

RETHINKING AIR LOGISTICS

PROJECT STATEMENT

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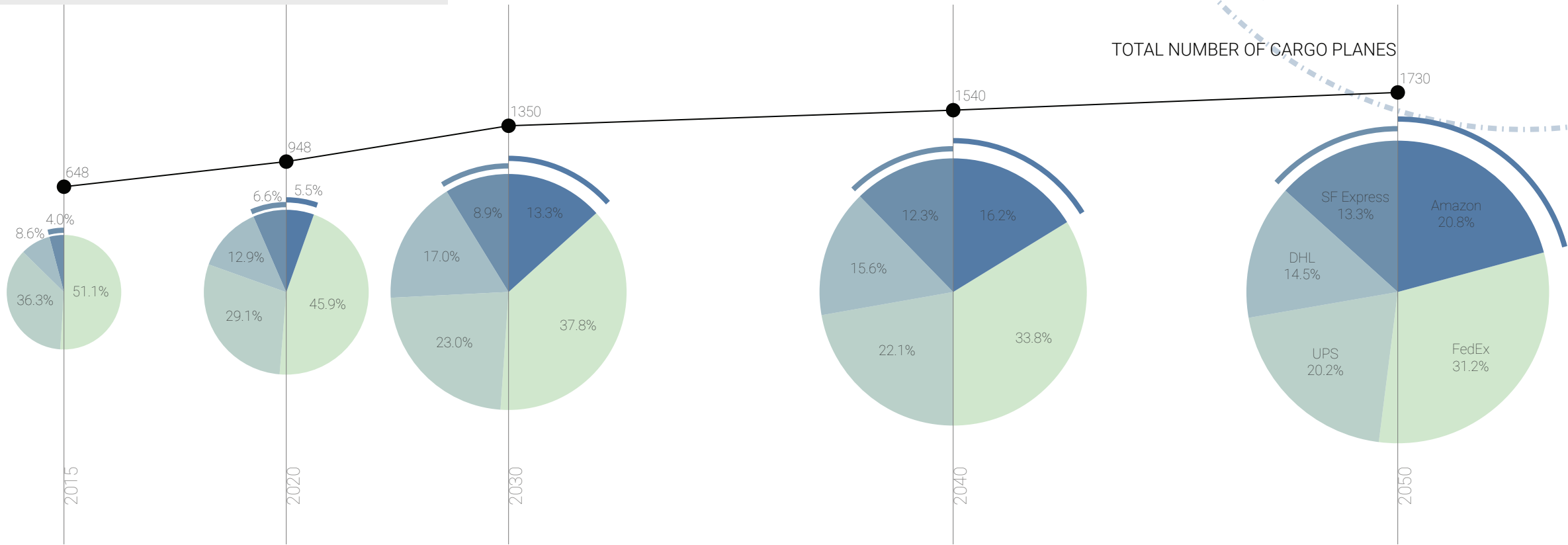
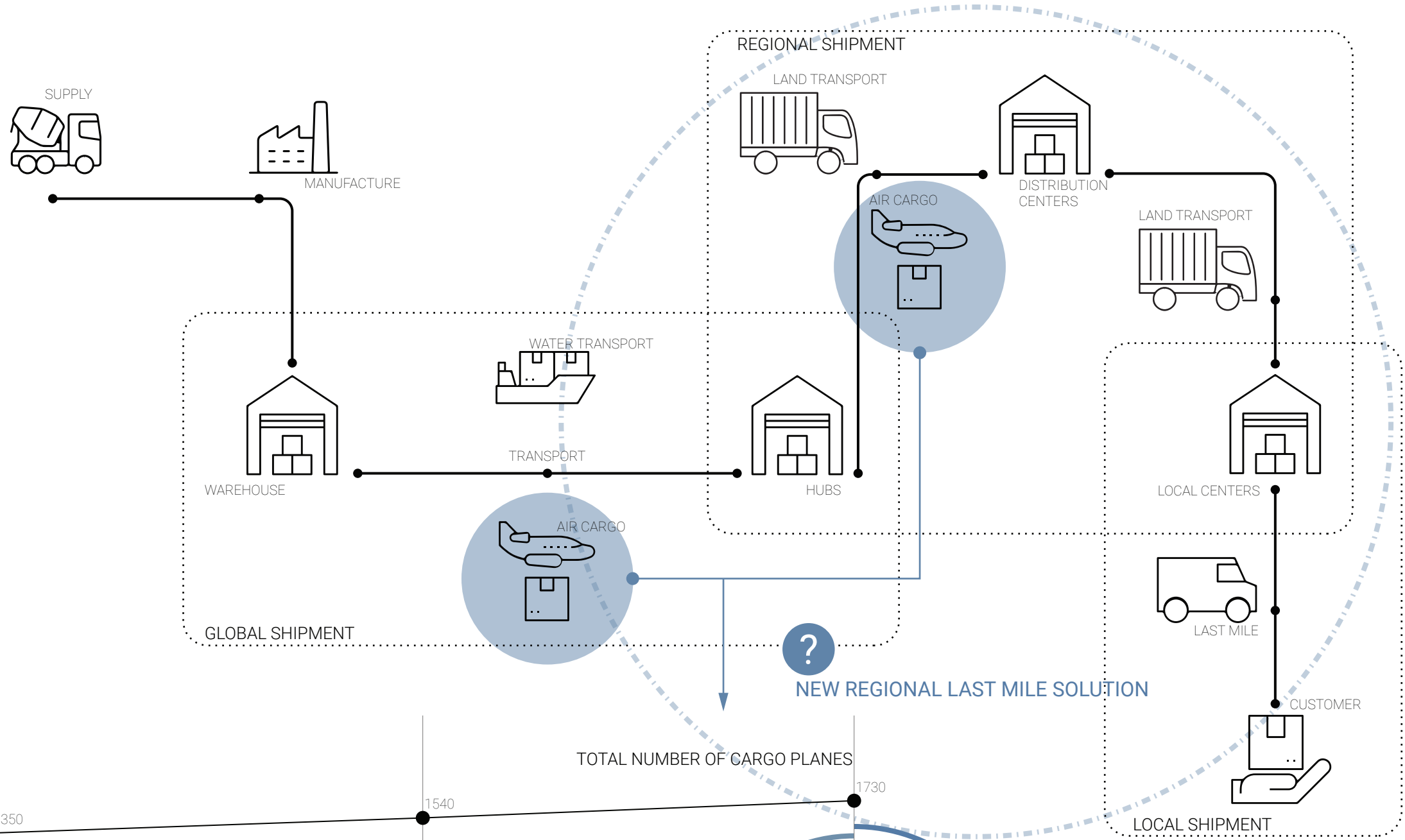
As the global economy continues to grow, the field of small industry and integrated market platforms gradually takes a more significant portion of the overall market. The expansion of those business models requires a logistic solid foundation to function. Logistics is an essential industry in the world but is sometimes neglected by architects. This project will focus on the topic of logistics and envision a potential change that may happen in the future, which would drastically change the logistic operation and infrastructure.

