

Feasibility Assessment, ITA and the NppR e-Cargo, a Recommendation for Aligning Community Expectations with their Different Roles.

While we cannot influence the macro-economic ecosystem, we can address and improve a vision for the addressable market, feasibility and a combined, integrated, business & technical CONOPS.

Airline deregulation in the late 1970s led to expanded cargo service, generally reduced cargo rates, and spurred substantial innovation in the types of services offered. The Airline Deregulation Act of 1978 gave U.S. air carriers almost total freedom to decide which domestic markets they would serve, and how much they would charge for that service. In particular, nationwide overnight shipping became more affordable and virtually ubiquitous.

The effects of deregulation were dramatic. Air and parcel service (FedEx, UPS, etc., which involve multimodal transportation) accounted for 5.4 percent of domestic shipments by value. By 2012, this had risen to 14.5 percent.

Basic innovations arising in the immediate post-regulation environment provided a foundation for the expansion of lean manufacturing and lean retailing processes. These rely heavily on just-in-time delivery services offered by carriers such as UPS and FedEx.

Another innovation facilitated by deregulation is e-commerce, as typified by the online retail giant Amazon.com and the online auction house eBay.com. These market-making platforms, as well as the online presence of countless individual retailers, has become an important component of the modern economy. The interaction between online retailers and air cargo deregulation improved the ability of parcel shippers able to support the complex supply chains. This made possible the rapid 1–2-day shipping of goods and tracking of shipments characteristic of modern e-commerce.

Deregulation of air cargo was a key element in the emergence of modern supply chain management also allowed wider access to goods supplied by domestic and international sources. It also facilitated trade to foreign markets. It improved the efficiency of hub-and-spoke models for air cargo, by reducing total costs, and enabled more export products to reach international markets. As a result, expanding air cargo and passenger operations provides an accessible market for utility aircraft.

The lesson is clear: continued success and innovation in air transport, cargo and the many industries that have grown up around it depend on a consistent light-touch regulatory environment. Remaining inefficiencies in air cargo are found in the airports. Seventy percent of transit time for air cargo is spent waiting on the ground and limited access to cargo hubs in small towns and rural areas. As time is air cargo's comparative advantage, this represents a significant impediment to realizing the full benefits of air cargo when shippers are outside of urban areas.

Policymakers should consider the possibility of allowing market forces to find innovative solutions to the remaining problematic areas in the air cargo transport industry.

A description for the cargo hub-and-spoke air cargo systems is available in the appendix. Italian and EU transportation policies have a focus for high-speed-rail. In the US High-speed rail has not been a priority. This has contributed to the North American utilization of utility cargo feeder aircraft also providing an accessible market for the utility aircraft manufactures.

The results of the 1970s deregulation suggests the possibility of similar opportunities available with the emerging restructuring of the Italian ITA for both domestic and international --- awaiting discovery. -- in other regulated areas including portions of the Italian air cargo industry and its interface with EU and international markets. Let's take a look.

An Update for the Italian ITA Situation and a Proposed Path Forward.

Positive steps for the vitality of the ITA airlines; The board of directors of **ITA Airways** has communicated their approved **industrial plan** to Deutsche **Lufthansa** AG. 30 March 2023, the Minister of Economy and Finance Giancarlo Giorgetti met the CEO of Lufthansa, Carsten Spohr, and the president of **ITA**, Antonino Turicchi, ~~met~~ at the MEF (*Mef (International Development Cooperation side discussion): "Progress in the direction of partnership"*). The Ministry explained during the positive conversation, "we shared our industrial plan for the development of **ITA Airways** in terms of fleet, network, and strategic objectives. With today's meeting, combined with the Dpcm, further progress is made in the direction of the industrial partnership between the two carriers". Negotiations to finalize economic evaluations expected to be completed within the next 30 days.

Alitalia, loan was rejected in the same timeframe. The former Italian carrier went bankrupt and therefore will not be able to meet their loan commitments. What matters most is that **ITA**, born from the ashes of Alitalia, has resized to mark the discontinuity. There will not be setbacks. **ITA is safe.**

ITA Airways became a member of SkyTeam Cargo alliance as of October 2021. They operate for cargo and mail transportation uses the bellies of its long-haul passenger aircraft and other Sky Team Cargo industrial partners. Rome Fiumicino Airport is ITA's freight hub. Their geographical network coverage is integrated with a **road feeder service**. ITA Airways Cargo is partnering with WebCargo to further increase their market network's capacity and services. Digital distribution expansion is a key strategic pillar of ITA Airways Cargo business development expansion.

