Supervised Project

Master in Business Intelligence

Strategic Analysis and Development Plan for Zipline

Group 6

ANOKYE NKANSAH OPPONG-AGYARE

BUN KIMLENG

JOSEPH INFANTIA

MONCHER LUCIEN

Supervisor:

Karine Brisset, Professeure de sciences économiques, CRESE

December 19, 2024

Table of Contents

Strategic Analysis and Development Plan for Zipline

Introduction

Zipline is on a mission to build the world's first logistics system that serves all people equally. With operations in eight countries across four continents, and more than 80 million commercial autonomous miles flown to date, Zipline is transforming access to healthcare, consumer products, and food.

Zipline originally started delivering blood and medical products in Rwanda in 2016 and has since expanded to food, retail, agriculture products, and animal health products. Zipline has two platforms — one for long-range delivery and the other for precise home delivery. To date, we've delivered to thousands of homes, hospitals, and businesses in the US, Rwanda, Ghana, Nigeria, Côte d'Ivoire, Kenya, and Japan.

Our customers rely on Zipline to save lives, reduce emissions, increase economic opportunity, and provide new logistics services at scale.

Current business model of Zipline

In-house creation of technology

- Designing
- Manufacturing
- Operating autonomous delivery service

Customer Services

- Zipline App
- Fulfillment App
- Dashboard

Selling of delivery service

- Platform 1 (optimized for long-range deliveries)
- Platform 2 (a service optimized for home delivery)

Value proposition

The technology is complex, but the idea is simple: a service that delivers what you need the moment you need it. Traditional ground logistics that are surprisingly slow, expensive, and terrible for the planet. For Example, In Rwanda, Health-care workers simply place an order by a

cell phone, and villages, separated from cities by hours-long journeys over dirt roads, can be reached in as few as 15 minutes by drone.

- Make instant deliveries
- Powering Rwanda and Ghana's national healthcare networks
- On-demand home delivery for Walmart
- Enabling restaurants to deliver meals faster and fresher than ever before
- Greener delivery

Customer segments

Zipline now operates on four continents, eight countries and serves more than 4,500 hospitals and health facilities. Zipline's food, retail, and healthcare deliveries currently reach tens of millions of people around the world.

- Businesses
- Governments
- Consumers such as hospitals and recently customers of Walmart.

Cost structure

- Operations Costs
- Employees Costs
- R&D Costs
- Dashboard & App maintenance

Potential adaptations or innovations

Potential adaptations or innovations in the Business Model

- Franchising zip docks
- Outsourcing talent to reduce cost
- Recycling to reduce cost
- Working with interns/graduates

Possible Innovation

- Building drones using recycled materials (electronic waste, metals, polymers) for non-delicate parts.
- Distribution docks using AI for best location (like Electric charging docks)
- Strategic collaboration with other green companies and leaders.

Summary of Zipline Business

1

Customer Segments

- Healthcare providers
- Public health agencies
- Farmers and agribusinesses
- Restaurants
- Convenience store

2

Key Activities

- Drone manufacturing and operations
- Logistics and delivery services
- Precision and AI-driven system development

3

Key Partners

- Governments and health organizations
- Hospitals and clinics
- Food and agriculture businesses
- Tech and logistics companies

4

Cost Structure

- Supply Chain (Drone parts)
- R&D Costs
- Employee Costs
- Regulatory & Certification Costs
- Maintenance Cost

5

Revenue Streams

- Investor Fundings
- NGOs, Foundation
- WHO, Governments, Hospitals

1 Strategic Opportunity Study

1.1 Technological Advancement

Possibility of Partnership with Galileo navigation system

Galileo is a satellite positioning (radio navigation) system developed by the European Union and including a space segment, which is due to be deployed around 2020. Like the American GPS, Russian GLONASS and Chinese Beidou systems, it enables a user with a receiving terminal to obtain his or her position. The expected accuracy of the basic service, which is free of charge, is 4 metres horizontally and 8 metres in altitude. A higher level of quality will be provided for paid services offered to professionals. This serves as an opportunity which will allow access to new geographical areas with greater accuracy, and will provide global visibility for Zipline. The partnership with Galileo will also reduce the dependence on the US GPS system, Galileo is also civilian only which is in line with Zipeline's values.

Launch of Zipline P2

Expansion of Market Reach:

New Customer Segments: Zipline P2 enables access to untapped markets, including remote or underserved areas, broadening customer demographics and increasing market share.
Enhanced Service Offerings: The integration of advanced features in P2 could allow customization for niche industries such as healthcare, agriculture, or logistics, aligning with industry-specific needs.

Operational Efficiency:

Streamlined Processes: P2 can optimize delivery routes, reduce costs, and improve resource allocation, resulting in faster turnarounds and higher profit margins.
Scalable Model: The phase is an opportunity to build infrastructure and processes that are easily scalable as demand grows.

Innovation Leadership:

Reinforcing Technological Edge: Zipline P2 showcases cutting-edge advancements, reinforcing the company’s position as a leader in autonomous delivery and logistics.
First-Mover Advantage: Rolling out P2 ahead of competitors strengthens brand positioning and builds customer loyalty.

Strengthening Stakeholder Relationships:

Partnership Opportunities: By demonstrating P2's potential, Zipline can attract strategic partnerships with governments, NGOs, and enterprises.
Customer Satisfaction: Improved speed, reliability, and service customization enhance customer experience and satisfaction, driving retention and advocacy.

Sustainability and ESG Goals:

Eco-Friendly Innovation: P2 supports Zipline's commitment to sustainability with reduced emissions and environmentally conscious operations, resonating with socially responsible customers and investors.

Revenue Growth Potential:

Monetization Models: P2 creates opportunities for new revenue streams, such as subscription models or tiered service offerings.
Long-Term Profitability: By addressing critical market needs and delivering superior value, P2 sets the foundation for sustained financial success.

1.2 Partnerships

Healthcare Systems:

- Memorial Hermann Health System (Texas, U.S.)
- Governments of Rwanda, Ghana, Kenya, and Nigeria
- Northumbria Healthcare NHS Foundation Trust (U.K.)

Retail & Food Services:

- Walmart
- Panera Bread
- Jet's Pizza

Pharmaceutical Companies:

- Pfizer
- BioNTech

NGOs and Humanitarian Organizations:

- United Nations (UN)
- Red Cross
- Save the Children

Cowtribe and Zipline: A Strategic Expansion into Agriculture

The partnership between Cowtribe, a pioneering last-mile veterinary service in Ghana, and Zipline, a global leader in drone logistics, represents a transformative step in expanding drone technology into the agricultural sector.

Expanding Global Reach:
Zipline is broadening its impact by partnering with U.K.-based healthcare logistics company Apian, enhancing drone delivery capabilities across diverse sectors and regions.

1.3 Market Opportunities

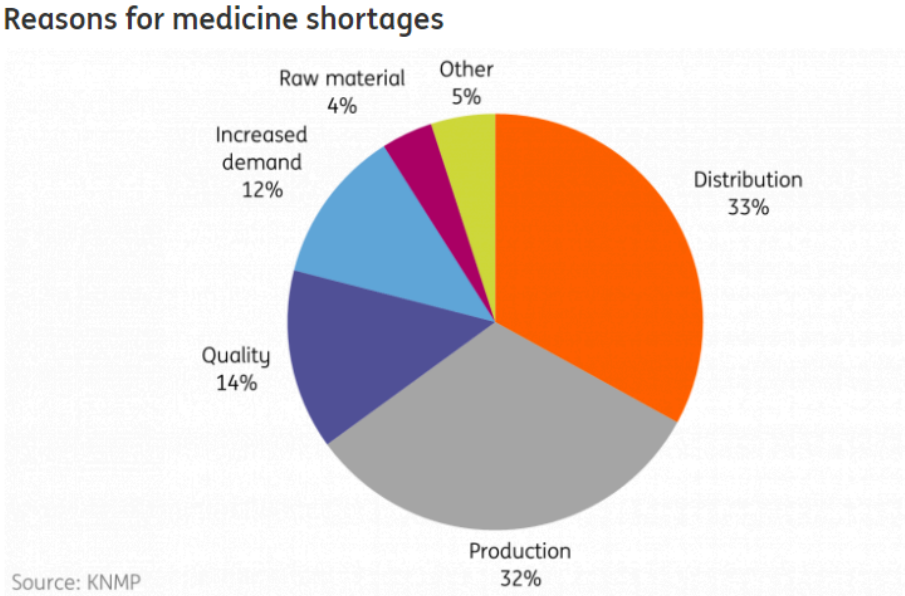
1.3.1 EU regulation

Regulatory Alignment with Drone Technology

The EU's Unmanned Aircraft Systems (UAS) regulations, particularly under the European Union Aviation Safety Agency (EASA), provide a structured framework for drone operations. This creates a favorable environment for Zipline to expand its services while ensuring compliance with safety and operational standards.

