

MY WEIRD PROMPTS

Podcast Transcript

EPISODE #195

The Secret Economy Under Your Feet: Air Cargo Explained

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EPISODE SYNOPSIS

In this episode of My Weird Prompts, hosts Corn and Herman peel back the floorboards of the aviation industry to reveal the hidden economy of air freight. They explore the fascinating "belly cargo" phenomenon, explaining how nearly half of the world's air-shipped goods travel in the holds of standard passenger flights rather than dedicated freighters. The discussion covers the sophisticated AI-driven systems that manage capacity in real-time and the specialized Unit Load Devices (ULDs) that make rapid loading possible. Listeners will learn how global events like the Red Sea crisis have reshaped logistics and why high-value items like semiconductors and perishables are often the silent passengers on your next vacation flight. It is a deep dive into the high-stakes, high-tech world of global trade that operates just inches below your feet, proving that for many airlines, the cargo is just as important as the passengers.

DANIEL'S PROMPT

Daniel

How does the process of transporting air freight in commercial aviation work, specifically regarding how cargo is distributed between dedicated freight planes and passenger flights? Is there an automated system for allocating cargo to commercial flights, and do all airlines participate in this practice?

TRANSCRIPT

Corn

Hey everyone, welcome back to My Weird Prompts. I am Corn, and I am sitting here in our living room in Jerusalem, looking out at a surprisingly clear January sky. It is January eighth, two thousand twenty-six, and the world of aviation is moving faster than ever. You know, Herman, looking out at the Judean hills today, it is hard not to think about how much this specific patch of sky has been through in the last couple of years. From the flight disruptions of twenty-twenty-four to the massive logistics rerouting we saw throughout twenty-twenty-five, the air above us is basically a giant, invisible scoreboard for global trade.

Herman

It really is, Corn. And I am Herman Poppleberry, ready to dive into the logistics of that very scoreboard. You know, we have spent a lot of time lately talking about what is happening in the air. Just last week in episode two hundred ninety-four, we were looking at the physics of missile detection, which touches on that intersection of security and aviation. And before that, we looked at those invisible highways in the North Atlantic. But today, we are looking at what is actually inside those planes. It is a topic that feels particularly relevant right now, especially as we see the global supply chain stabilizing after the massive sea-to-air shift caused by the Red Sea crisis over the last eighteen months.

Corn

Right, and this topic comes straight from our housemate Daniel. He was asking about how air freight actually works, specifically that weird split between dedicated cargo planes and the passenger flights we all take. He noticed how disruptions in the region, like the conflicts we have seen and the resulting maritime chaos, immediately ripple through the freight world. He wanted to know if there is an automated system for this and if every airline plays the game. And the answer, as usual, is both fascinating and incredibly complex.

Herman

It is a great observation. Most people think of their flight as a bus with wings, just carrying people and their suitcases. But beneath your feet, there is a whole secondary economy happening that keeps the global supply chain alive. In fact, for many of the flights crossing the Atlantic or the Pacific today, the people in the seats are almost a secondary consideration compared to the high-value cargo in the hold.

Corn

So let us start with the basics. When we talk about air freight, we are not just talking about the big brown or purple planes from FedEx or United Parcel Service. We are talking about the belly of a standard Boeing seven eighty-seven or an Airbus A three fifty. Herman, what is the actual ratio here? How much of the world's stuff is traveling on passenger flights versus those dedicated freighters?

Herman

Historically, it is roughly a fifty-fifty split. About half of all air cargo globally is carried in the bellies of passenger aircraft. We call this belly cargo. The other half goes on main-deck freighters, which are planes specifically designed or converted to carry only freight. Now, during the pandemic years, those numbers shifted wildly because passenger flights were grounded. But as we sit here in early two thousand twenty-six, we have seen a stabilization as long-haul passenger flying has returned. Recent industry data suggests that belly cargo now represents around half of international freight capacity again, and in some markets slightly more than half, as airlines fly more wide-body jets and restore routes.

Corn

That is wild to think about. If I am flying from Tel Aviv to New York, there might be a few tons of high-end electronics or fresh flowers right underneath my seat. But how does that space get allocated? Daniel asked if there is an automated system. Is there like an Uber for air freight?

Herman

It is more like a high-frequency trading floor mixed with a very complex Tetris game. There is not one single global system that everyone uses, but there are massive, interconnected platforms that have become the industry standard over the last few years. The big ones are systems like Cargo dot one or WebCargo by Freightos. These act as marketplaces where freight forwarders, who are basically the travel agents for boxes, can see real-time capacity and book space in seconds. By twenty-twenty-six, these platforms connect hundreds of airlines and forwarders and cover a substantial share of the scheduled, bookable air cargo market, representing a large portion of global air cargo capacity, even if not literally all of it.

