialized technicians rigorous training on flight operations, incident response, fulfillment, and regulatory compliance, ensuring not only seamless operations, but developing and training a high-skilled workforce to introduce and scale new innovations across the continent. Zipline also contributes to rural economic development through the multiplier effects from spending on construction and facilities management in addition to [community education](#).

400
Employees
across Africa

100%
Locally-led
and operated

40%
Women



Zipline's solution has demonstrated success in increasing access to essential health commodities across a broad range of health conditions. Applications for Zipline's solution are rapidly expanding and currently range from reaching underimmunized children with routine vaccines to decentralizing drug distribution and ensuring that clients are able to access essential health commodities as close to their homes as possible.

– Vaccine Delivery

Increasing health equity through on-demand delivery of immunizations to all communities



Zipline's vaccine distribution model works by centralizing cold chain storage at Zipline hubs. Zipline then uses its aerial logistics system to distribute doses to hundreds of health facilities every day, in only the quantities required for that day's patients. Zipline turns every point of care into a reliable vaccine dosing site, regardless of cold storage capability.

In addition to driving greater health equity, this model is also cost effective, at \$0.29 per vaccine dose delivered compared to \$0.45 in the baseline¹ in Ghana.

In 2020, Zipline entered into a high-impact partnership with Pfizer to independently [test and validate](#) end-to-end cold-chain capabilities. In Ghana, Zipline is the sole distributor of vaccines to over 540 health facilities and serves as the regional cold store for the Western North region. In late 2021, Zipline began delivering malaria vaccines to 164 health facilities in Ghana, with plans to scale this support across Zipline geographies as the vaccine introduction pilot expands.

Impact spotlight | improving vaccine access, equity and coverage

60% shorter vaccine stockouts

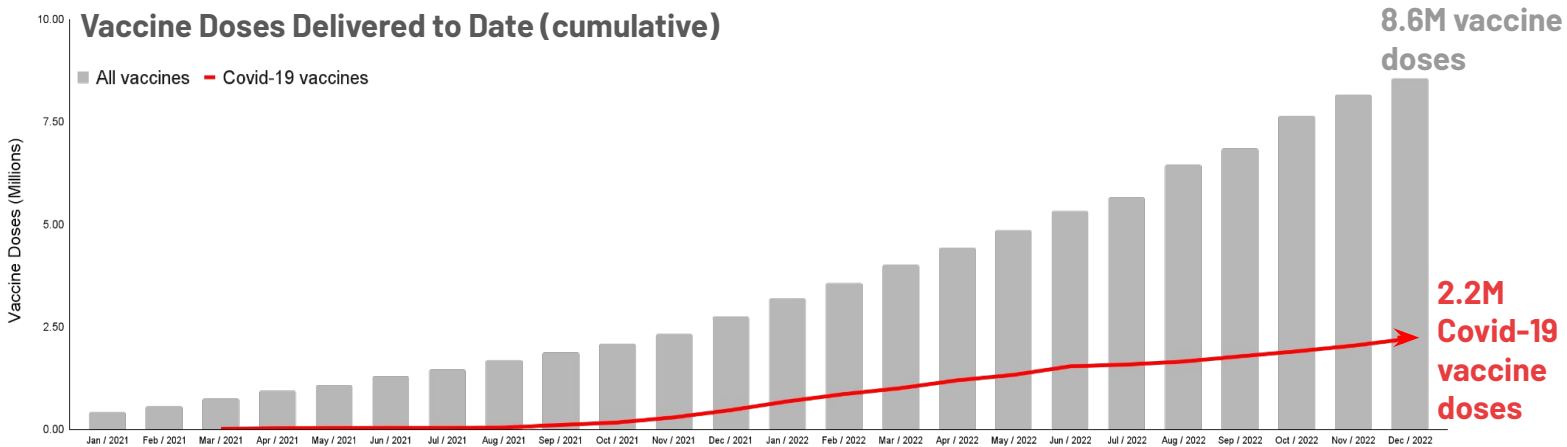
A [study](#) conducted by IDinsight and funded by the Bill & Melinda Gates Foundation quantified Zipline's statistically significant impact on health access, commodity availability, and supply chain performance in Ghana. In addition to reducing stockout duration, the study also found that a patient at a Zipline-served facility is **42% less likely to miss a vaccination opportunity** due to a stockout than a patient at a non-Zipline facility.