Expanding Healthcare Logistics

With the EU's push towards enhancing healthcare access, Zipline has the opportunity to partner with governments, NGOs, and healthcare providers to deliver medical supplies to remote areas. This aligns with EU priorities on equitable healthcare access and supply chain resilience.



That's because right now, only 25% of European demand for generic drugs is actually produced in Europe versus 77% for on-patent medicines. Austria, Germany, France, Italy, and (non-EU member) Switzerland are important players in the global pharmaceutical trade and produce more sustainably due to higher European regulatory standards than their non-European counterparts. Zipline can position itself to help with these supply chain challenges.

Urban and Suburban Delivery Potential

The EU's U-space Regulation facilitates the integration of drones into urban airspace. Zipline can capitalize on this by offering faster, emission-free deliveries for e-commerce, retail, and pharmaceuticals in urban and suburban markets.

Sustainability Goals

The EU's commitment to achieving carbon neutrality by 2050 makes Zipline's zero-emission drone delivery model highly attractive for companies looking to meet environmental targets and align with the Green Deal objectives.

Cross-Border Operations

Harmonized EU regulations across member states simplify cross-border drone operations, enabling Zipline to scale its services seamlessly across multiple countries without facing fragmented regulatory hurdles.

Growth in Agricultural Drone Use

The EU's focus on modernizing agriculture through technology presents opportunities for Zipline to expand into agricultural logistics, delivering veterinary supplies, crop treatments, and other critical inputs to rural farming communities.

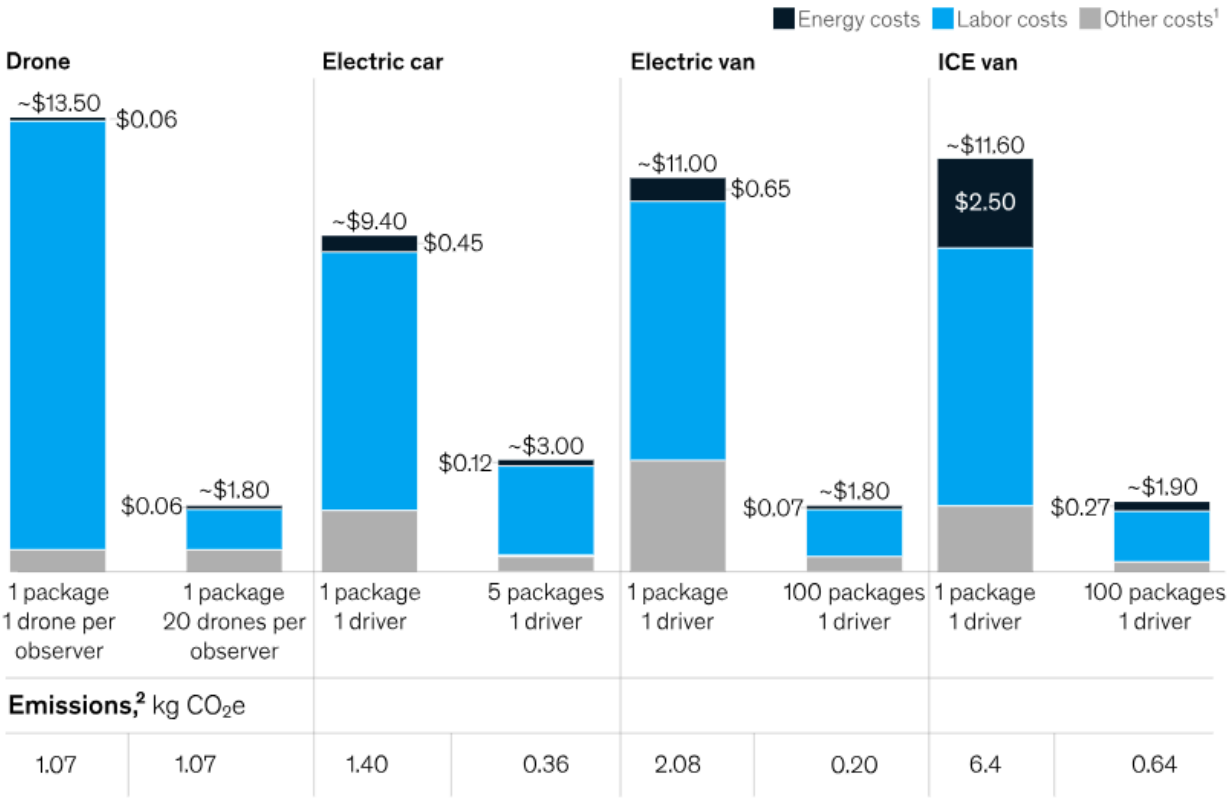
Public and Private Sector Collaborations

The EU encourages public-private partnerships to drive innovation in drone technology. Zipline can leverage this to secure funding, build strategic alliances, and pilot large-scale projects within the EU market.

1.3.2 Potential cost advantage

Drones could become cost competitive with other transport modes.

Example breakdown: unit delivery costs and emissions for a five-mile delivery of a 216-cubic inch package (six inches per side)



[1]Other costs include asset, maintenance, and insurance costs.
[2]Scope 2 and Scope 3.

McKinsey & Company

Currently, regulations in most countries and regions state that people can only operate and monitor one drone at a time; a visual observer must simultaneously monitor the airspace in which the drone operates.1 As a result, labor represents up to 95 percent of the total cost of drone delivery—our bottom-up model estimates that a single-package drone delivery has a direct operating cost of approximately $13.50. These costs are not yet competitive with electric cars and vans, or with internal combustion engine (ICE) vans doing a single delivery, or any type of vehicle doing multiple deliveries in a single run.

For drones to become truly cost competitive across the board, operators will need to be able to shift their focus from observing airspace to operating drones, and the number of drones per

operator will need to increase significantly. That, in turn, will require technology and regulation to advance sufficiently for a single operator to manage as many as 20 drones in a densely used airspace. These advances would include autonomous drone flight in which drones fly with limited human intervention, unmanned traffic management systems, and sense-and-avoid solutions.

1.4 Current Constraints

1. Regulatory Challenges

Complex Airspace Regulations: Many countries have strict airspace rules, including altitude limits, restricted zones, and permits for beyond-visual-line-of-sight (BVLOS) operations.
Slow Approval Processes: Regulatory bodies like the FAA (U.S.) and EASA (Europe) often take years to approve new technologies or pilots, delaying commercialization.
Lack of Standardization: Inconsistent drone regulations across regions make it difficult to scale operations globally.

2. Public Perception and Safety Concerns

Privacy Issues: Concerns over drones capturing sensitive or private data can lead to public resistance.
Safety Risks: Fear of accidents, such as drones crashing into people, buildings, or vehicles, hinders widespread acceptance.
Noise Pollution: In urban environments, drones can be perceived as noisy and disruptive.

3. Technical Limitations

Battery Life and Range: Limited flight times and payload capacities restrict drones' utility for long-distance or heavy-duty deliveries.
Weather Dependence: Drones often struggle to operate reliably in adverse weather conditions like heavy rain, strong winds, or snow.
Scalability of Vertiport Infrastructure: The lack of dedicated infrastructure, such as vertiports, hinders large-scale operations, especially in urban settings.