Corn

Okay, so it is a marketplace. But from the airline's perspective, how do they know how much room they have? I mean, passengers have suitcases. Some people bring three bags, some bring none. How does an airline like Lufthansa or El Al know they can sell five tons of space to a tech company three weeks in advance?

Herman

This is where the heavy-duty math and the new generation of AI comes in. Airlines use what is called a Cargo Revenue Management System, or RMS. In twenty-twenty-six, these systems are incredibly sophisticated. They use machine learning algorithms to look at historical data for that specific route, the time of year, and even the weather. But they also look at real-time passenger booking trends. For example, a flight to a vacation destination like the Maldives will have much more luggage per person than a business commuter flight between London and Frankfurt. The system predicts the weight and volume of the passenger luggage with impressive accuracy.

Corn

And I assume they leave a buffer? They do not want to be in a situation where they have to kick off a passenger's suitcase because they promised to carry a crate of microchips.

Herman

Exactly. There is always a safety margin. But here is the cool part: as we have moved into twenty-twenty-six, these systems have become much more dynamic. They are now using what we call dynamic pricing and real-time capacity adjustments. If the check-in data shows that passengers on today's flight are traveling particularly light, the system can instantly open up more freight capacity on the spot market. This kind of flexibility was a lifesaver during the twenty-twenty-four shipping crisis when companies were desperate to move goods that could not get through the Red Sea safely using their usual routes. Airlines were able to squeeze every last cubic inch of space out of their passenger fleets.

Corn

You mentioned the Suez Canal and the Red Sea. We should probably touch on that because it really changed the math for air freight, did not it?

Herman

It fundamentally altered the landscape. When the Red Sea became a high-risk zone in late twenty-twenty-three and throughout twenty-twenty-four, shipping companies started rerouting around the Cape of Good Hope. That added around ten to fourteen days to many Asia–Europe journeys. For many industries, like high-end fashion or automotive parts, that delay was unacceptable. We saw a major shift toward air freight on some lanes. In early twenty-twenty-four, air cargo volumes from parts of Asia to Europe jumped sharply in short periods as shippers diverted from sea to air. Even though a ceasefire was reached in early twenty-twenty-five, the industry realized how vulnerable sea freight can be. That has led to a lasting increase in the baseline demand for air cargo as companies diversify their logistics.

Corn

That sounds incredibly efficient, but it also sounds like a logistical nightmare for the people on the ground. You have a passenger plane that needs to turn around in ninety minutes. You have hundreds of people getting off, hundreds getting on, bags being unloaded, and then you have to fit in these massive metal containers of freight. How do they physically manage that without the whole system grinding to a halt?

Herman

They use something called Unit Load Devices, or ULDs. You have seen them, Corn. They are those silver, oddly shaped aluminum containers that look like someone chopped a corner off a box. They are shaped that way to fit perfectly into the curved contour of the airplane's hold. Everything, from your Amazon package to a pallet of vaccines, is packed into these ULDs before the plane even lands.

Corn

So the plane pulls up, the luggage comes out of one hold, and these ULDs are rolled into another?

Herman

Precisely. On a wide-body aircraft, there are specialized tracks and rollers built into the floor of the cargo hold. A single operator can move a two-ton container with just a joystick or even by hand because of those rollers. The automation Daniel asked about extends to the loading plan as well. A computer generates a weight and balance manifest that tells the ground crew exactly which container goes in which position. If you put too much weight in the tail, the plane will be nose-high and inefficient, or even dangerous. The system even accounts for the center of gravity shifting as fuel is burned during the flight.

Corn

You mentioned wide-body aircraft. That brings up Daniel's other question: do all airlines do this? I imagine the business model for a budget airline like Ryanair or Southwest is very different from an international carrier like Emirates.

Herman

You hit the nail on the head. Not all airlines participate, or at least not to the same degree. Low-cost carriers, or LCCs, often avoid heavy freight entirely. Why? Because their entire business model relies on fast turnarounds. If a plane is on the ground for only twenty-five minutes, you do not have time to load and unload complex freight containers. Plus, many budget airlines fly narrow-body planes like the Boeing seven thirty-seven or Airbus A three twenty. These planes have much smaller holds, and the luggage is often loose-loaded rather than put in containers. There is just not much room left for commercial freight.

Corn

So it is mostly the big, long-haul legacy carriers that are the major players in the belly cargo market?

Herman

Exactly. For airlines like Singapore Airlines, Qatar Airways, or Cathay Pacific, cargo is not just a side hustle. It is a significant part of their bottom line. In recent years, cargo has accounted for roughly around a tenth of total airline revenue globally—higher than before the pandemic—and for some individual carriers on key routes, the share can be even larger. Some of these airlines have a dedicated cargo division that operates its own fleet of freighters in addition to managing the belly space of the passenger fleet. They treat the entire network as one giant capacity pool. If a shipment is too big for a passenger plane, they put it on a freighter. If a freighter is full, they might split the shipment across several passenger flights.

