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## **Hot Topics in Transport: Open Skies, Cyber-attacks, and Robots**

**by Frederick W. Smith**

It's a pleasure to be here today, and I'd like to thank Chairman of NDTA's board Bill Flynn and Retired Admiral Mark Buzby for the invitation.

- I've known Bill for many years, and it was an offer I was pleased to accept since the National Defense Transportation Association is so important to FedEx.
- And under your great leadership, Mark, the NDTA has flourished. I know the same is happening at the Maritime Administration since you've taken the helm there.
- Congratulations also and welcome to Vice Admiral Andy Brown, the incoming president and CEO of this great organization, which FedEx has worked with for 42 years.
- During that time, many FedEx team members have worked closely with the NDTA. Some of them are here today, and I'd like to thank them for their service to the NDTA. Would you please stand?

No one knows better than this audience how important it is to **get things places** efficiently and safely, be it food, artillery, or information.

- I first learned that lesson as a Marine in Vietnam when I saw the challenges the military faced in distributing 760,000 tons of supplies each month there.
- Those operations made a strong impression on me that played into the founding and development of FedEx which, as you know, created a new industry based on moving goods and information fast and efficiently.
- As FedEx has grown, we now deliver not only by planes and trucks, but also by rail, ship, the Internet—and even bicycles.

If you think about it, transportation isn't just the bedrock of organizations such as the NDTA and FedEx; transportation is at the heart of all we do as humans.

Since the beginning of civilization, the world has depended on transportation and its infrastructure to move people, animals, and goods from location A to Z and all points in between.

- And as infrastructure became more intricate, nations had to make sure their networks were safe and reliable.
- In the United States, organizations like the Departments of Defense and Transportation have long protected our nation, its citizens, and our infrastructure from threats seen and unseen.

That's where units like the Civil Reserve Air Fleet (CRAF) play a critical role to the D-o-D and to our nation's air mobility resources.

- FedEx is proud to be a CRAF member, along with 23 other air carriers. We believe it's our patriotic duty to use our transportation network and logistics expertise to help our troops and our country.
- The partnership among the NDTA, the United States Transportation Command and CRAF provides a non-political framework for solving today's logistics challenges.

Today I'd like to talk to you about several of those challenges--three topics critical to our industry and our nation:

- First, the **current state of America**, both politically and economically, and how that affects our ability to get things done;
- Second, the current **state of transportation, both its issues and some new technology**; and
- Third, the growing **threat of cybersecurity**.

Let's turn our attention first to the **state of America**.

- Our economy is growing too slowly. We've been muddling along at 1-2% GDP growth, but need to return to the 3% rate America enjoyed for so long.
- Our national debt has grown to over 100% of GDP since 2006. We owe more than \$20 trillion.
- Federal investment is at the lowest level since the late 1940s as a percent of GDP, and business investment is also muted. That's unfortunate since investment is a key driver of job growth.

While dealing with these issues, we're also facing one of the most politically divided periods in our history.

- We are sorely lacking in rational discourse today, and its absence is contributing to what I consider to be a broken political system.
- Both parties have become quite polarized in their viewpoints: Red states have become redder and blue states bluer. Congressional districts are drawn in ways that diminish the influence of moderates.
- If it weren't for our business institutions, industries, and universities seeding innovation and invention throughout society, we'd get almost nothing done.
- With both parties gravitating to extremes and without the willingness to compromise, we cannot move America forward.
  - So far, we haven't been able to fix health care or create new tax laws that stimulate investment and job growth.
  - We haven't really begun to fix our country's deteriorating infrastructure. All of us here feel that pain first-hand.
    - Did you know that the American Society of Civil Engineers gives America a D+ grade on our infrastructure? I don't know about you, but I don't want to travel on a D+ bridge that could turn into an F while I'm on it.

While we're dealing with these big issues at home, U.S. leadership is called upon to manage volatile relationships around the globe. North Korea, China, Russia, Iran, Venezuela, and the constant threat of terrorism all bring serious challenges

to be handled with careful strategy and sensitivity. So many issues—and people—hang in the balance.

I hope some of you saw the *Wall Street Journal* op-ed piece that UPS CEO David Abney and I co-authored last month.