2 Strategic Analysis of Zipline

2.1 SWOT Analysis of Zipline

- Innovative Technology
- Healthcare Focus
- Global Reach
- Strong Partnerships
- First-Mover Advantage

- High Initial Investment Costs
- Regulatory Challenges
- Limited Payload Capacity
- Niche Market Focus

- Market Expansion
- Technological Advancements
- Regulatory Evolution
- Sustainability Trends
- Strategic Alliances

- Competition
- Technological Risks
- Economic Factors
- Public Perception
- Dependency on Healthcare Sector
- Supply Chain Issues

2.1.1 Strengths

Innovative Technology: Advanced autonomous drone systems with precise navigation and delivery capabilities. High-speed delivery with minimal environmental impact compared to traditional logistics.

Healthcare Focus: Proven track record of success in delivering critical medical supplies, such as blood, vaccines, and medications, especially in remote or underserved areas.

Global Reach: Operations in multiple countries across Africa, the Americas, and other regions, demonstrating scalability and adaptability.
Strong Partnerships: Collaborations with governments, healthcare providers, and organizations like the WHO and GAVI for public health initiatives.

Sustainability: Eco-friendly operations compared to ground-based logistics, aligning with global goals to reduce carbon emissions.

First-Mover Advantage: Pioneer in the commercial drone delivery space, giving it a significant competitive edge.

2.1.2 Weaknesses

High Initial Investment Costs: Significant upfront costs for infrastructure, technology development, and regulatory compliance.

Regulatory Challenges: Navigating diverse aviation regulations in different countries, which can delay expansion and operations.

Limited Payload Capacity: Drones are suitable for lightweight, high-value goods but not heavy cargo.

Dependence on Weather: Adverse weather conditions can disrupt operations, affecting reliability.

Niche Market Focus: Heavy reliance on the healthcare sector; limited diversification in other logistics markets.

2.1.3 Opportunities

Market Expansion: Increasing demand for efficient logistics in both urban and rural areas.Entry into new sectors, such as e-commerce or consumer goods delivery.

Technological Advancements: Potential to enhance payload capacity, extend range, and integrate with AI for smarter logistics.

Regulatory Evolution: Countries modernizing drone regulations may open new markets for operations.

COVID-19 Legacy: Increased emphasis on contactless delivery and emergency response capabilities.

Sustainability Trends: Growing demand for green logistics solutions aligns with Zipline's eco-friendly operations.

Strategic Alliances: Partnerships with tech companies, logistics firms, and governments to expand use cases.

2.1.4 Threats

Competition: Entry of major players like Amazon Prime Air, Wing (Google), and others in the drone delivery space.

Technological Risks: Risk of drone malfunctions or cyberattacks affecting operations and reputation.

Economic Factors: Global economic downturns could reduce funding availability and demand for services.

Public Perception: Concerns over noise, privacy, and safety could limit public acceptance.

Dependency on Healthcare Sector: Vulnerability to shifts in healthcare funding or priorities.

Supply Chain Issues:Disruptions in manufacturing or sourcing of drone components.

2.2 PESTEL Analysis for Zipline

Political	Government Support Trade and Diplomatic Relations	Regulatory Frameworks	Global Health Initiatives
Economic	Cost Efficiency Healthcare Budgets	Economic Development	Funding and Investments
Social	Healthcare Access Public Perception and Trust Social Equity	Changing Consumer Expectations	Demographics
Technological	Innovation in Drone Technology	Integration with Digital Systems Data Analytics and AI	Cybersecurity Technology Adoption
Environmental	Sustainability Goals Energy Use	Impact on Local Ecosystems	Climate Change Waste Management
Legal	Aviation Regulations	Privacy Laws Liability	Insurance Intellectual Property and (IP) International Trade Laws

2.2.1 Political Factors

Government Support: Governments in underserved regions (e.g., Rwanda and Ghana) have embraced Zipline's operations for public health logistics, providing a supportive political environment. Public-private partnerships enhance operational expansion.

Regulatory Frameworks: Compliance with aviation laws and regulations is critical; drone operations are heavily influenced by local and international rules.
Political instability in some regions could disrupt operations.

Global Health Initiatives: Alignment with WHO and global programs for healthcare delivery boosts political support.

Trade and Diplomatic Relations: Favorable trade agreements and cross-border collaboration can facilitate expansion, while geopolitical tensions could hinder it.

2.2.2 Economic Factors

Cost Efficiency: Zipline's cost-effective delivery solutions provide economic advantages for healthcare systems, particularly in rural areas. High initial capital requirements could pose challenges in weaker economies.

Economic Development: Stronger economies may enable faster adoption of technology, while low-income regions might need subsidized solutions.

Funding and Investments: Access to venture capital and international funding is essential for innovation and expansion. Economic downturns may limit funding or delay contracts with governments.

Healthcare Budgets: Dependency on government and institutional healthcare budgets makes economic health a critical factor.

2.2.3 Social Factors

Healthcare Access: Zipline addresses critical gaps in healthcare delivery, gaining strong public support in underserved areas.

Changing Consumer Expectations: Demand for faster, reliable, and sustainable delivery methods aligns with Zipline's services.

Demographics: Growing populations in remote and rural regions create increased demand for healthcare logistics.

Public Perception and Trust: Building trust in drone safety, privacy, and reliability is crucial, particularly in urban settings.

Social Equity: Positive social impact by providing equitable access to essential services strengthens the brand.

2.2.4 Technological Factors

Innovation in Drone Technology: Continuous improvement in autonomy, navigation systems, and payload capacity enhances Zipline's capabilities.

Integration with Digital Systems: Partnerships with healthcare providers and logistics platforms to create seamless delivery networks.

Data Analytics and AI: Use of AI for route optimization, predictive maintenance, and demand forecasting.

Cybersecurity: Protection against hacking and data breaches is critical for maintaining operations and trust.

Technology Adoption: Acceptance of drone technology is influenced by education, exposure, and perceived benefits.

2.2.5 Environmental Factors

Sustainability Goals: Zipline's drone delivery model aligns with global goals to reduce carbon emissions, making it attractive to eco-conscious stakeholders.

Impact on Local Ecosystems: Minimal environmental footprint compared to traditional logistics systems.

Climate Change: Weather conditions such as storms or extreme temperatures can disrupt drone operations.

Energy Use: Dependence on battery technology highlights the importance of sustainable energy sources and advancements in energy efficiency.

Waste Management: Ensuring eco-friendly disposal or recycling of drones and batteries is crucial for long-term sustainability.

2.2.6 Legal Factors

Aviation Regulations: Compliance with drone-specific laws, such as altitude limits, airspace permissions, and licensing, is critical.
Privacy Laws: Addressing concerns over data collection and surveillance by drones to comply with privacy regulations.

Liability and Insurance: Establishing robust insurance policies to manage risks related to accidents or operational failures.

Intellectual Property (IP): Protecting proprietary technologies from infringement while respecting others' patents.

International Trade Laws: Navigating import/export laws for drone hardware and components in various countries.

3 Strategic Objectives

3.1 Market Trends in Commercial Drone Technology

Regulatory Challenges
The regulatory environment continues to be a significant hurdle for companies seeking to commercialize drone technology. For example, UK-based startup Apian required two years to secure approval from the UK Civil Aviation Authority (CAA) for a pilot program in London, highlighting the lengthy and complex process.
While the European Commission has recently adopted a regulatory package allowing VTOL operations and air taxis, concerns remain regarding potential privacy violations, increased crime, and barriers to entry for smaller players, particularly in rural areas.

Funding Momentum
The industry is attracting significant investment as companies scale operations and develop new technologies:

- Skyports (UK): Raised $110 million in April 2024 to develop a network of “vertiports” supporting electric vertical takeoff and landing aircraft (eVTOL).
- Dronamics (Bulgaria-UK): Secured $10.9 million in March 2024 for its innovative drone delivery solutions.
- Stark (Germany): Raised €14 million for its commercial drone initiatives.
- Quantum Systems (Germany): Collected €100 million in September 2023 for dual-use drone technologies.
- Apian (UK): Previously raised £5 million in a seed round led by Localglobe, with support from NHS-backed VC KHP Ventures. The company plans to return to the fundraising market in the first half of 2025.