Corn

That makes sense. If you are already flying a massive A three fifty from Doha to London, the marginal cost of carrying an extra five tons of freight is relatively low. The fuel is already being burned, the pilots are already being paid. It is essentially found money.

Herman

It is more than just found money; it is often the difference between a route being profitable or losing money. There are many long-haul routes where the passenger tickets only cover the operating costs, and the profit actually comes from the belly cargo. This is why you see airlines keeping certain routes active even when passenger demand is low. During the recovery in twenty-twenty-four, many airlines kept flying to secondary cities specifically because the cargo demand was so high, even if the seats were half-empty.

Corn

That explains a lot. But let us talk about the why of air freight. Daniel mentioned it is expensive and usually a last resort compared to shipping containers on the sea. If it is so expensive, what exactly are we moving in these planes? Is it just diamonds and organs for transplant?

Herman

It is more common than you think. The rule of thumb is: if it is high-value, time-sensitive, or perishable, it goes by air. We are talking about things like semiconductors, which are tiny but worth thousands of dollars. We are talking about pharmaceuticals, especially biologics that need to stay at a precise temperature. But the biggest driver in the last few years has been the e-commerce explosion.

Corn

You mean like Amazon?

Herman

Amazon, yes, but specifically the rise of Chinese giants like Shein and Temu. By twenty-twenty-five, these and other fast-fashion and cross-border e-commerce companies were moving such large volumes that they had become major drivers of air cargo demand out of China and other parts of Asia. Industry observers note that their constant, high-frequency shipping effectively creates a year-round peak season. They buy up significant amounts of belly space and freighter capacity on passenger and cargo flights out of hubs like Hong Kong and airports in southern China, which has driven up prices for other shippers on some routes.

Corn

That scale is staggering. It really changes the environmental conversation too, does not it? We know aviation is under huge pressure to decarbonize. Does carrying freight make a plane more or less efficient in that context?

Herman

It is a bit of a paradox. On one hand, more weight means more fuel burned. On the other hand, if you are already flying the plane, filling the belly makes the per-ton-mile carbon footprint of the entire operation much lower. It is much better for the environment to fill a passenger plane's belly than to fly a separate, half-empty cargo plane. This is why the industry is pushing so hard for the digitalization of the air waybill. By moving the paperwork to the cloud, we can optimize the loading and routing much better, reducing wasted space.

Corn

I want to go back to the automation aspect. You mentioned these marketplaces, but how integrated are they? If I am a freight forwarder in Tokyo and I want to send a package to Daniel in Jerusalem, does the system automatically figure out the best route across different airlines?

Herman

We are getting there. By now, in early twenty-twenty-six, the industry has embraced what we call interline cargo more fully in the digital realm. It is similar to how you can book a single ticket that takes you from United Airlines to Lufthansa on one itinerary. There are digital platforms that use APIs to stitch together capacity from different carriers. The system might see that there is space on a Japan Airlines flight to Dubai, and then a connecting Emirates flight to Amman, and then a truck across the border. It calculates the transit time, the cooling requirements for the cargo, and the price, all in seconds.

Corn

But is there still a human element? I cannot imagine it is all just algorithms.

Herman

Oh, there is a huge human element, especially in the last mile and the ground handling. While the booking is automated, the physical verification is still very manual. Every piece of air freight has to be screened for explosives, just like your checked bag. It has to be weighed, measured, and checked for hazardous materials. Lithium batteries, for example, are a huge deal in air freight. There are very strict rules about how many you can carry in a passenger plane's belly because of the fire risk. In fact, a lot of the e-commerce growth has been constrained by these safety regulations.

Corn

That is an important distinction. I assume there are things you can put on a dedicated freighter that you can never put under a passenger's feet?

Herman

Definitely. Large lithium-ion battery shipments, certain industrial chemicals, and of course, oversized cargo. You are not going to fit a jet engine or a small helicopter in the belly of a passenger plane. For that, you need a freighter with a nose-loading door or a large side-cargo door. And we are seeing a new generation of these planes coming online. The Airbus A three fifty Freighter is scheduled to enter service around the middle of this decade, with first deliveries expected in the twenty-twenty-five to twenty-twenty-six timeframe. It is designed in part to compete with the Boeing seven seventy-seven eight Freighter, which Boeing has announced as its next-generation large twin-engine freighter. These new planes are being built to be more fuel-efficient and to handle the massive volume of e-commerce packages, which are light but take up a lot of space.

Corn

So the very shape of the plane we fly on is partially dictated by the dimensions of a standard shipping pallet?