21 percentage point avg. increase in vaccine coverage

A study conducted by Zipline and the Ghana Health Services found that Zipline increases vaccine coverage across all routine childhood immunizations, by up to **37.5 percentage points (pp) for the Pentavalent (DPT) vaccine**, and by an average of 21pp across all vaccines.

9X Covid-19 vaccines distributed to districts with less access to safe water

Analysis of facility ordering data and the Ghana census showed that Zipline delivers Covid-19 vaccines primarily to the hardest-to-reach and most vulnerable. More **rural districts received 30% more doses** from Zipline less remote districts, while those with the poorest access to safe water received 9 times as many doses as districts with better access.



1. Immunizationeconomics.org

Decentralized Care

Increasing health access through differentiated service delivery

Zipline is supporting efforts to decentralize care, decongest health facilities, and bring commodities closer to the communities we serve. Zipline's solution can be expanded and scaled to decentralize and integrate delivery of health commodities, removing access barriers and providing person-centered care for HIV, TB, malaria, sexual and reproductive health, and non-communicable diseases (NCDs), among others.

In Western Kenya, in collaboration with county governments and AMPATH, Zipline is supporting decentralized drug distribution for HIV, providing on-demand delivery of HIVST, PrEP, family planning commodities, and ARVs to over 30,000 adolescents and young adults. Zipline's on-demand deliveries coupled with telemedicine can facilitate advanced care at lower-level health facilities, saving patients the time and expense of traveling to central hospitals for care. For example, in Rwanda, [Zipline partnered with Partners in Health](#) to bring cancer treatment to lower-level health facilities, greatly reducing required travel time and unnecessary exposure to COVID-19 for patients. In 2022, Zipline has also begun testing home deliveries in Ghana and Rwanda, providing home delivery of drugs for NCDs, such as heart disease and diabetes.

Decentralized Drug Delivery Model



Emergency Delivery

Reliable, just-in-time deliveries for emergent situations

Zipline's solution has transformed the blood supply system in Rwanda through centralized storage and on-demand distribution. Today, 75% of blood distributed outside of Kigali is delivered on-demand through Zipline's centralized system. This has decreased costs by 10% and increased order fill rate from 70 to 95%, providing lifesaving blood to treat severe malarial anemia, postpartum hemorrhage, and other emergencies. Zipline also delivers other life-saving commodities such as anti-venom, anti-rabies, and oxytocin.

Impact spotlight | improving blood access and maternal outcomes

67% reduction in blood wastage

The Lancet published a [study](#) commissioned by the Rwanda Biomedical Centre on Zipline's blood deliveries in Rwanda. It revealed that Zipline substantially reduces blood wastage while delivering **blood an average of 79 min faster than existing road delivery methods.**

88% reduction in in-hospital mortality due to postpartum hemorrhage

A second [study](#) conducted by researchers at the Wharton School and the Rwanda Ministry of Health found that faster on-demand delivery reduces maternal mortality rates, while also improving inventory management. Zipline **decreases facilities' on-hand inventory by 62% and the number of blood units destroyed or damaged by 42%**



— Routine Delivery

Reliable access to health commodities at every point of care

Today, over 84% of Zipline's deliveries are routine resupply deliveries. Zipline delivers more than 260 unique health products to the health facilities we serve, including essential commodities for HIV, TB, family planning, malaria, and diabetes, among others. Zipline's pull system prevents both stockouts and stockpiling of inventory, increases quality control, and reduces overall costs through reduced wastage.

Impact spotlight | serving the hardest to reach

In November 2021, Zipline launched two distribution centers in the Volta and Oti regions of Ghana, serving 551 health facilities, **52% are hard to reach – located on islands and peninsulas along Lake Volta**. Facilities previously cut off from regular commodity supply and emergency response, requiring delivery by boat or ferry, now receive routine and emergency deliveries within 15-45 minutes.