Global Collaborations and Expansions
Drone applications are expanding across regions and sectors:

- India: In September 2023, Skye Air Mobility partnered with pharmaceutical giant Cipla to deliver critical medications to remote areas in Himachal Pradesh. These included drugs for cardiac, respiratory, and chronic therapies, ensuring timely delivery to clinics and chemists in underserved regions.
- Europe: The commercial drone market in Europe was valued at USD 5.90 billion in 2023 and is projected to grow at a CAGR of 12.6% from 2024 to 2030, driven by technological advancements and regulatory support for VTOL and air taxi operations.

Infrastructure Development
Investment in supporting infrastructure is ramping up to accommodate the growth of drone technology:

- Vertiports, like those developed by Skyports, are critical to enabling eVTOL operations in urban and suburban areas.

- Advancements in logistics hubs for drone operations are paving the way for scalable commercial deployment.

Challenges for Smaller Players

Despite growing opportunities, smaller companies face significant barriers:
High compliance costs and regulatory complexity favor larger players.
Rural businesses struggle to compete unless they form clusters, limiting individual market entries.

3.2 Key strategic objectives for Zipline within the next 5 years

	Objective	Market Trends	Capabilities	Stakeholders
Market Expansion and Penetration	Expand operations to at least 4 new countries and deepen market penetration in existing regions.	Increasing demand for drone logistics in healthcare and beyond.	Proven scalability and successful partnerships with governments and organizations.	Stakeholders expect growth in accessibility and service availability.
Diversification of Service Offerings	Introduce new delivery services for sectors beyond healthcare, such as e-commerce, agriculture, and emergency response.	Growth in last-mile delivery demand for retail and other sectors.	Adaptable drone technology and operational expertise.	Clients and investors seek diversified revenue streams and risk mitigation.
Technology Enhancement	Invest in R&D to increase payload capacity, extend flight range, and enhance drone reliability under various weather conditions.	Evolving technology expectations in the logistics industry.	Established R&D infrastructure and strong technical foundations.	Customers and regulators demand higher efficiency and reliability.
Sustainability Leadership	Achieve carbon neutrality in operations and set industry benchmarks for eco-friendly drone logistics.	Rising focus on green logistics and corporate sustainability.	Low-emission drone technology.	Increasing scrutiny from environmentally conscious customers, partners, and regulators.
Regulatory and Compliance Excellence	Proactively engage with global regulators to shape favorable policies for drone logistics and achieve seamless regulatory compliance in new and existing markets.	Modernization of drone laws and regulations worldwide.	Proven experience navigating complex regulatory environments.	Governments and aviation authorities expect compliance and collaboration.
Strengthening Partnerships and Alliances	Establish strategic alliances with major global organizations, healthcare providers, and logistics companies to expand the network effect of Zipline's services.	Collaborative ecosystems in healthcare, logistics, and technology sectors.	Success with existing partnerships like GAVI and WHO.	Investors and partners value synergistic relationships that enhance impact.
Public Awareness and Advocacy	Enhance public awareness of the benefits of drone logistics and address concerns about safety, privacy, and environmental impact.	Growing public discourse on drone technology and its implications.	Proven success in creating positive social impact stories.	Communities and regulators expect transparent communication and advocacy.

3.3 Market Expansion

3.3.1 South East Asia (Indonesia) primarily using the market strategy that has proved successful in Africa.

Indonesia as an entry to South East Asia due to its minimal regulations, 277.5 million, the largest country in SEA which is 1,904,569 square kilometres, 17,508 islands that are hard to reach. Sub-Saharan Africa and Southeast Asia share several landscape and cultural similarities, despite being geographically distant. These parallels can provide valuable insights for businesses, governments, and NGOs aiming to operate in both regions.

Landscape Similarities

Tropical Climate
The prevalence of tropical rainforests and savannahs supports diverse ecosystems and agricultural activities.

Rich Biodiversity
Sub-Saharan Africa and Southeast Asia are global biodiversity hotspots, home to unique flora and fauna. Both regions face environmental challenges such as deforestation, habitat loss, and climate change, which impact their ecosystems.

Agricultural Economy
Agriculture is a cornerstone of livelihoods in both regions, with smallholder farming dominating the rural landscape.Common crops include rice, maize, cassava, and tropical fruits like bananas and mangoes.

Geographic Challenges
Both regions contain remote, hard-to-reach areas due to mountainous terrain, dense forests, and, in Southeast Asia's case, archipelagos with scattered islands. Poor infrastructure in rural areas creates logistical challenges for transportation and trade.

The shared landscape and cultural traits between Sub-Saharan Africa and Southeast Asia create opportunities for knowledge exchange, shared solutions, and strategic partnerships. By leveraging these similarities, Zipline can expand with a cost-effective investment through the use of synergy between both regions.

3.3.2 Market Focus in Indonesia

Emergency Drone Delivery

- Natural disaster relief (e.g., delivering food, water, and medicine).
- Emergency medical supplies during traffic accidents or severe weather conditions.

- Partnerships with emergency response agencies and humanitarian organizations.

Healthcare Drone Delivery

- Deliver critical medical supplies, vaccines, and blood to rural and underserved areas.
- Partnerships with governments and humanitarian organizations.

Agriculture Support

- Delivery of vaccines and medications to remote farms for livestock health management.
- Quick transport of critical supplies during disease outbreaks in livestock.
- Explore possible partnerships in Agriculture.

3.3.3 Entry into Europe (UK, France) primarily using a similar market strategy of the USA with more focus on sustainability

Europe and the USA are global leaders in technological advancement, fostering innovation-driven economies. They share a commitment to free markets, trade, and entrepreneurship.

3.3.4 Market Focus in France

Urban Delivery Expansion

- E-commerce: Partner with major retailers like Amazon or Walmart to offer same-day delivery.
- Food Delivery: Collaborate with platforms like DoorDash or Uber Eats to integrate drones for urban deliveries.

Healthcare Drone Delivery

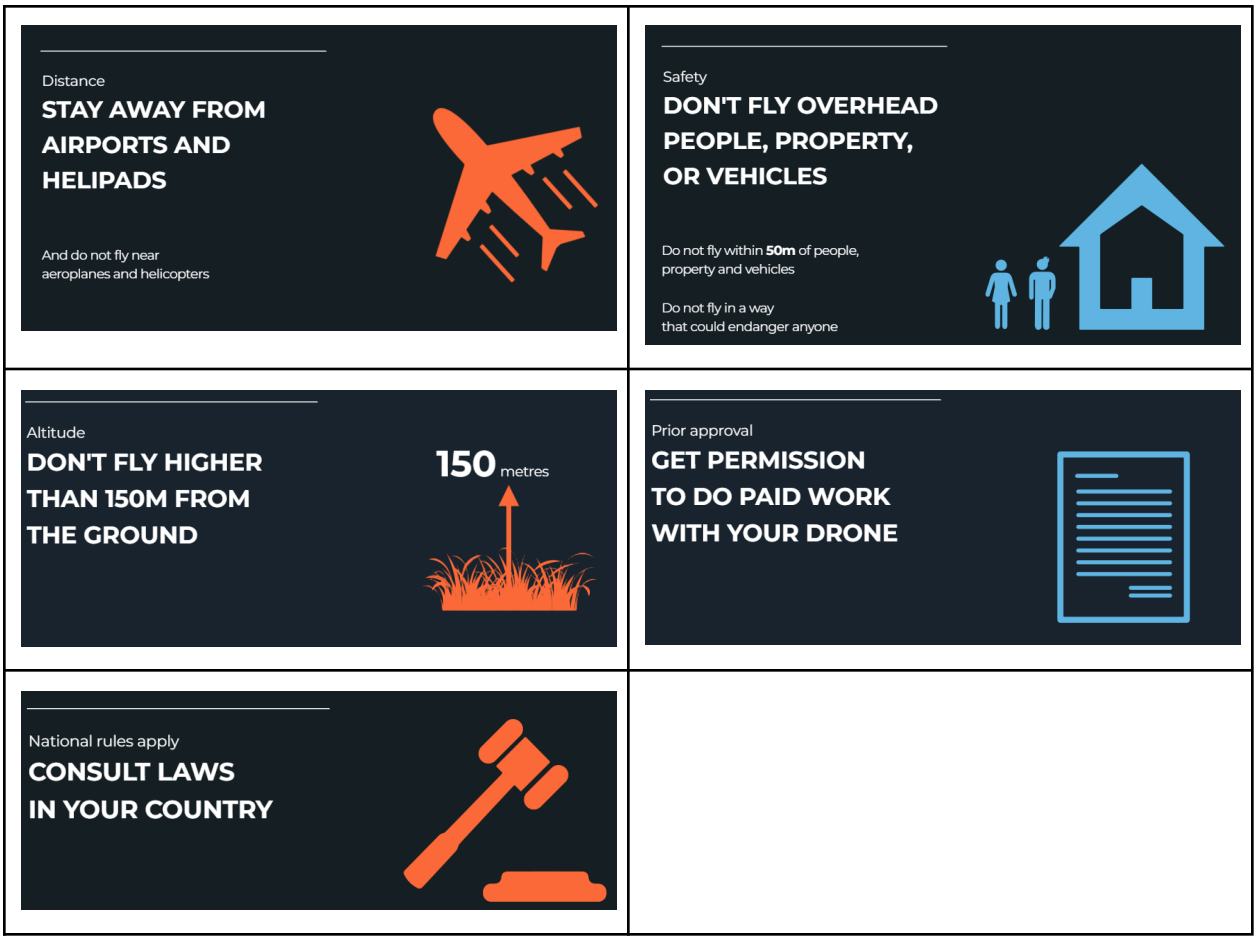
- Serve urban hospitals for time-sensitive deliveries (e.g., organs or emergency medications).
- Provide pharmacies with reliable solutions for emergency stock replenishment or advanced storage, serving as a dependable backup for just-in-time inventory management.
- Emergency medical supplies during traffic accidents or severe weather conditions.