Cargo Feeder Business has the potential for expanding ITA's and Italy's business base. let's look at a typical Road Trucking Cargo Feeder Service to understand it's operational concepts and enhancement opportunities utilizing electrical propulsion utility air cargo technology.

Forward Air (FORD - NYSE) --- a Less Than Truckload, LTL logistics company, is a useful example. It ranks in the upper segment for US public traded LTL cargo companies. A public company has

Top Lists of 2022

TOP 25 LESS-THAN-TRUCKLOAD CARRIERS: 2021 REVENUES
(Including fuel surcharges)

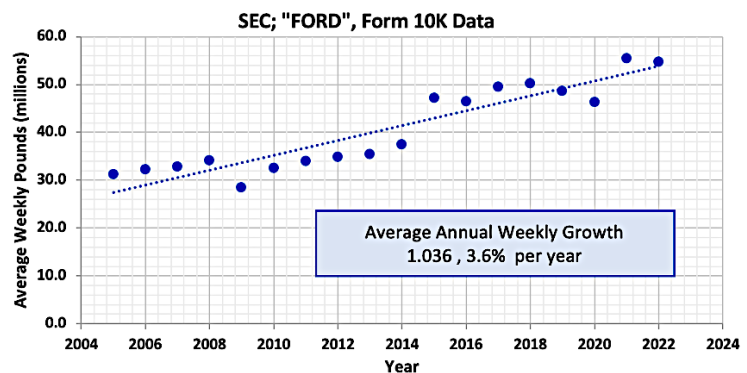
Rank	Carrier name	2020 Revenue (\$ million)	2021 Revenue (\$ million)	YoY % Change 2020-2021
1	FedEx Freight*	\$7,115	\$8,594	20.8%
2	Old Dominion Freight Line*	\$3,961	\$5,177	30.7%
3	Yellow Corp*	\$4,488	\$5,078	13.1%
4	XPO Logistics*	\$3,575	\$4,192	17.3%
5	Estes Express Lines	\$3,068	\$3,783	23.3%
6	TFI International (US Only)*	\$2,898	\$3,179	9.7%
7	ABF Freight System*	\$2,036	\$2,518	23.7%
8	R+L Carriers	\$1,973	\$2,427	23.0%
9	Saia Motor Freight Line*	\$1,822	\$2,289	25.6%
10	Southeastern Freight Lines	\$1,256	\$1,476	17.5%
11	Averitt Express	\$831	\$1,093	31.5%
12	Central Transport Int'l	\$871	\$1,046	20.1%
13	Dayton Freight Lines	\$669	\$863	29.0%
14	Forward Air*	\$626	\$831	32.7%
15	Pitt Ohio Transportation Group	\$653	\$780	19.4%
16	AAA Cooper Transportation	\$592	\$653	10.3%
17	A. Duie Pyle	\$380	\$481	26.6%
18	Roadrunner Transportation	\$430	\$430	0.0%
19	Daylight Transport	\$270	\$380	40.7%
20	Oak Harbor Freight Lines	\$237	\$284	19.8%
21	Central Freight Lines	\$256	\$262	2.3%
22	Ward Trucking Corporation	\$183	\$230	25.7%
23	Midwest Motor Express	\$120	\$137	14.2%
24	Magnum LTL	\$74	\$118	59.5%
25	Dependable Highway Express	\$87	\$117	34.5%
TOTAL TOP 25 LTL CARRIERS		\$38,482	\$46,418	20.6%
ALL OTHER CARRIERS		\$3,623	\$4,284	18.2%
TOTAL LTL MARKET		\$42,105	\$50,702	20.4%

*Publicly Traded Company
 Note 1: Revenue for U.S. LTL operations primarily, and includes revenue from fuel surcharge and shipments weighing over 10,000 pounds
 Note 2: Shipment volume increased by 7.1% and tonnage by 7.7% in 2021 over 2020
 Note 3: Fuel surcharge represented 2.9% increase in revenue in 2021 over 2020
 Note 4: With 2021 having 1 to 2 fewer operating days than 2020, revenue per day was even higher than listed above.
 Source: Companies and SJ Consulting Group estimates
 Prepared by SJ Consulting Group, Inc.

available, useful, data. FORD's average weekly cargo volume moving through network in 2019 was approximately **48.6 million pounds (22,445 kgs) per week**. The average individual shipment weighed approximately **621 pounds (282 kgs)**. During 2021, approximately 29% of the freight handled by Forward Air's LTL network was for overnight delivery, approximately 57% was for delivery within two to three days and the balance was for delivery in four or more days. The average weekly volume of cargo was approximately **55.4 million pounds (25,129kgs) per week in 2021**. During 2021, their individual average shipments weighed approximately **729 pounds (330kgs)**.