- FedEx and UPS are certainly fierce competitors, but we chose to write this essay because we also fiercely agree on basic policies to move America forward. We advocated for the following action:
  - 1) Reform and lower business taxes to increase GDP and wages by incentivizing investment, the main driver, as I said, for increasing the incomes of American workers. In addition, we must also adopt a territorial vs. global tax system to flow capital back to the United States economy which will result in a tax system on par with our major trading partners.
  - 2) Invest in infrastructure. Better infrastructure will make us faster to market, save money, and make our goods and services more competitive worldwide. The greatest nation in the world can no longer tolerate rough roads, deteriorating bridges, and antiquated technology.
    - By the way, a Brookings Institution analysis found that 14 million people have jobs directly related to infrastructure. That's about 11% of the population. Infrastructure investment and modernization will create even more jobs.
  - 3) Negotiate to ensure more open global trade. Currently, we have free-trade agreements with 20 countries and enjoy a surplus with those partners in manufacturing, agriculture, and services. On a per-capita

basis these 20 countries buy 13 times as many U.S. goods and services as other nations. The way forward is *more* trade, not *less*!

I hope our lawmakers will engage in positive discourse, find common ground, and take action on these vital issues.

Let's move on to the second topic—the **transportation industry itself**.

One of the biggest issues in aviation transportation is a recurring debate over America's Open Skies policy.

- In the past few years several of our U.S. legacy passenger carriers have asserted that three state-owned Middle East airlines are engaging in unfair competition. These U.S. airlines argue that our nation should renegotiate, freeze, or even cancel the U.S.-UAE and U.S.-Qatar Open Skies agreements.
- That viewpoint doesn't represent all airlines. A cargo carrier like FedEx depends on Open Skies to efficiently run its global air cargo network that links the shipping public to more than 220 countries and territories.
- But it goes beyond individual business interests. Because of Open Skies, the U.S. Department of Defense can depend on carriers like FedEx to deliver essential supplies to U.S. military bases overseas. For example, we have unparalleled air cargo service across the Middle East, an area with sizeable U.S. military operations. And our CRAF-committed aircraft are specifically capable of accommodating military equipment.
- Without these Open Skies agreements in full force, the U.S. military would face longer transit times for getting their defense supplies to critical locations, thereby impairing the military's readiness levels and potentially our country's national security.

We hope aviation organizations and experts everywhere will voice their support to Washington for a strong Open Skies policy.

Switching gears, one of the most exciting things in transportation these days is new technology. Let's face it: Most of us can't go a day without looking at our personal technology, reading about technology, or simply drooling over the latest technology.

FedEx is no different. We're exploring all kinds of new technologies to make our supply chains faster, safer, more efficient, and less expensive. Let me share a few examples.

- In aviation, we're currently testing new technologies on a Boeing 777 Freighter, as part of that company's "ecoDemonstrator" program. Its goal is to improve environmental performance and safety on aircraft of the future. New technologies on our plane include:
  - A compact thrust reverser to save fuel,
  - Flight deck improvements to make operations in and out of airports more efficient, and
  - Prototype parts using innovative manufacturing techniques that reduce material waste.
- We're very proud to be working with Boeing to bring future benefits to the entire aviation industry.

Speaking of environmental performance, FedEx works hard to deliver its shipments in responsible and sustainable ways. As a heavy user of fossil fuels, we know how important it is to reduce our consumption and use alternatives.

- With jet fuel, our goal is to have a third of it blended with biofuels by 2030.
- At FedEx Ground, some facilities have equipment that can blend biodiesel into the fuel mix. FedEx Freight has a compressed natural gas fueling station in Oklahoma City that serves more than 100 CNG trucks in the region.
- We have an agreement with a supplier for 100% renewable diesel, and we are using this product in Southern California.
- We are leaving few alternative-energy stones unturned: electric and hybrid vehicles, hydrogen fuel cell-powered vehicles, solar energy, compressed natural gas are all part of our sustainability mosaic.

We are exploring other transportation technologies in vehicles, particularly for heavy, long-haul trucks since industrial fleets will likely lead the way in autonomous driving.

- One technology we like is platooning. Trucks, in this case with drivers, line up behind a lead truck on the highway, much like bicyclists form a peloton and draft off the cyclists in front of them. This formation is more fuel efficient than normal traffic patterns. In the brave new Internet of Things, these trucks would communicate with each other, the driver, and a company headquarters about their location, road conditions, traffic patterns or weather—and then make driving adjustments based on what they “learn” from the data through artificial intelligence.
- Another technology everyone likes to talk about is robots, which have fascinated people for many years. One of the most common themes in science fiction is that of robots taking over the world. Today, of course,

robots are becoming more common—in offices, warehouses, hospitals, and the military—with no uprisings in sight.