— Sample Transport

Decreasing turnaround time for diagnostic samples

Zipline is able to expedite sample transport by transporting samples from Zipline's distribution center to central and regional laboratories. Through this hub-and-spoke model, samples are transported from health facilities and other testing points to Zipline's distribution centers, which are then sent via drone to central laboratories. This ensures the integrity of the samples, saves health workers the time and expense of transporting samples, and reduces turnaround. In Ghana, Zipline has delivered almost 8,000 COVID-19 and over 1,200 HIV samples to central laboratories for processing.

— Global Health Security and Animal Health

Improving livestock health and productivity

Zipline's reach is expanding into animal health. In early 2022, Zipline, in partnership with the Rwandan Agricultural Board, launched a program delivering sensitive animal health inputs, including swine semen for artificial insemination and livestock vaccines. These inputs boost farming production and livelihoods, while reducing the risk of zoonotic disease transmission. Today, Zipline Rwanda is completing over 1000 animal health-related deliveries per month and has trained over 200 agrovets on artificial insemination.

Impact spotlight | use cases beyond health

Uptake of artificial insemination in Rwanda was limited due to long transit times, frequent temperature excursions that reduce swine semen efficacy, and high costs. Early evidence from Zipline's delivery program indicates increased uptake of best-in-breed livestock, **a 12x reduction in delivery time, 30% cost savings, and a 10-30% increase in swine semen motility (fertility)** from improved temperature control.



Data and Impact

Zipline's data and performance management systems provide valuable data insights to drive health system performance and optimize programs. Zipline is utilizing data to track ordering behavior, identify where clients are accessing care, and to contribute to broader surveillance efforts. Clients utilizing Zipline's solution have access to real-time data dashboards and our system is able to integrate into other systems ensuring interoperability.



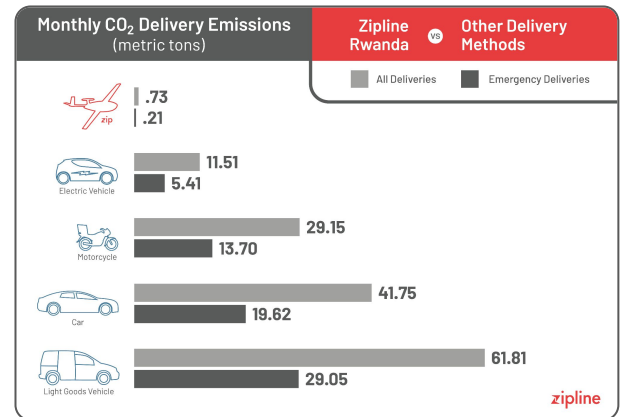
To understand where and how Zipline is having an impact, Zipline conducts extensive monitoring and evaluation (M&E) internally and with independent research partners. Today, Zipline has ongoing evaluations focused on malaria, quality of care and maternal health, vaccines, and blood, with multiple additional studies in the pipeline, including an evaluation of Zipline's economic impact.

In addition, Zipline's warehousing and fulfillment systems automatically capture supply chain performance data providing comprehensive supply chain visibility and supporting informed decision-making by Zipline and our partners. Our real-time data system tracks facility ordering behavior, stock positions, stockouts, and Zipline's delivery performance, supporting 100% accurate track-and-trace of all commodities in Zipline's custody.

Environmental Sustainability

Zipline is leading the way in supply chain environmental sustainability. Zipline recently completed the [world's first sustainability analysis](#) of a real-world, scaled aerial logistics system's deliveries based on actual customer and order data.

Using Zipline's autonomous aircraft to deliver essential medical products to rural hospitals and clinics yields a **98% reduction in carbon emissions compared to using cars** and 94% compared to electric vehicles.



Trusted Customers and Partners



Recipient of the 2021 U.S. Secretary of State's Award for Corporate Excellence in Health Security

*Zipline... has partnered with the Ghanaian government to deliver more than 250,000 COVID-19 vaccine doses, and it's able to do this getting to remote areas that otherwise would have great difficulty getting the vaccine or getting other medicines. **These efforts are literally saving lives.***

- Secretary of State, Antony Blinken, [December 2021](#)