Sustainability as a Differentiator

- Zipline offers a zero-emission delivery alternative, helping businesses meet ESG goals.
- Drones reduce traffic congestion and air pollution in urban centers.

3.3.5 Drone Regulations in France

In France, drone regulations follow the EU framework and have additional national requirements:



Drone Registration:

Drones weighing 800 grams or more or equipped with a camera must be registered. This includes attaching a unique registration number to the drone. Registration fees range from €30 (1 year) to €100 (5 years)
Drone Nomad Droneller.

General Rules:

Visual line-of-sight is required, with a maximum operating distance of 500 meters.

Flying over people, private property, airports, or sensitive sites (e.g., military installations) without authorization is prohibited
Droneller

Remote ID: Drones over 800 grams must transmit identification and flight data for airspace accountability
Droneller

3.4 Market Comparison

	South East Asia (Indonesia)	Europe (France)
Regulation	Low regulation: Evolving regulations with fewer established rules and less clarity.	High Regulatory Requirement. Demand for drone commercialization is up.
Political	Low: Political landscape is more dynamic, with varying regional stability.	Disruptions in Traditional Supply Chain, Medicine Shortage. (Ukraine, Russia)
Competition	Competition (Aerodyne, H3 Dynamics, Aonic, Garuda), Emerging market with fewer players and more opportunities.	High Competition (Wing, Matternet, Manna Aero,..)
Strategy	Short-term: Disaster management, Healthcare to Underserved Population. Focus on rural development, logistics, and government sectors with more operational flexibility.	Short-term: Key Partner in solving supply chain issues in healthcare. Collaboration with Pharmacy and local producers
Partnerships	Growing opportunities, but partnerships are still emerging, especially in rural areas.	Possible partnership with Globhe (Reducing cost in training operators)

3.5 Proposed R&D Investments

- Improvement of Drone Safety and Production Integrity
- Decentralising manufacturing into regional hubs
- Payload Capacity
- Noise Reduction
- Energy Efficiency Improvement

3.6 Reducing Labour Cost

- Using fleet management software
- AI
- Single user managing multiple drones

4 Optimal Procurement Strategy for Zipline

Why do we need it?

1. To scale zipline operations efficiently while maintaining cost-effectiveness and sustainability.
2. To combine centralized control for critical components with decentralized flexibility for regional needs.
3. To achieve rapid expansion and enhanced service delivery

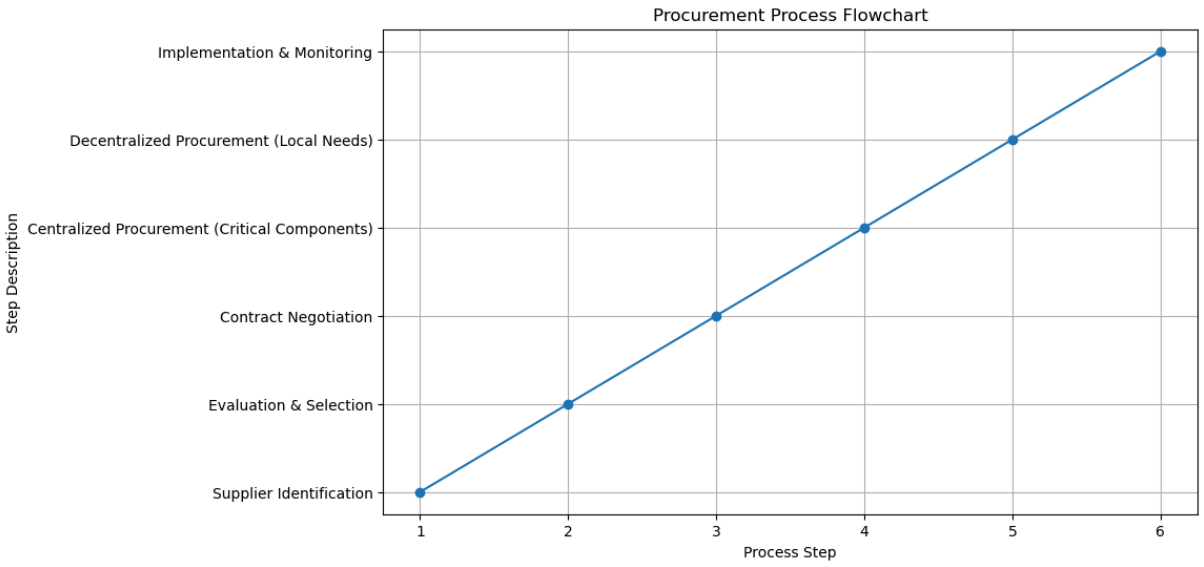
Even if Zipline manages many of these functions internally, a procurement strategy includes all **inputs or services required to keep operations running smoothly**. These could involve partnerships or supplier relationships as they expand.

So where do we need to keep our eyes on Zipline?

- **Cost Optimization**:
  - **Initiative**: Negotiate long-term contracts with price-lock agreements.
  - **Justification**: Mitigates the impact of inflation and market fluctuations
- **Operational Reliability**:
  - **Initiative**: Maintain dual-source agreements for critical components.
  - **Justification**: Reduces risk of supply disruptions due to geopolitical or logistical issues
- **Sustainability**:
  - **Initiative**: Focus on suppliers providing biodegradable packaging and energy-efficient components.
  - **Justification**: Aligns with Zipline's environmental commitment to reduce CO2 emissions by 97% compared to traditional vehicles

These are the key performance indicators (KPI) or goals of the strategy. Thereby, the role of many individual components of these metrics are to be monitored, analysed on a regular basis in order to achieve and maintain the standard of the business.

Here is the process of the procurement that will be followed:



4.2 Procurement Model

The model that has been chosen here is a centralized and decentralized procurement model.

1. **Centralization** ensures quality, cost efficiency, and uniformity for mission-critical items (e.g., drone parts).
2. **Decentralization** provides agility and adaptability for local requirements, which are often more variable and less critical. (e.g., packaging stuff)

Let's take a scenario to better understand this motive:

A regional hub in Africa might source insulated packaging from a local supplier that understands the local climate and regulations, rather than waiting for shipments from Zipline's headquarters.

