Scope of Work:

- **Drone Evaluation:** Determine the most suitable drone for operations in hub and spoke model.

The Drone Evaluator is an automation of the Drone selector algorithm, which takes in multiple inputs and gives an approximation for the ideal drone to perform a particular journey.

To make a particular delivery, an appropriate drone is to be chosen, one that would minimise the fuel intake and overall cost. This can be picked from one of the following scenarios:

Using a:

1. Drone that is stationary at the hub

2. Drone that is flying out to make a delivery (not crossed halfway on its destination), that can be called back to pick up the additional package.

3. Drone that is flying out to make a delivery (having crossed halfway on its destination), that can be waited for, to drop its package and return to pick up the next bundle.

The choice of drone depends on several factors including its present location, ongoing deliveries (if any), battery remaining, mass carrying capacity, source & destination, weather & climatic factors, air resistance, altitude etc.

Hubs and Spokes:

Hubs are healthcare hotspots that serve as the resource centers (usually places with major health centres & hospitals, big cities etc). Drones, carrying the medical goods, fly out to 'Stations' (much like post offices or domestic airports), where they drop their package and either fly on to make the next delivery or back to the hub. In addition to being the resource centres, these are also recharging points for the drones and each hub has 6 drones associated with it and connects to at least 5 stations.

The Drone Evaluation Algorithm, takes all of the factors that may affect the drone including package size, location etc. into account by using them as inputs into a mathematical equation based on simple physical laws and equations of motion, and provides an estimate for the most appropriate Drone for a particular delivery.
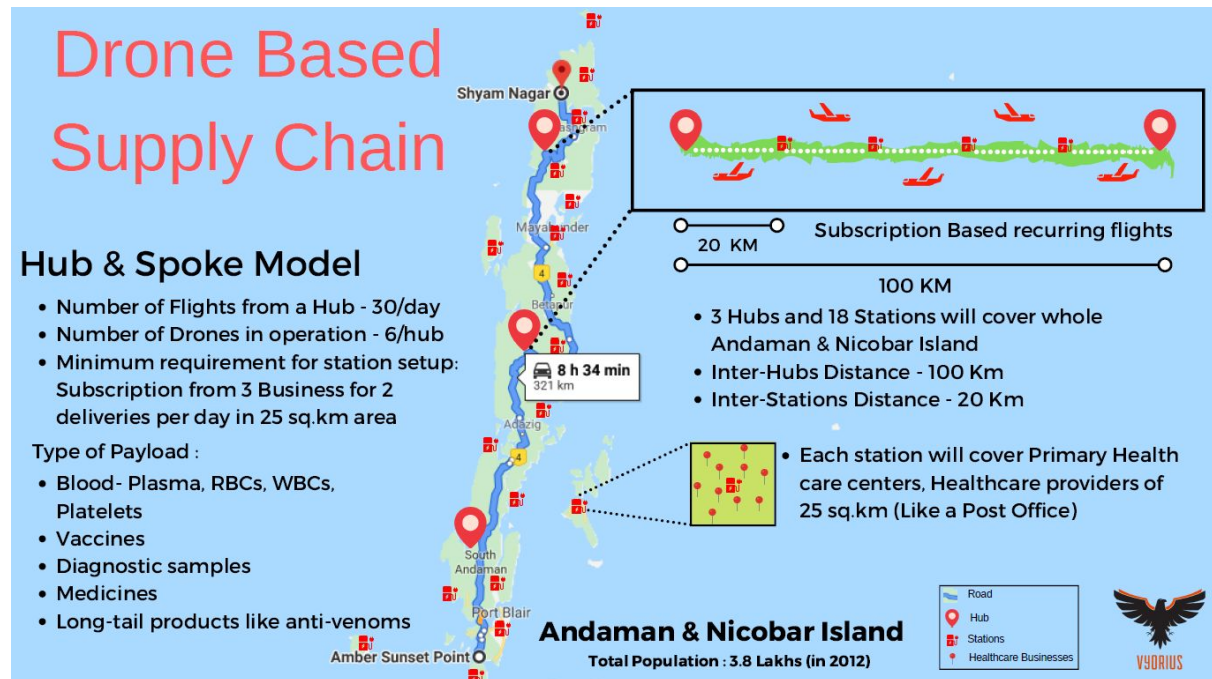
Reference:

Drone Based Supply Chain

Hub & Spoke Model

- Number of Flights from a Hub - 30/day
- Number of Drones in operation - 6/hub
- Minimum requirement for station setup: Subscription from 3 Business for 2 deliveries per day in 25 sq.km area

Type of Payload :

- Blood- Plasma, RBCs, WBCs, Platelets
- Vaccines
- Diagnostic samples
- Medicines
- Long-tail products like anti-venoms

Subscription Based recurring flights

20 KM

100 KM

- 3 Hubs and 18 Stations will cover whole Andaman & Nicobar Island
- Inter-Hubs Distance - 100 Km
- Inter-Stations Distance - 20 Km

- Each station will cover Primary Health care centers, Healthcare providers of 25 sq.km (Like a Post Office)

8 h 34 min
321 km

Shyam Nagar
Mayabunder
Betapur
Adazig
South Andaman
Port Blair
Amber Sunset Point

Andaman & Nicobar Island
Total Population : 3.8 Lakhs (in 2012)

Road
Hub
Stations
Healthcare Businesses

VYORIUS