With the growth of market platforms like Amazon, those companies are eager to detach their reliance on major shipping companies like FedEx and UPS, so they established their own cargo airlines. With the rapid growth, we can see a future of competition in air freighter ownership. It may come to a time to rethink the air logistics with this trend.

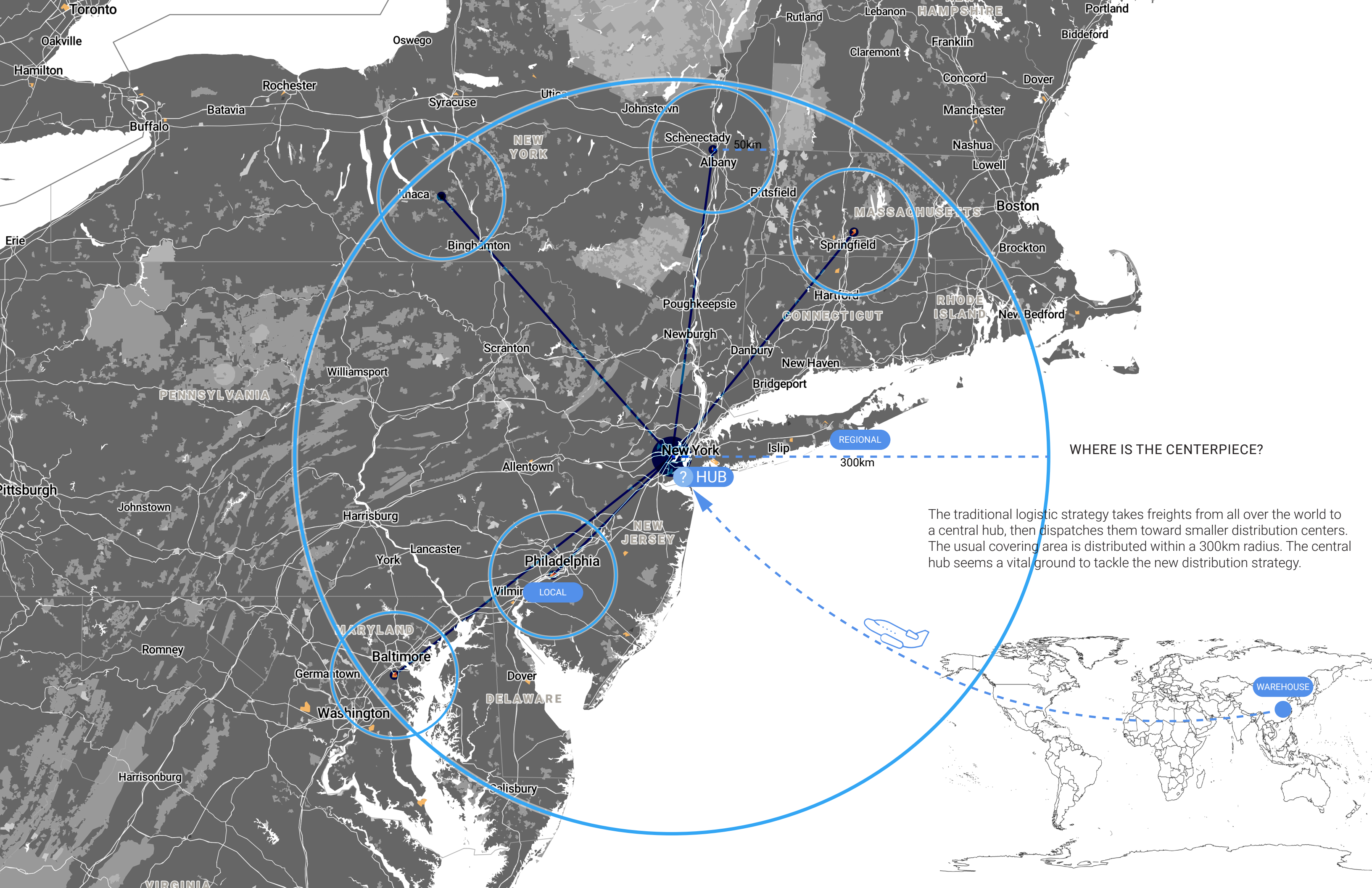
Within this project, air logistics is broken down into three stages– global shipment, regional shipment, and local shipment– where the project would concentrate on the alternation of a new regional shipment method, proposing a new “last mile” air shipment strategy that would take the advantage of the technological development while releasing the burden of labor and energy.

WHAT IS THE PROBLEM?

