



## WHARTON AEROSPACE & DEFENSE REPORT

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# **Billions in Useless Spare Military Parts Pile Up: What Can Be Done?**

**Recent GAO report finds \$7.1 billion in useless parts on the shelves. The total in recent years is more than \$37 billion. A Wharton lecturer suggests how to solve the waste vs. readiness challenge**

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A Pentagon agency charged with managing the Defense Department's spare parts inventory purchased billions in supplies that were never used, the Government Accountability Office (GAO) recently reported. [LINK: <http://www.gao.gov/highlights/d10469high.pdf>]

The report by the GAO, a nonpartisan investigative arm of Congress, found that the Defense Logistics Agency (DLA) had no use for parts worth \$7.1 billion -- or more than half of the \$13.7 billion in equipment stored in Defense Department warehouses. The investigation focused on the period 2006 to 2008 and looked at how effectively the DLA was carrying out its mandate. The agency oversees parts and supplies for everything from groceries to jet fuel.

Bernie Sanders, an Independent from Vermont and a Senate Budget Committee member who requested the investigation, said in a statement, "the waste of taxpayer dollars is unbelievable."

To make matters worse, the findings are the fourth in a series of investigations that have exposed similar problems at each of the military services. Army parts depots were stacked with \$3.6 billion worth of unneeded supplies, according to a report last year. The Navy stored an average of \$7.5 billion worth of unneeded spare parts because of poor planning and management, according to another investigation. The Air Force had nearly \$19 billion in supplies, or more than half of its inventory, sitting worthlessly, another study found.

"At a time when the country has a \$13 trillion national debt and is struggling with huge unmet needs, it is outrageous that the Defense Department continues to waste huge sums of money for spare parts that the military doesn't need," said Sanders.

Most news reports have focused on the shocking numbers without delving into the causes or possible solutions. The Aerospace & Defense Report spoke with [Lawrence Gelburd](#), a lecturer on entrepreneurship at Wharton. Gelburd is a co-founder of American Auto-Matrix, which develops control systems for commercial and industrial facilities. We talked to him about possible solutions to this inventory management debacle.

**Knowledge@Wharton:** First of all, how big is the problem, really?

**Lawrence Gelburd:** I read the full GAO report and found that the \$7.1 billion represents 52% of the total \$13.7 billion in inventory, as opposed to some \$700 billion in inventories [which would be] just 1%, which isn't so bad. But 52%, that's pretty bad.

**Knowledge@Wharton:** What would a company in the private sector do to figure out how to address the waste?

**Gelburd:** First, the waste represents more than half the total inventory, which means that addressing the problem could be worthwhile.

Second the DLA on several factors was a bad forecaster. It inaccurately estimated how long it would take suppliers to produce and ship products. That's important.

We start to focus on that because if those statements are true, that means there are opportunities for improvement in those two areas at the very least.

**Knowledge@Wharton:** How does politics come into play with this oversupply of spare parts?

**Gelburd:** Well, political plays a huge part. It is much safer to have too much inventory as opposed to missing parts. So Bernie Sanders complains, whatever, you get some news for a while. It's a staggering number, and then everybody goes to the next thing.

However, this occasionally really happens, but if due to a failure or an attempt to streamline parts costs, there is an unavailability of a tire for a fighter or something like that, or if a soldier dies because something was not available, the political downside is so massive that that \$7 billion would start to look smaller and smaller. And if the lack of parts caused a plane go down, the uproar would have a tremendous political cost.

So my solution to the political issue is to having political safety. Because part of the job here is to create metrics that optimize across the two aspects: the cost of oversupply, which they obviously already have versus the consequence of unavailability.

So if there is unavailability of simple supplies, like toilet paper, you can go to the store and get it. But if it is a fighter jet part, then sometimes you are just going to have to have the extra ones sitting there because the downside is so high.

So what I would say for them is to create a metric and start very simply by determining whether it is essential, important or non-essential. And with that in mind, we try to figure out what are the consequences of unavailability and categorize that again.