The 2022 average weekly volume of freight moving through Forward Air's LTL network was approximately **54.8 million**

pounds (24,857 kgs) per week with average individual shipments weighing approximately **764 pounds (347 kgs)**. About 28% of the freight handled by Forward Air's LTL network was overnight delivery, approximately 59% was for delivery within two to three days and the balance was for delivery in four or more days. This chart summarizes the average weekly volume of freight moving through FORD's network for each year since 2005. The chart illustrates a volatile logistics demand but a resilient -- expanding market:



Total US LTL industry TAM ~\$86 Billion (Total Assessable Market)
 Premium LTL TAM ~ \$13 Billion

FWRD Market Share ~ 7% capture only a small fraction of the US TAM gaining market share. Source: Statista 2021 LTL Market Size Estimated, Premium LTL Forward Air Estimate

Less-than-truckload shipping or **less than aircraft load (LTL) carriers** (*trucking and/or feeder air*) are freight/cargo logistics companies that transport goods from more than one customer on the same vehicle and/or in air freighters or full-size container trucks. The FedEx system, as a hybrid example is a blend of road, and air operations. Individual shipments are usually too large for



typical parcel deliveries but smaller than **Full Truck or Air Freight Loads**. Parcel carriers handle small packages and cargo that can be broken down into units less than approximately 150 pounds (68 kg). The term *LTL (comes from the trucking industry)* but also refer to the freight itself, not specific to the carrier that transports the cargo. Typical LTL weights range between 10kg (22lbs) to 1,00kg (2,204lbs), a payload range compatible with CS (Part) 23 utility class aircraft. Payloads for typical 9 and 19 Pax equivariant a/c are shown for the 2 a/c in the image above.

Estimating a market can be challenging. Let's look at an example to frame a projection in the context of the TAM, SAM, and SOM

- **Total addressable market (TAM)** — the total possible users
- **Serviceable addressable market (SAM)** — the realistic number of customers who can be reached in terms of market access, regulation, and other logistics.
- **Serviceable obtainable market (SOM)** — the specific customer universe that the company can reasonably serve under its current or future expansion strategy.

As an example, **the ITA Express** subcomponent addresses the need for fast processing times of the goods: for shipments weighing up to **70 kg (154 lbs)** per package and their **Heavy Express** is dedicated to large shipments that require rapid handling for shipments weighing over **300 kg (661 lbs)** and packages over **70 kg (154 lbs)**. Using the Forward Air data as a surrogate, a 10% SOM Express weight per week would be about 0.10(50,000 lbs/week) ~ 5,000 Lbs/week (2,268 kgs/week). This may be about 7% of the current Italian Express cargo, 71,428 lbs (32,399kgs) per week. That is about 36 flights (9 PAX equivalent – image above) per week averaging 85% cargo load per flight. In a spoke and hub feeder system 2 to 3 routs with some intermediate stops per route, the cargo fleet would be about 12 to 18 a/c for the 7% SOM market share. The cargo market has been growing between 3 to 4% per year. Expansion goals for ITA (not known) but could be a factor of 2 or 3 in the next few years.

Changing the focus, from an air cargo logistics operator to rejuvenating Italy's Utility aircraft OEM's. The sustainable aircraft market may be as large as the 9,319 utility cargo deliveries between 1947 to 2020. About 40% of these deliveries were for cargo usage with STOL capabilities. The top 9 OEMs individual deliveries averaged 335 aircraft per year.

Sustainability and improved operational efficiencies are expanding the middle mile feeder LTL aircraft market. Conversions of LTL trucks to air cargo feeder vehicles would a portion of this TAM expanding at about 3.6% per year.

Why? Businesses are shipping smaller quantities of freight more frequently. – they are not shipping full truckloads now due to a tightening economy. A different type of supply chain environment has evolved — one that centers around e-commerce and LTL air cargo and trucking shipments. LTL cargo over the last four or five years has outpaced truckload growth across North America and Italy. *Increasing volumes of freight operators are now converting from what was probably truckloads of goods into a growing LTL regional cargo distribution pattern.* It is true that Italy's reliance on high-speed rail is appropriate for urban needs, but it has starved the central and southern Italian regions of the appropriate logistics that supports jobs and economic growth. Home markets are an advantage that the US has for financing and maturing new state-of-the-art vehicles and their support systems limiting Italy's PMIs competitiveness and private funding.