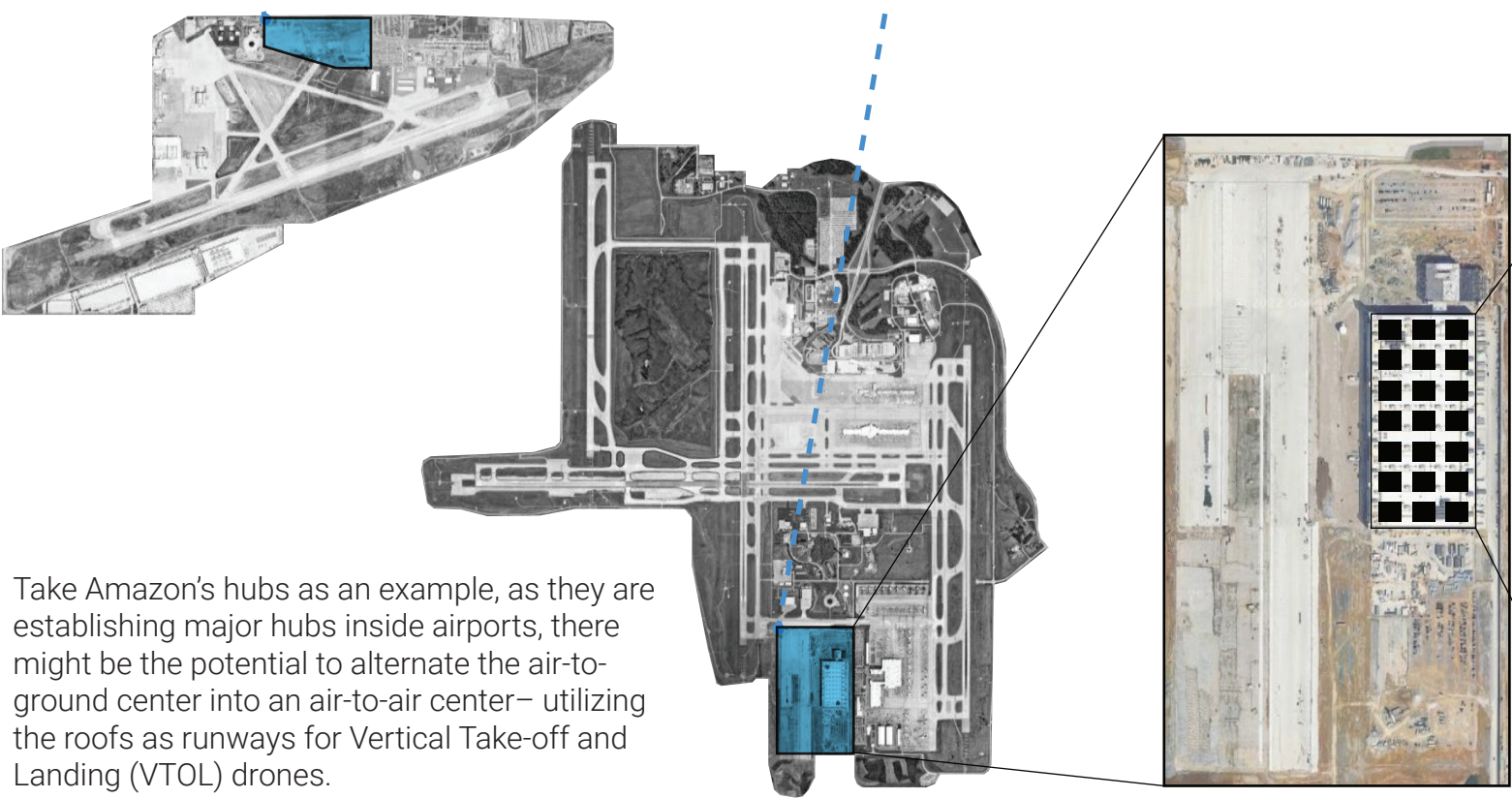
As small business continues to grow, airlines owned by those companies (SF Express & Prime Air) are expanding their air cargo capacity at an unignorable rate. There may be a possibility that the air freighter ownership of those companies would exceed those of the traditional shipment companies.



As for the current general freight logistic chain, why don't we propose a new way to think through the process?

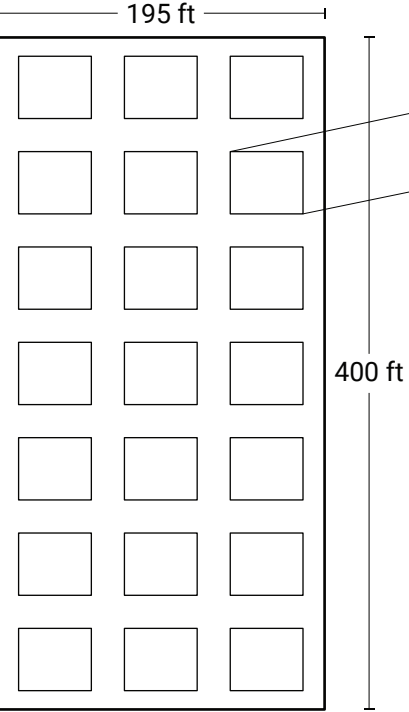


HOW DOES IT WORK?



Take Amazon’s hubs as an example, as they are establishing major hubs inside airports, there might be the potential to alternate the air-to-ground center into an air-to-air center– utilizing the roofs as runways for Vertical Take-off and Landing (VTOL) drones.