Centralized Procurement:

Handles critical drone components (e.g., batteries, motors, airframes).

Benefits:

- Ensures uniform quality across all operations.
- Simplifies vendor management(Zipline Restaurant Buye…)(Healthcare Buyers Guide).

Decentralized Procurement:

Manages region-specific needs (e.g., packaging, medical products).

Benefits:

- Faster adaptation to local conditions.
- Strengthens regional partnerships.

4.3 Supplier Selection

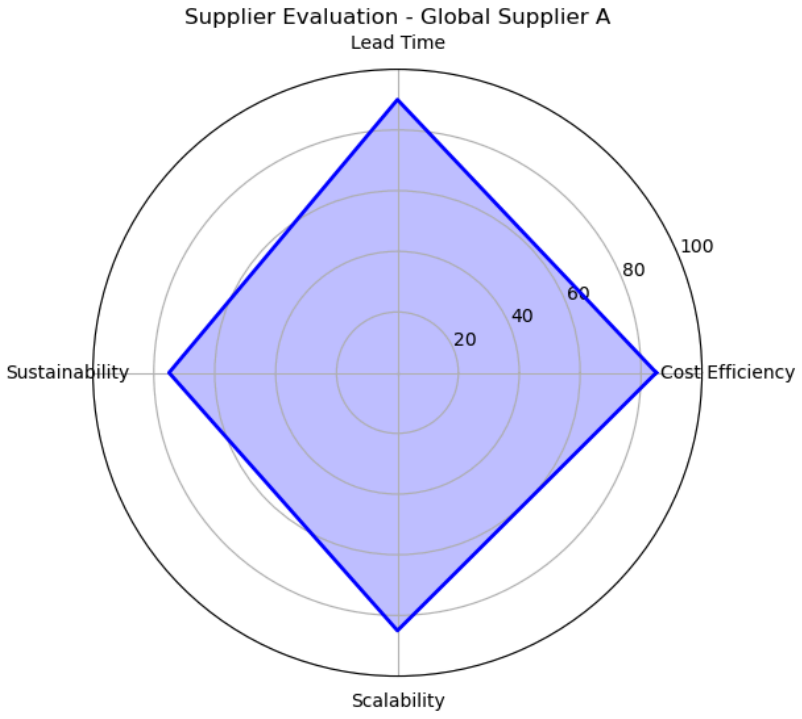
Based on our procurement model, the suppliers will be chosen as global and local but taking criteria into account.

Criteria for Supplier Evaluation:

1. **Cost Efficiency**: Prioritize competitive pricing for bulk orders.
    - **Justification**: Lower costs are critical for scaling operations, especially in price-sensitive healthcare and restaurant sectors.
2. **Lead Time**: Suppliers must ensure timely delivery to avoid operational delays.
    - **Justification**: Zipline operates in critical industries where delays can compromise patient care or customer satisfaction.
3. **Sustainability**: Preference for eco-friendly suppliers.
    - **Justification**: Zipline emphasizes zero-emission operations, aligning with ESG goals.
4. **Scalability**: Capability to meet growing demands.
    - **Justification**: Anticipated expansion into urban and rural markets requires suppliers who can scale production

Let's compare three suppliers :

- ☐ **Supplier A (Global)**:
    - ☐ **Cost Efficiency**: 85 (affordable).
    - ☐ **Lead Time**: 90 (very fast delivery).
    - ☐ **Sustainability**: 75 (needs improvement in eco-friendliness).
    - ☐ **Scalability**: 85 (can handle growth).
    - ☐ **To understand**: Great for speed and affordability but needs to work on being greener.
- ☐ **Supplier B (Global)**:
    - ☐ **Cost Efficiency**: 80 (still good but slightly more expensive).
    - ☐ **Lead Time**: 85 (quick but slower than Supplier A).
    - ☐ **Sustainability**: 80 (better environmentally than Supplier A).
    - ☐ **Scalability**: 80 (can handle growth but not as well as Supplier A).
    - ☐ **To understand**: A balanced choice, good for eco-friendly operations.
- ☐ **Supplier C (Local)**:

- ☐ **Cost Efficiency**: 90 (cheapest).
- ☐ **Lead Time**: 80 (not as fast).
- ☐ **Sustainability**: 85 (very eco-friendly).
- ☐ **Scalability**: 75 (struggles with large-scale orders).
- ☐ **To understand**: Best for cost and sustainability, but not ideal for scaling operations quickly.
- ☐
  - 

4.4 Risk Management and Monitoring

Identified Risks:

1. **Supply Chain Disruptions**:
   - **Mitigation**: Dual-sourcing and regional stockpiling.
2. **Component Quality Issues**:
   - **Mitigation**: Regular audits and quality assurance tests.

3. **Regulatory Challenges**:
   - **Mitigation**: Work closely with regulators like the FAA for compliance

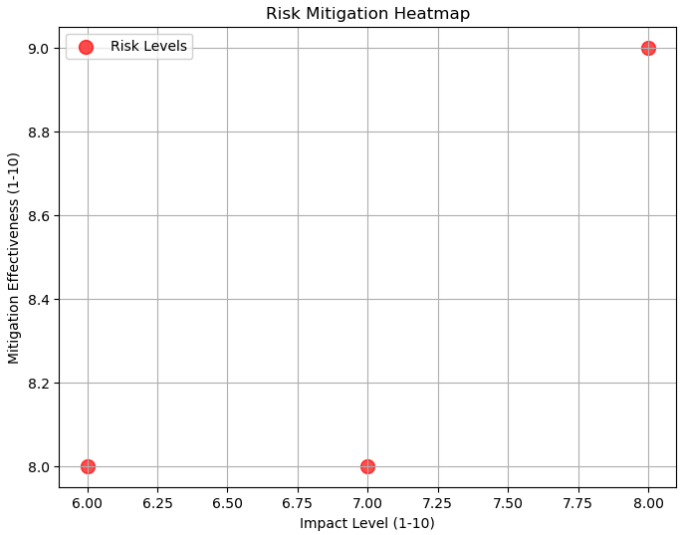
Other mitigations:

- Maintenance for drones and logistics infrastructure **to ensure safety and reliability.**
- Monitoring IT systems for navigation, fleet management, and delivery optimization(Healthcare Buyers Guide).

While Zipline itself may handle much of the maintenance in-house, the strategy must account for procurement of spare parts, service agreements with third-party vendors, or the outsourcing of maintenance for scalability in new regions.

Let's say that Zipline faces three problems (risks):

1. **Supply Disruption**: What if a key part (like batteries) isn't available on time?
    - **Impact Level (X-axis)**: 8 (very serious, because it can stop operations).
    - **Mitigation Effectiveness (Y-axis)**: 9 (we have strong solutions like backup suppliers or safety stock).
    - **What it means**: This is a big risk, but we're well-prepared to handle it.
2. **Regulatory Challenges**: What if government rules delay drone approvals?
    - **Impact Level (X-axis)**: 7 (quite serious, since it can slow expansion).
    - **Mitigation Effectiveness (Y-axis)**: 8 (we've prepared by working closely with regulators).
    - **What it means**: This risk is important but manageable.
3. **Quality Issues**: What if drone parts don't meet quality standards?
    - **Impact Level (X-axis)**: 6 (less critical, since there's less risk of total failure).
    - **Mitigation Effectiveness (Y-axis)**: 8 (we have regular quality checks in place).
    - **What it means**: This is a smaller problem, and we already have good solutions.



4.5 Implementation Plan

Year 1: Planning and Supplier Selection

- [ ] Finalize a network of global and local suppliers.
- [ ] Develop standardized procurement processes.
- [ ] **Milestone**: Secure supply agreements covering 70% of Zipline's operational needs(Zipline Restaurant Buye…)(Healthcare Buyers Guide).

Year 2-3: Implementation

- [ ] Roll out centralized and decentralized procurement systems.
- [ ] Optimize procurement with AI tools for demand forecasting.
- [ ] **Milestone**: Achieve 20% cost reduction in logistics by the end of Year 3.