- FedEx has mobile robots that look a bit like R2-D2, but have names such as Lil Rico and Area 51. They can pick items off shelves and deliver them to technicians. They can travel longer distances—building to building—and handle ramps, thresholds, and elevators. If a door is locked, they can call or text the person in that room to allow access.

Robotics has begun to permeate FedEx operations:

- We're introducing mobile robots in our supply chain warehouses to move customer products to assigned locations, saving time and cost.
- We are testing robotic automation that can unload shipments off our trucks and put them onto conveyor belts for further sorting.
- One of my favorite robots looks like a giant green Roomba vacuum. It's actually a robotic tugger and can move goods, especially oversized packages, around warehouses, yards, and tarmacs without accidents, due to its 3D sensors.

One technology everyone's interested in is drones and I know the military has much more experience with drones than we do. However, FedEx is exploring some options for our business.

- Given the number of natural disasters occurring recently, we're looking at using drones in disaster recovery situations, both in assessing damage done to our facilities and to those around us.
- We're also considering drone use in monitoring the perimeters of our facilities and in checking equipment in our yards and on our tarmacs.

For all the great rewards new technologies bring, we're also seeing greater risk in the form of increased criminal cyber-activity in networks worldwide. That brings us to topic **number three: the ongoing challenge of cybersecurity**. What better time to talk about it, with October being National Cybersecurity Awareness month.

At FedEx, we've long known that information about the package is as important as the package itself. Now, so do digital thieves.

- In 2016, there were 1.4 billion data records exposed, up 85% since 2015
- And identity theft accounted for 59% of the data-breach incidents.
- According to Cybersecurity Ventures, cybercrime damage costs are predicted to reach \$6 trillion annually by 2021.
- The recent proliferation of attacks such as the WannaCry and Petya viruses, and the Equifax breach have caused massive damage to accounts of people and companies around the world.

FedEx has first-hand knowledge of how a malicious attack can impact a company's operations. During the summer we suffered significant operational challenges due to a Petya attack on our recently acquired company, TNT Express.

- This was not an ordinary cyber-attack. We believe it was the result of a nation-state targeting the Ukraine and companies that do business there. It is widely believed that these were weaponized cyber-tools stolen from the U.S. government.

- While no data breach is known to have occurred, the worldwide operations of TNT were significantly affected. Despite the attack, the TNT core shipping services are in place, and all facilities operational. Petya was one of the strongest military attacks ever released. We survived it, we learned from it, and hardened our systems. We've become stronger as a result.

One thing is certain: Cyber-attacks have completely taken away business as usual.

- We have to look at, think about, and process our work differently.
- Our military increasingly needs to work with counterparts and civilians from very different cultures.
- We must have collective security and collective action. It will take all of us—government, the military, and the private sector—working together.

The Executive Order that the president signed, *Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure*, and the Department of Homeland Security (DHS) role in securing our safety are vital to America. I think Acting Secretary of Homeland Security Elaine Duke summed it up well:

*“Our adversaries . . . continue to develop advanced cyber-capabilities. They have deployed them to undermine critical infrastructure, target our livelihoods and innovation, steal our secrets, and threaten our democracy. Cybersecurity has become . . . one of the Department’s core missions.”*

- Secretary Duke says that the DHS is working to improve cyber-threat information-sharing internationally since cyberspace is inherently global. The department collaborates with the world community to exchange and advocate for best practices and state-of-the-art mitigations.
- In recent Congressional testimony she assured her audience that DHS, the U.S Secret Service, and other enforcement partners will “aggressively

investigate, disrupt, and dismantle criminal actors and organizations using cyberspace to carry out their illicit activities.”

At FedEx, we will continue to fortify our systems to offer our customers safe, secure delivery of their shipments, information about those shipments, and their personal information as well. For us, security is the cornerstone of reliability, and reliability is the main thing our customers pay us for. I know all of us will continue to prepare for every possibility to keep our assets safe, be they people, networks, equipment, or cyberspace.

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To sum up, I strongly believe that coalitions among government, business, industry, and the military will reinforce American innovation, growth, and infrastructure expansion.

- Organizations like the NDTA, the U.S. Transportation Command, and cargo and passenger carriers *working together* will help create the solutions to challenges we face industry-wide and nationwide.
- Nothing is more important than all of us joining forces to keep our nation’s transportation networks fluid yet secure.

General McDew, I hope you don’t mind if I borrow the mission statement of your organization: “Together we deliver.” That sums up the ultimate mission for all of us, and it creates immeasurable value for our troops, our customers, and our nation at large.