21 DRONE RUNWAYS

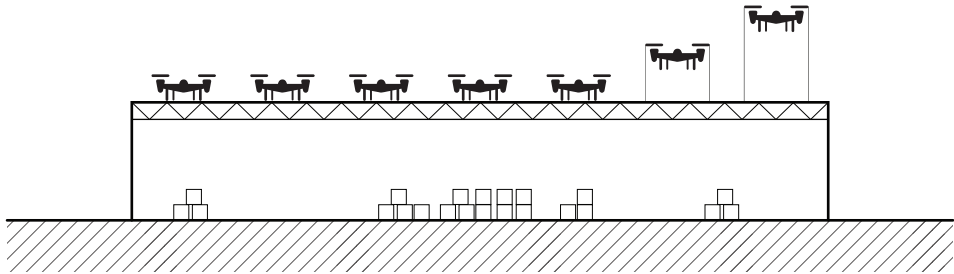
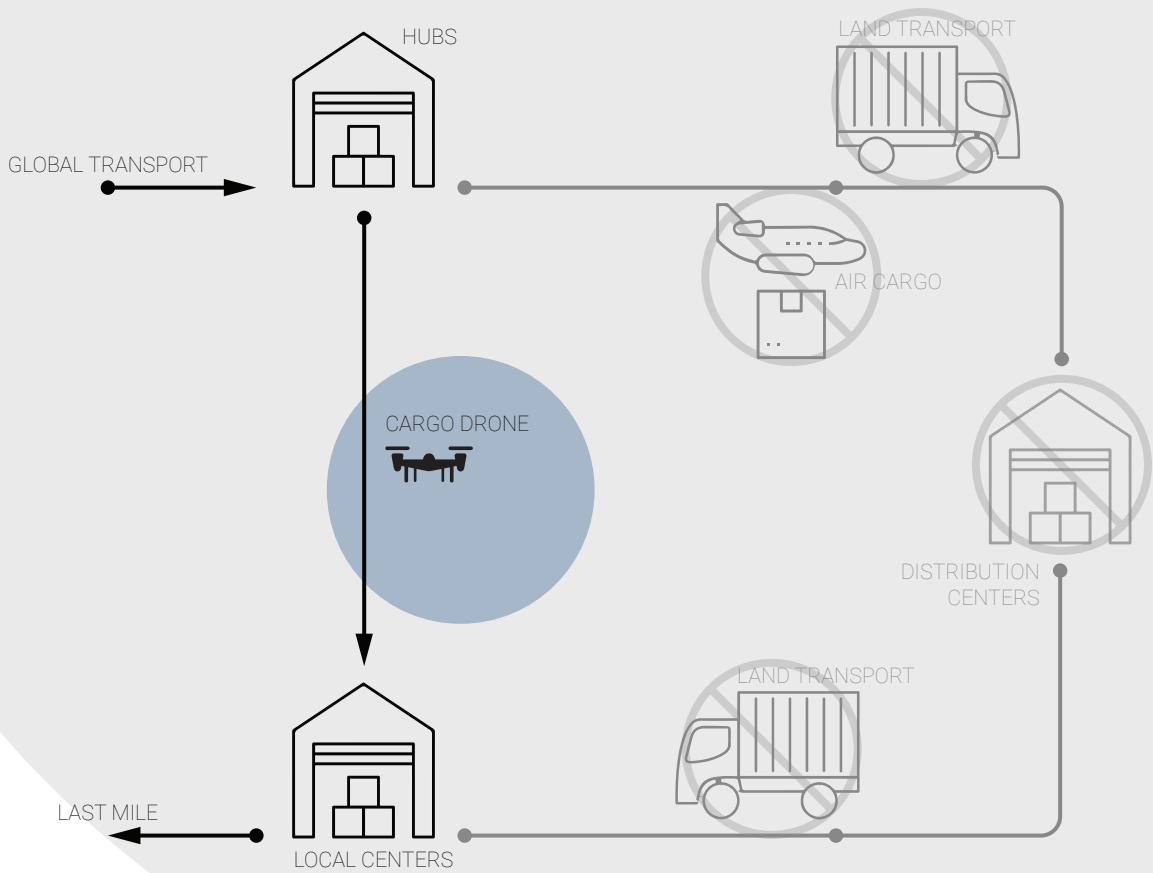