Year 4-5: Scaling

- [ ] Expand supplier network for next-generation drone components.
- [ ] Integrate real-time supplier performance dashboards.
- [ ] **Milestone**: Achieve 97% sustainability in packaging and transport(Zipline Restaurant Buye…)(Healthcare Buyers Guide).

5 Project Management Plan

5.1 Risk Matrix

		Severity				
		1	2	3	4	5
Probability	1	1	2	3	4	5
	2	2	4	6	8	10
	3	3	6	9	12	15
	4	4	8	12	16	20
	5	5	10	15	20	25

5.2 Risk Assessment

Risk Description	Impact Description	Severity Level (Low=1, High=5)	Probability Level (1=Low, 5=High)	Priority Level. (Severity * Probability)	Mitigation Notes
Strict Regulation	Compliance with aviation laws and drone regulations varies by country and region. Potential for delays or operational restrictions due to local policies or resistance from aviation authorities.	5	5	25	Work with regulators, communities, and local businesses to ensure compliance and buy-in.
Supply Chain Shortage	Scaling up requires infrastructure for storage, charging, and maintenance of drones, which may be challenging in remote or underdeveloped areas	5	1	5	Diversification of suppliers
Flight Failure	Ensuring consistent performance of drones at scale might require substantial investment in maintenance and monitoring. Failures in GPS or software systems could lead to accidents or loss of cargo.	5	2	10	Test operations in limited areas to identify and address challenges before large-scale expansion.
Public Safety Concerns	Communities may be apprehensive about low-flying drones and their potential risks, impacting public perception.	4	5	20	Through advertisement and strategic celebrity
Cybersecurity Threats	Drones are vulnerable to hacking, which could lead to loss of control, stolen data, or compromised delivery systems.	5	1	5	Develop robust systems to enhance drone reliability and cybersecurity.
Accidents and Liability	Collisions with other aircraft, buildings, or natural obstacles pose safety concerns.Injuries to people or property damage due to malfunctioning drones may result in legal liabilities.	5	2	10	Develop robust systems to enhance drone reliability and cybersecurity.
Cost Management	Initial capital expenditures for technology, staff training, and regulatory compliance could strain finances.	5	3	15	Ensure cost structures, logistics, and infrastructure can accommodate growth efficiently.
Competition	Other companies providing similar services may limit Zipline's market share or necessitate price reductions.	3	3	9	Strategic partnership and improvement in cost structure
Equity and Accessibility Issues	Services might favor wealthier or urban areas, leading to perceptions of inequality.	4	4	16	Keeping the company mission of working to improve the lives of the poor and underserved.

5.3 One Year Development Plan

	TASK TITLE	TASK OWNER	KPI	Quarter 1			Quarter 2			Quarter 3			Quarter 4		
1	**Market Research and Analysis**			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
1.1	Research in Expansion in Indonesia & Europe	Business Expansion Team	Market potential report completed within 8 weeks.												
1.1.1	Stakeholder Engagements	Business Expansion Team													
1.2	Evaluate regulatory requirements and legal barriers.	Legal Team	Regulatory requirements documented with a 100% compliance checklist.												
1.3	Assess competition and market gaps.	Strategic Partnership Team	Identification of at least 2 potential strategic partners.												
2	**Strategic Planning**														
2.1	Define goals (market share, revenue, brand awareness).	Business Expansion Team	Percentage of the target market captured within a specific time (e.g., 5% in the first year). Total revenue generated (e.g., €X in the first 12 months).												
2.2	Decide entry mode: direct investment, partnerships, or joint ventures.	Business Expansion Team	ROI on capital invested within the first X years.												
2.3	Set a timeline for entry phases.	Business Expansion Team	Time-to-Market (TTM): Days/weeks to complete market entry from strategy initiation.												

5.3 One Year Development Plan

2.4	Develop pricing and positioning strategies.	Strategy Team	Market share gain compared to competitors in similar price brackets.													
3	**Financial Planning**															
3.1	Estimate investment costs (infrastructure, operations, marketing).	Finance Team	Accuracy of cost estimation vs. actual spend (variance analysis percentage).													
3.2	Forecast revenues and ROI	Finance Team	Revenue growth rate (monthly or quarterly)													
3.2.1	Plan funding sources (internal, loans, investors)	Business Expansion Team	Capital raised as a percentage of target funding.													
4	**Localization and Adaptation**															
4.1	Adapt products/services to local preferences.	Business Development Team	Sales growth rate of localized products vs. non-localized versions													
4.2	Acquire necessary licenses and permits.	Legal Team	Percentage of permits/licenses obtained relative to the total required.													
4.3	Negotiate partnerships with local governments, healthcare providers, or logistics companies.	Strategic Partnership Team	Revenue contribution from partnerships (as a percentage of total revenue)													
4.4	Develop localized branding and marketing.	Marketing Team	Local engagement rates													
4.5	Collaborate with local talent or partners for cultural insights.	Operations Team	Percentage of local hires or partnerships in key roles.													
5	**Operational Setup**															
5.1	Select a location for offices, warehouses, or stores.	Business Development Team	Time to Finalize Location: Average time taken to select and secure locations.													

5.3 One Year Development Plan

5.2	Set up supply chains and distribution networks.	Marketing Team	Supply Chain Reliability													
5.3	Recruit local staff for operations, maintenance and customer support	People Team														
5.4	Train staff on Zipline’s drone technology, safety protocols and operational standards	Operations Team	Training ROI: Improvement in operational efficiency or safety metrics post-training													
5.4	Pilot Testing	Operations Team														

5.4 Five-Year Development Plan for Zipline

Task Title	Task Owner	Year 1	Year 2	Year 3	Year 4	Year 5
1. Project Conception and Initiation						
1.1 Operations Research & Setup (Indonesia)	Business Expansion Team	Market analysis and regulatory research. Pilot site identification.	Secure regulatory approvals. Develop distribution sites.	Launch pilot operations. Gather data for scaling.	Expand operations in urban and rural areas.	Achieve full-scale operational integration.
1.1.1 Drone Safety and Public Awareness Campaign	Marketing Team	Launch regional awareness campaigns. Collaborate with local governments.	Assess campaign impact. Expand to other regions.	Implement safety guidelines through partnerships.	Regular safety updates and public workshops.	Institutionalize drone safety protocols.
1.2 Formalize New Healthcare System Partnerships	Business Development Team	Identify healthcare providers and conduct outreach.	Sign MOUs and agreements. Begin pilot healthcare deliveries.	Evaluate and refine healthcare solutions.	Expand partnerships to include private sector.	Nationwide healthcare logistics integration.
1.3 Develop Local Partnerships (NGOs, Governments)	Strategic Partnership Team	Initial meetings and stakeholder mapping.	Formalize agreements. Conduct joint pilot projects.	Integrate NGOs into logistics operations.	Expand collaboration scope for broader impact.	Formalize long-term partnerships and shared funding.
2. Operational Strategies						
2.1 Launch Operations in Europe (France)	Operations Team	Secure regulatory clearances. Partner with healthcare systems.	Build distribution sites. Conduct test flights.	Launch operations. Optimize routes and logistics.	Expand to additional European regions.	Full European market integration.
2.2 Pilot Zero-Emission Distribution Network	Sustainability Team	Design pilot program and assess fleet capabilities.	Launch pilot in targeted regions.	Monitor environmental and operational impact.	Scale pilot to multiple countries.	Fully integrate zero-emission operations globally.
2.3 Improve Battery Efficiency & Flight Range	R&D Team	Conduct feasibility studies and battery R&D.	Test and iterate new battery designs.	Integrate improved batteries into new drone models.	Scale production and replace older models.	Commercialize next-gen batteries for global fleet.