Number two is always having multiple orthogonal suppliers. When I say orthogonal, I mean that they are not dependent on each other, multiple independent suppliers. So for instance if you have two suppliers and they're both in New Orleans, that is a bad idea. So suppliers should be geographically distinct and sourcing distinct. In other words, you are not getting all your oysters from the same gulf.

And this is something that the private sector has learned through painful experiences with single suppliers. I have seen this in my own clients. They get lulled into thinking that when you have a single supplier it is easier and cheaper but it can also be a disaster.

**Knowledge@Wharton:** But it's never going to be zero dollars wasted.

**Gelburd:** No, it won't. But if you and I can knock \$3 or \$4 billion off that, we would be very popular people. What I would suggest to them is to create a pilot program to work with suppliers to see if there is any better way to not overstock supplies.

**Knowledge@Wharton:** But, the suppliers have no reason to help change the system.

**Gelburd:** You're right, the suppliers have no existing incentive to sell fewer parts. So my solution is create an incentive, which connects supplier flexibility to future order likelihood, and work with the suppliers together to create return policies and forecasting accuracy.

If you are my supplier, I can say, 'Look the closer your supply is to what we need as we measure it over the year, the closer our forecast and the smaller our inventory, the more likely we are to buy parts from you than another supplier.'

In other words, the more accurate we are together in forecasting the need, the more flexible you are on returns, the more likely that we are going to order from you.

**Knowledge@Wharton:** How do you balance the unavailability of spare parts with the importance of having that spare part? It can take time for suppliers to get the part for you.

**Gelburd:** We could create metrics to categories parts by their availability and importance. So we create metrics to categorize and evaluate the cost of over-supply versus consequences of unavailability. For some parts, you might say you need to have excess because people's lives are immediately in danger. For some other parts, you might say they are important but no one is going to get killed. The DLA also gets toilet paper, which you really could just go to a Wal-Mart for if we run out.

**Knowledge@Wharton:** How can agencies and suppliers best exchange data to figure out what is causing the oversupply?

**Gelburd:** There are proprietary software programs. For example, Wal-Mart has a system that allows it to have one of the lowest levels of inventory because of the program's sophistication. Of course, the situation in the military is different because you only want to carry the least amount if the product is not critical.

What I would say is that the private sector would work with the supplier to look at past performance: What is an acceptable level of oversupply, what is the time between detecting a low level of supplies, and what is the cost and the time between detecting an under-supply? If the cost (including putting lives at risk) of under supply is far more than the cost of the oversupply, then the product is listed as critical.

So you have to analyze the time to get replacements, the value and relative cost of having versus not having. Again, Wal-Mart, for example, would actually do a measurement of its inventory based on real time data that they have from all the stores.

If something is a single source product, they know they have to buy more later. So they analyze the cost and the time factor. How long does it take to get that part if they do run out, and also what is the cost economically overall of having it run out?

**Knowledge@Wharton:** Apart from actually paying for a part, isn't there also the cost of holding that part?

**Gelburd:** Yes, absolutely. Private industry also has to look at the cost of carrying the inventory. It can be low for two reasons. One is that the cost of space is low, like if your distribution center is in Arkansas or a place like that, your cost of carrying inventory will be very, very low. Two, is if the cost of capital is low and you are paying little or no interest -- if you paid up front. But you might have your distribution center in a more expensive location and the cost of capital could be higher. These are some of the other determinants of whether you should or should not buy and hold.

**Knowledge@Wharton:** The complication is that the military is not watching fashion trends and trying to meet those demands. They are dealing with unknown factors and sudden and urgent requirements.

**Gelburd:** You can absolutely make that argument, and your argument is totally valid with one exception in my mind. I think it is only valid for those items in the inventory that are mission critical or mission important.

These could be body armor for soldiers or spare parts for jet fighters. Nobody is going to beat you up if you say you have \$7 billion in parts that are critical to a fighter plane and if you don't have them, you could lose the plane, the pilot and possibly the mission. Those are completely defensible, and in fact it would be a political fiasco to not have enough on hand.

The items that raise the ire of the public are things that can easily be supplied by the private sector -- the \$200,000 in paper plates, the millions in toilet paper.