NUUVA V300

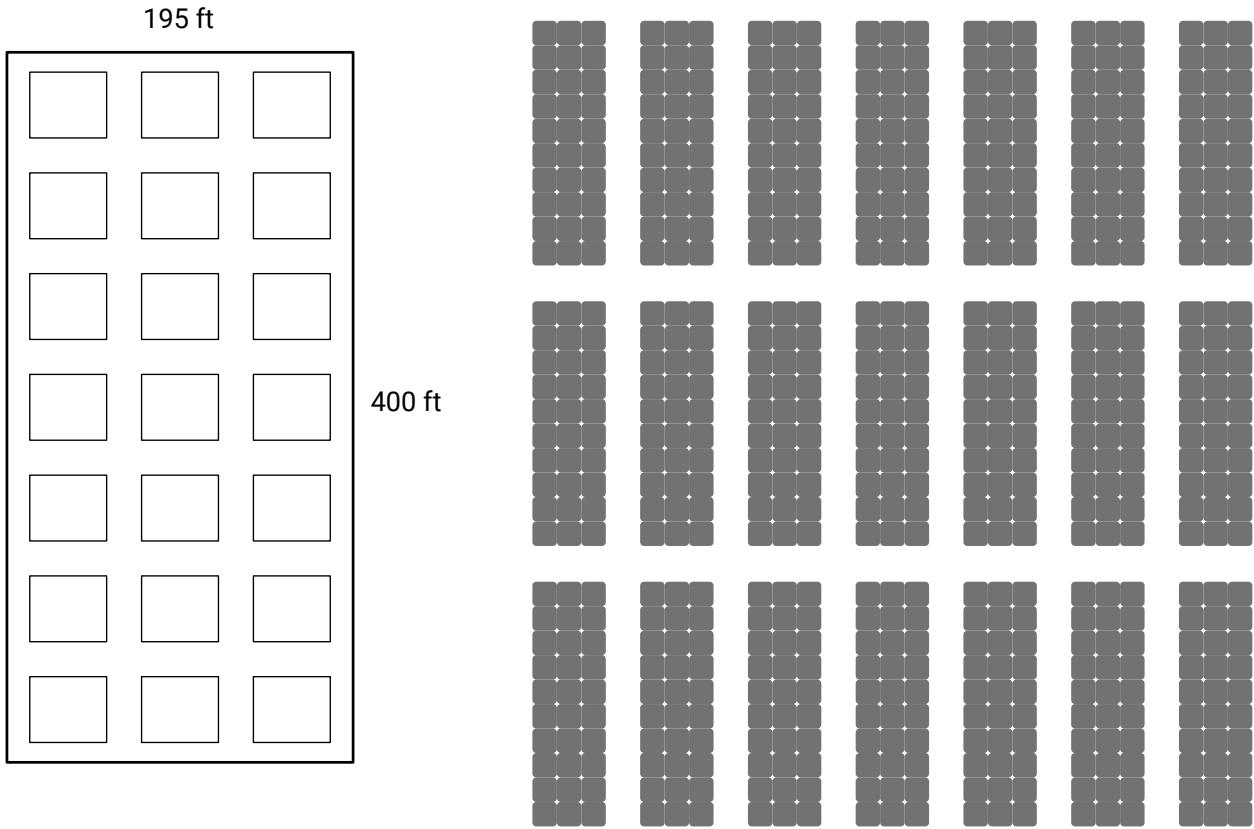
Wingspan
43.3ft / 13.2m
Length
33ft / 11.3m



The NUUVA V300 by Pipistrel is the basic model for the cargo drone. The typical mission range of 300km would satisfy the shipment to any local distribution center as in the traditional logistic strategy.



WHAT ARE THE PAYOFFS?

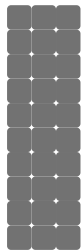


Since the drone strategy may take over many plane and truck shipments, there are significant benefits through energy and time. The VTOL cargo aircraft may save a lot more energy compared to those currently most-used air freighters (such as Boeing 737-800). As for the replacement of trucks, this unmanned drone saves labor, time (typically half of the time for a 300km mission), and fuel consumption.

HUB DRONE CARGO LOAD

NUUVA V300

Cargo Capacity: 300 kg



Energy Consumption: 30 l/hr / 8 gal/hr



Fuel Consumption for 300km Mission Compare to Class 7 Truck Save: 16 gal



Fuel Consumption for Same Freight Load as Boeing 737-800 Cargo: 640 gal/hr Save: 210 gal/hr