3. Research, Development, and Marketing						
3.1 Vertiport Infrastructure Planning	Infrastructure Team	Conduct feasibility studies and secure funding.	Begin construction of pilot vertiports.	Test vertiport operations. Scale to additional sites.	Integrate with urban logistics hubs.	Standardize vertiport designs globally.
3.2 Develop Recycled Materials for Drones	Sustainability & R&D Team	Research and prototype using sustainable materials.	Conduct durability and cost-efficiency tests.	Begin production of drones with recycled materials.	Replace a portion of the fleet with sustainable models.	Transition fleet to fully sustainable materials.
3.2.1 Urban Drone Logistics Campaign	Marketing Team	Design campaigns to highlight urban efficiency.	Launch initial campaigns in major cities.	Evaluate public perception and refine campaigns.	Expand campaigns to suburban markets.	Position Zipline as the leader in urban drone logistics.
3.2.2 Collaborate with Retailers (E-Commerce)	Strategic Partnership Team	Identify key e-commerce partners. Conduct trials.	Formalize contracts and scale operations.	Optimize routes and delivery efficiency.	Expand offerings to new retail segments.	Integrate drone logistics into national e-commerce networks.
4. Strategic Alliances and Partnerships						
4.1 Strengthen Partnerships and Alliances	Business Development Team	Conduct reviews of existing partnerships.	Renew and expand partnership agreements.	Pilot joint projects with new allies.	Evaluate impact and scale initiatives.	Build a robust ecosystem of stakeholders.
4.2 Public Awareness and Advocacy	Marketing Team	Launch campaigns focused on sustainability and innovation.	Partner with governments for drone-friendly policies.	Conduct educational programs in schools and communities.	Expand campaigns to emphasize economic benefits.	Institutionalize advocacy efforts as a core initiative.
4.3 Launch Operations in Additional African Regions	Operations Team	Market analysis and regulatory research.	Secure agreements and begin setup.	Launch operations in 2-3 new countries.	Evaluate performance and optimize routes.	Expand operations across the continent.
4.4 Expand Drone Fleet and Safety Features	R&D Team	Develop and prototype advanced drone models.	Begin production of next-gen drones.	Test and deploy in pilot regions.	Scale fleet to meet growing demand.	Maintain global leadership in drone safety and innovation.

5.5 Key Milestones

Year 1: Regulatory clearances, pilot launches, and initial infrastructure planning.
Year 2: Establish distribution sites, finalize partnerships, and begin operational pilots.
Year 3: Expand urban and healthcare operations, deploy new technologies, and scale pilots.
Year 4: Full integration of sustainable operations and broader geographic expansion.
Year 5: Achieve global scalability with an emphasis on sustainability, efficiency, and public trust.

5.6 Budget Forecast:

Infrastructure Development: $50M-$70M annually for vertiports and zip sites.
R&D Investment: $30M-$40M annually for battery and material advancements.
Marketing & Public Awareness: $10M annually.

5.7 Revenue Goals:

Year 1-2: Focus on pilot revenues and establishing partnerships.
Year 3: Achieve 20% cost reduction in logistics by the end of Year 3
Year 3-5: Scale operations to achieve projected annual revenue growth of 20-25%.

6 Recommendations

1. Geographic Expansion into SouthEast Asia and Europe

Target emerging markets in South East Asia with logistics challenges, leveraging experience from Sub-Saharan Africa to address underserved rural populations.
In Europe, focus on densely populated urban centers with high sustainability priorities, positioning Zipline as a clean, efficient, and fast alternative for urban logistics (e.g., Paris, Berlin, Amsterdam).

2. Synergy Between Markets

Utilize insights and best practices from existing markets to shape strategies for new regions, emphasizing similarities in logistical challenges and consumer needs (e.g., rural healthcare delivery in South East Asia and Sub-Saharan Africa).
Customize solutions to local needs while building on Zipline’s global reputation.

3. Strategic Positioning as a Solution-Oriented Company

Highlight Zipline's ability to solve critical logistics challenges:
Rural Areas: Efficient delivery of medical supplies and emergency goods in hard-to-reach locations.
Urban Centers: Addressing congestion, sustainability goals, and last-mile delivery issues.

4. Innovative Marketing and Public Perception

Collaborate with content creators to develop dynamic, engaging campaigns showcasing:
Rigorous drone testing processes.
Behind-the-scenes operations, emphasizing reliability and safety.
Real-world impact stories, such as life-saving deliveries.
Utilize these campaigns to shape public perception and build trust in new markets.

5. Policy and Regulatory Engagement

Maintain close collaboration with lawmakers and policymakers to foster favorable regulations for commercial drones.
Advocate for policies that emphasize sustainability, safety, and innovation in drone logistics.

6. Investment in R&D

Focus on developing safer, more lightweight drones to improve flight efficiency and scalability.
Advance battery technology for increased range, faster charging, and reduced environmental impact.
Ensure continuous innovation to maintain Zipline's first-mover advantage in a competitive market.

7. Building Partnerships

Leverage a strong track record of collaborations with NGOs and governments to form new alliances in target regions.
Partner with sustainability-focused companies, such as Tesla, for co-developing cutting-edge batteries, utilizing their strong brand recognition to boost credibility and visibility.

8. Sustainability and Branding

Position Zipline as a leader in green logistics by aligning with global sustainability goals.
Highlight zero-emission operations and contributions to reducing environmental impact in all marketing efforts.

7 Limitation Of This Study

This study was conducted using publicly available information sourced primarily from the Zipline website and external platforms, including YouTube. For insights on general trends and developments in the commercial drone industry that were not available through Zipline, we referred to reports and posts from reputable consulting firms such as McKinsey.

It is important to note that no direct information or internal resources from Zipline were accessed for this study.

Challenges with Financial Data:
Since Zipline is a privately held company, financial data was limited. As a result, financial projections were based on publicly reported investor funding rounds and broader market research into the commercial drone industry.

Opportunities for Enrichment:
While this study provides a solid foundation for understanding Zipline's potential growth trajectory, access to internal company data would significantly enhance the depth and accuracy of the analysis.

Despite these limitations, this study delivers a comprehensive overview and actionable recommendations to support Zipline's strategic growth initiatives. The insights and projections presented herein offer valuable guidance for future planning and decision-making.

References & Links

https://www.thinkglobalhealth.org/article/drones-deliver-humanitarian-aid-africa
https://www.euronews.com/my-europe/2018/07/22/why-is-europe-still-waiting-for-large-scale-amazon-style-drone-deliveries-
https://www.youtube.com/watch?v=BtKdLrJLZ5I
https://sifted.eu/articles/google-nhs-drone-startup-apian
https://sifted.eu/articles/drone-deliveries-manna-aero
https://www.gminsights.com/industry-analysis/delivery-drone-market?gclid=CjwKCAiAmMC6BhA6EiwAdN5iLaVLwbpsPKJ6A2Yf_jbowNG5MM9hfnYPhebyepAXVkB5RWaBYWSVoxoCi3QQAvD_BwE
https://www.easa.europa.eu/en/newsroom-and-events/news/european-commission-adopts-regulatory-package-giving-go-ahead-vtol
https://www.globhe.com/newsroom/2024-eu-drone-regulations
https://www.revolution.aero/deep_dive/zipline-what-goes-up-keeps-raising/
https://www.flyzipline.com/newsroom/news/announcements/revolutionizing-nigerian-healthcare-and-economic-development-with-autonomous-drones
https://www.flyzipline.com/solutions/public-health
https://www.mckinsey.com/industries/aerospace-and-defense/our-insights/future-air-mobility-blog/drones-take-to-the-sky-potentially-disrupting-last-mile-delivery
https://www.jpmorgan.com/insights/international/multinational-corporations/what-to-know-about-expanding-to-southeast-asia
https://www3.weforum.org/docs/WEF_Future_of_Consumption_in_Fast_Growth_Consumer_Markets_ASEAN_2020.pdf
https://www.bain.com/insights/e-conomy-sea-2021/
Technology | Zipline Drone Delivery & Logistics
Drone Delivery for Restaurants: The Essential Guide to Launching Instant Delivery | Zipline Drone Delivery & Logistics
Guides | Zipline Drone Delivery & Logistics
Zipline Fact Sheet | Zipline Drone Delivery & Logistics
https://www.flyeye.io/france-drone-regulations-basic-rules/#:~:text=For%20Recreational%20Use%3A%20Operators%20must,on%20the%20type%20of%20operation.
https://www.youtube.com/watch?v=DOWDNBu9DkU