Feasibility assessment, ITA and the NppR; valuations of economic and social investments for adoption of emerging technology is never straightforward. For startups with little or no revenue or profits or history and less-than-certain futures, the job of assigning a valuation is particularly difficult. *To mitigate these challenges, there are the resources of the Pnrr which, together with the Cohesion Funds, are a significant opportunity, a time-limited opportunity not to be missed.*

Conclusion: Aligning community expectations with their roles is suggested. It would be useful to have a joint assessment involving ITA Cargo, supported by the Confindustria (representing the regional cargo logistics needs). This would raise the visibility and feasibility for the modernization and sustainability of Italy's legacy cargo feeder system and PMI utility OEMs. Italian Utility manufactures, "startups," will have to-prove that there is a market. Once they prove there's a market, the investments will come as they improve their viability and feasibility for private and public funding.

APPENDIX: The air Cargo hub and spoke system. Who are the customers?

Air cargo shipments begin with the shipper. This can be an individual, a small entrepreneur or a major manufacturer with an item to ship. Shippers have the option of taking a product directly to a carrier or alternatively using a third-party logistics provider (usually a freight forwarder) to find the best shipping options and to ensure that all the arrangements are made.

There are several shipping channels. Air cargo carriers provide differing service based on customer demands. The primary distribution channels for air freight and mail include:

INTEGRATED EXPRESS CARRIERS: These carriers include FedEx, UPS, and DHL, which operate with a very tight shipping window to their Midwest distribution hub (FedEx in Memphis, UPS in Louisville, and DHL in Cincinnati). They operate a large fleet of scheduled aircraft, trucks, and couriers for door-to-door service. Typically, integrated express companies provide next-day and deferred time-definite delivery of documents and small packages (two to 70 pounds).

ALL-CARGO FREIGHTER AIRLINES: A carrier that generally operates scheduled wide-body and/or containerized cargo aircraft from one major airport to another. All-cargo carriers include Atlas Air Cargo, Kalitta, Evergreen, Cargolux, and Polar Air Cargo.

COMMERCIAL PASSENGER AIRLINES: Scheduled passenger airlines use space in the belly of aircraft to move cargo from airport to airport. The air cargo services provided by passenger carriers can vary in terms of scope and size depending on the airline and the aircraft available. Carriers that offer air cargo service in the belly of passenger aircraft include Delta, United, American, and Southwest.

FREIGHT FORWARDERS: An intermediary that arranges the best means of transport for goods, typically by accepting small packages from shippers and consolidating them into container loads. These loads are then transferred to the non-integrated carrier or passenger airlines to deliver to an agent or subsidiary at the destination airport. Forwarders include Panalpina and Expeditors. Integrated express carrier DHL is also a major forwarder and UPS and FedEx have been strengthening their freight forwarding divisions in recent years and including more and more shipments of heavy freight and bulk shipments.

REGIONAL AIR CARGO CARRIERS: These carriers operate between market stations and smaller or more remote cargo markets, typically in support of a larger integrated express cargo operator such as FedEx, UPS, or DHL. South Aero and Mountain Air Cargo are examples of contracted 'feeder' airlines to both UPS and FedEx. Feeder flights often transport cargo from a smaller market and feed cargo to an awaiting cargo jet bound for the carrier's hub. Regional feeder aircraft may also fly directly to a hub. Ameriflight is a regional cargo carrier not affiliated with any larger airline, providing custom and time-critical charter flights moving air freight from point to point.

CONSOLIDATORS: A company that combines shipments to a common destination. By combining the shipments, the cost per pound can be reduced, and a savings can be passed along

to everyone in the shipping chain. Domestic shipments are typically off-loaded at the destination airport and are picked up by or delivered to the consignee by truck.

<https://crp.trb.org/acrpwebresource1/role-of-the-airport/>

Trucking:

The combined deregulation effects of trucking and the air cargo/freight system, are similar business structure structures:

PRIVATE FLEET TRUCKING COMPANIES: There are 799,342 private fleets in the U.S. ([in-house teams of trucks](#) that businesses use to move their own cargo). Private fleets generally use employee drivers (pilots for aircraft).

FOR-HIRE TRUCKING COMPANIES: There are 928,647 for-hire carriers in the U.S. (carriers who contract with shippers to move loads). Owner-operators fall into this category working as independent contractors. This is due to extreme fragmentation of the for-hire air and trucking markets — 97% of U.S. carriers operate fewer than 20 vehicles (air cargo feeder aircraft).

<https://resources.coyote.com/source/owner-operator-deep-dive#ab5>

Has government policy influenced air and trucking logistics operations – trucks and trains and airplanes? Does it address access, or lack of access in rural areas to high-speed rail? Is it a major factor?