



COTS: Commercial Off-The-Shelf or Custom Off-The-Shelf?

COTS. Everyone knows what this means, right? Commercial off-the-shelf – something you can walk into a store and buy. Well, maybe. I was recently pondering what this meant while trying to define it to a young associate. As we all know, defining things for systems and software engineers is never easy. There are always more options, parameters, and qualifiers. Let's look at a few examples of *commercial off-the-shelf* purchasing.

Since I drive an ancient rusting truck, I've been frequenting car dealerships to find new transportation. It is easy to walk by all the shiny new cars on the lot and think *yes*, I can buy one of these, right off the lot. Much to my dismay, after appropriately discounting the asking price and reconciling with my monthly budget, I needed something not quite off the shelf. After some negotiations on what features I wanted, it became obvious that it was best that I get more features than I needed to get just what I wanted. Base car + package A + options B, C, and D = my perfect car, right off the shelf, for a price, and oh, can I wait six weeks for it? I left the dealership with my head spinning from all of the choices, still without a COTS car, but with my bank account intact.

After such a grueling ordeal at the car lot, I decided maybe it was time for some lunch from my local sandwich shop. I wanted the sandwich in picture number one, nothing special, just a basic sandwich. What type of bread? What meat? What cheese? What crunchy stuff did I want? What dressings? So much for off-the-shelf. I could have chosen a number one and then completely changed my sandwich by making different choices along the way. I began to think maybe the sandwich shop wasn't the best place to look for commercial standardization. As I left the sandwich shop, I realized that *commercial off-the-shelf* might not be as standard as the connotation of the phrase implies. It is more like *custom off-the-shelf*.

Of course, cars and sandwiches don't compare to weapon systems, do they? Yet they are closer than the military industrial base would like to admit. In today's world, the commercial world is going towards more and more customization rather than a standard product off the shelf. When you bought your last personal computer, did you go buy one off the shelf of the local store or did you go to a Web site and click through pages and pages of options? What color of MP3 player do you want? Everyday items from cars to toasters are now customized. It is as if the commercial industry realized that the military got it right – customization is good.

What the military really wants are basic capabilities with lots of options to customize their materiel at an affordable price. The affordability is where commercial industry surpasses the military industry. The additional costs to customize my car and my sandwich were minimal. The custom car I almost bought would be repaired in the same shop as other cars from the same manufacturer, and at a standard labor rate. Of course, the military likes to think they have unique requirements over and above those

required by commercial industry. While there is some truth to this, most of the military equipment is now coming up to commercial standards, rather than commercial components coming up to military standards. While standards are good, rarely does an entire weapon system fit in any one standard. Each component or subsystem may comply with industry standards but the components are then custom-integrated into a usable weapon system.

So, why is the military pursuing COTS? I think it is because they really want to customize their purchase, hoping that they can get it at affordable COTS pricing. Also, they think that COTS will speed up the process. If there's anything that this issue of CROSSTALK teaches us, it's that COTS sometimes saves neither time nor money.

See, customizing COTS takes extra time and extra money. You want to buy an off-the-rack suit? If you're exactly a 44R coat and can wear 38 pants with a 29" inseam, no problem. However, just the slightest change in either suit or pants size will not only cost more, it will *dramatically* increase the *out-the-door* time. Instead of wearing your suit home, you have to wait a week or so for customization – same with COTS. You buy it to save time and money. However, unless it fits you *exactly*, you will spend additional time and money getting it customized to fit your needs. In fact, you might also have to customize the other software that the COTS interact with to make it *fit*; this costs even more money and even more time. In the Department of Defense, sometimes the time is more important than the money – and customizing COTS is typically a very slow process.

So, how do you want your COTS customized?

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P.S. And if you lose or gain weight, and your suit size (and COTS needs) change ... well, let's not even go there!

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