Herman

In many ways, yes. The Boeing seven seventy-seven three hundred ER is a legend in the industry precisely because it has a massive belly capacity. It is often called a mini-freighter because it can carry so much cargo even with a full load of passengers. When Boeing and Airbus are designing a new long-haul jet, they are talking to cargo departments as much as they are talking to passenger experience designers. They want to ensure the hold is optimized for the maximum number of standard ULDs.

Corn

That is a great bit of insider knowledge. It really changes how you look at the plane sitting at the gate. It is not just a tube for people; it is a highly optimized multi-modal transport vehicle. Herman, what about the airlines that do not have their own freighters? How do they compete with the giants like Qatar or Emirates?

Herman

They often form alliances. Just like the Star Alliance or Oneworld for passengers, there are cargo alliances like SkyTeam Cargo. They share warehouse space, ground handling crews, and even block space on each other's planes. If an airline has a lot of demand for a route they do not fly, they will buy a block of space on a partner's plane and sell it as their own. It is a massive, invisible web of cooperation.

Corn

It sounds like a high-stakes game of logistics. But Daniel asked if this is a practice all airlines participate in. We talked about the low-cost carriers opting out. Are there any legacy carriers that have decided it is not worth the hassle?

Herman

Not really among the major international players. It is just too much money to leave on the table. However, you do see different strategies. Some airlines, like Delta or United, have historically focused more on their domestic belly cargo, which is a different beast entirely. In the United States, there is a massive amount of mail and e-commerce that moves in the bellies of domestic flights. The United States Postal Service is still one of the biggest customers for domestic belly space. When you send a letter across the country, there is a very high chance it is sitting in a sack underneath a family going to Disney World.

Corn

I love that image. My birthday card hitching a ride with tourists. Let us talk about the future, though. We are in twenty-twenty-six. We have seen the rise of drones, we have seen more automation. Is the belly cargo model under threat? Or is it getting stronger?

Herman

I think it is getting stronger, but it is becoming more specialized. One of the big trends we are seeing right now is the digitalization of the air waybill and the use of AI for predictive maintenance of the cargo holds. We are also seeing the wider introduction of more sustainable aviation fuel, or SAF. By twenty-twenty-six, many airlines already offer green cargo options where shippers can pay a premium to support the use of SAF associated with their freight. This is becoming a requirement for many large corporations that have strict carbon-neutral goals.

Corn

That is a really interesting point. It makes the efficiency of the system even more critical. If we can use AI to ensure every cubic inch of every passenger flight is utilized, we are actually reducing the need for extra flights.

Herman

Exactly. And the resilience of this network is what keeps the world connected. As we see more geopolitical shifts, the ability of this network to reroute and adapt is going to be tested even more. The air freight network is actually a pretty good proxy for the resilience of the global economy as a whole. If the planes are still moving goods, the world is still connected.

Corn

Okay, so let us summarize for Daniel. The system is highly automated through platforms like WebCargo and Cargo dot one, but it still relies on a lot of physical coordination on the ground. Most major airlines participate because it is a vital revenue stream, often making the difference between profit and loss. And the allocation is a complex dance of historical data, real-time passenger check-ins, and sophisticated algorithms that predict exactly how much space is left after the suitcases are loaded.

Herman

And it is all held together by those silver ULD containers and a global network of freight forwarders who are playing a high-stakes game of logistics every single day. It is the silent engine of global trade.

Corn

It is fascinating. It is one of those systems that works best when you do not even know it exists. You just expect your new phone to be in the store on Friday, or your medicine to be at the pharmacy, without thinking about the fact that it might have flown over the ocean while you were watching a movie on your own flight. Herman, any final technical nuggets for Daniel before we wrap up?

Herman

Just one. If you ever want to see this in action, go to a site like FlightRadar twenty-four and look for the heavy designations or look at the ground traffic at a major hub like Frankfurt or Memphis at three in the morning. That is when the dedicated freighters take over the sky, but during the day, the passenger fleet is doing just as much work. It is a twenty-four-seven operation that never stops.

Corn

Thanks, Herman. This has been a great deep dive. And Daniel, thanks for the prompt. It definitely made me look at my next flight a little differently. I will be wondering if I am sitting on top of a pile of flowers or a bunch of microchips.

Herman

Or both! And hey, to everyone listening, if you have been enjoying our deep dives into these weird and wonderful topics, we would really appreciate it if you could leave us a review on your favorite podcast app. It really helps other curious minds find the show.

Corn

Yeah, it makes a huge difference. You can find us on Spotify and at our website, my weird prompts dot com. We have all our past episodes there, including the ones we mentioned today about aviation and security.

Herman

This has been My Weird Prompts. Thanks for listening, and we will catch you in the next one.

Corn

Stay curious, everyone. Bye for now.