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Sustainability KPP: Industry Weighs in on  
Bidding for It and Building for It

GOOD MORNING AND THANK YOU FOR THAT KIND INTRODUCTION

I APPRECIATE THE INVITATION TO SPEAK TO YOU ABOUT THE  
SUSTAINABILITY KPP. MY MESSAGE IS PRETTY SIMPLE: INDUSTRY HAS  
THE WHEREWITHALL TO DESIGN AND BUILD AFFORDABLE SYSTEMS  
THAT CAN DRAMATICALLY IMPROVE SUSTAINABILITY AND  
REVOLUTIONIZE LOGISTICS.

WE, IN INDUSTRY, PROVIDE FOR SUPPORTABILITY OF THE SYSTEMS WE  
PRODUCE THROUGH A WIDE RANGE OF MEASURES, SUCH AS  
THOUGHTFUL DESIGNS, MANUALS, OPERATOR AND MAINTENANCE  
TRAINING, PROVISIONING FOR SPARE PARTS, AND CONTRACTOR  
LOGISTICS SUPPORT.

REGARDLESS OF HOW THE GOVERNMENT ASKS FOR SUSTAINABILITY,  
IT IS A NECESSARY ELEMENT OF ANY PROGRAM. BUT THE PROCESS OF  
ASSURING THAT SYSTEMS ARE SUSTAINABLE HAS NOT WORKED AS  
WELL AS IT COULD.

SYSTEMS THAT HAVE RELIABILITY PROBLEMS HAVE OBVIOUS IMPACTS ON WHETHER OUR SERVICE MEN AND WOMEN CAN MEET THEIR MISSION REQUIREMENTS. BEYOND MISSION SUCCESS - HIGH RELIABILITY MEANS LESS INVESTED IN REPAIR PARTS, THE SUPPLY CHAIN THAT BRINGS THEM AND ULTIMATELY IN THE COST OF OWNERSHIP.

MAINTAINABILITY PROBLEMS HAVE A MORE SUBTLE, BUT NONE-THE-LESS EXPENSIVE, IMPACT ON THE SERVICE AND ITS SUPPORT SYSTEM IN THAT REQUIRED MAINTENANCE MANHOURS CORRELATE DIRECTLY TO THE REQUIREMENT FOR MAINTENANCE PERSONNEL AND TECHNICAL SUPPORT. THE SIMPLER AND EASIER A SYSTEM IS TO MAINTAIN, THE FEWER MAINTAINERS THAT ARE REQUIRED.

DESPITE THE IMPACT ON MISSION PERFORMANCE AND OWNERSHIP COSTS, THE "ILITIES" OFTEN PLAY SECOND FIDDLE TO ATTRIBUTES DEEMED TO BE OF HIGHER PRIORITY BY THE GOVERNMENT, SUCH AS MOBILITY, LETHALITY, AND PROTECTION.

THE "TRADES" GENERALLY MADE AS REQUIREMENTS (INCLUDING KEY PERFORMANCE PARAMETERS, OR KPPS) ARE TRANSLATED INTO

PERFORMANCE SPECIFICATIONS, WHICH IN TURN, ARE TRANSLATED INTO CONTRACTUAL DELIVERABLES.

WHY TRADE THE "ILITIES"? USUALLY IT IS BECAUSE OF THE PERCEIVED IMPACT ON COST AND THE ABILITY TO ACHIEVE TESTABLE VERIFICATION THAT THESE REQUIREMENTS HAVE BEEN MET.

I BELIEVE THE DEFENSE INDUSTRY THAT I AM A PROUD MEMBER OF CAN MEET SUSTAINABILITY REQUIREMENTS, BUT WE SHOULDN'T EXPECT JUST TO BE ABLE TO SAY "DEAR SANTA, I WANT IT ALL!" ACHIEVING SUSTAINABILITY PARAMETERS IS POSSIBLE, BUT IT WON'T BE FREE. EVEN WITH ALL THE TECHNOLOGICAL ADVANCEMENTS WE'VE MADE, THESE ARE STILL MACHINES – AND OUR MACHINES CAN BE COMPLEX, MAKING THE OPPORTUNITY TO HAVE FAILURES EQUALLY AS COMPLEX.

BUT FINDING WAYS TO DESIGN SUSTAINABILITY INTO SYSTEMS, FINDING WAYS TO MEASURE SUSTAINABILITY EFFECTIVELY AND FAIRLY AND REDUCING THE WARFIGHTER'S BURDEN IS WHAT WE ALL SHOULD BE ABOUT.

I OFFER TO YOU THAT INDUSTRY CAN DESIGN SYSTEMS THAT CAN BE SUSTAINED WITH LOWER BURDEN ON THE WARFIGHTER. CONSIDER THE FOLLOWING.

AT A RECENT CONFERENCE SIMILAR TO THIS ONE, A SPEAKER POSED A QUESTION TO THE ATTENDEES ABOUT MAKING PREPARATIONS FOR A TRIP IN THEIR CARS. IN THE PROCESS OF GETTING READY, HE ASKED IF THE ATTENDEES WOULD PACK A TOOL SET AND CARRY A SUPPLY OF SPARE PARTS.

FOR THAT MATTER, WOULD THEY, OR YOU, HAVE ANXIETY ABOUT WHETHER OR NOT THE CAR WOULD START WHEN THE KEY IS TURNED IN THE IGNITION, OR IF IT WOULD BREAK DOWN UNEXPECTEDLY? I THINK YOU WOULD AGREE THAT MOST OF US DO NOT GIVE SUCH MATTERS A SECOND THOUGHT BECAUSE COMMERCIAL AUTOMOBILES - AND TRUCKS FOR THAT MATTER - ARE QUITE RELIABLE. COMMERCIAL VEHICLES ARE RELIABLE BECAUSE OF THE COMPETITIVE MARKET PLACE AND BECAUSE WE, AS CONSUMERS, HAVE COME TO EXPECT AND DEMAND IT.

IN THE 1950s AND EARLY 1960s, AS CARS FROM JAPAN BEGAN TO GAIN A Foothold IN THE U.S. MARKET, THEY WERE NOT NOTICEABLY BETTER THAN DOMESTIC AUTOMOBILES. IN FACT, TO MANY THEY

SEEMED CHEAP, SMALL, AND RATHER ORDINARY COMPARED TO U.S. MODELS OF THAT ERA.

OVER TIME WE ALL WATCHED AS THE JAPANESE AUTO MAKERS MADE QUALITY AND RELIABILITY A PRIORITY AND WE HAVE SEEN THE IMPACT OF THEIR PHILOSOPHY IN REVERSALS OF MARKET POSITION AND EVEN THREATS TO LONG TERM SURVIVAL OF SOME FAMOUS U.S. BRANDS. BECAUSE OF COMPETITION, QUALITY OF U.S. CARS HAS GOTTEN BETTER, EVEN IF THE PERCEPTION HAS NOT CAUGHT UP.

WHAT DOES THIS HAVE TO DO WITH MILITARY VEHICLES AND MILITARY EQUIPMENT IN GENERAL? SOME IN INDUSTRY AND THE GOVERNMENT BOAST OF OPERATIONAL READINESS RATES FOR MILITARY SYSTEMS IN THE LOW 90s. IN SOME CASES, SYSTEMS' READINESS LEVELS MAY SIMPLY BE A FUNCTION OF AGE, OR HOW HARD IT IS BEING USED, OR EXTRAORDINARY MEASURES TO KEEP THEM UP. WELL, A 90-SOME PER CENT READINESS RATING MAY BE ACCEPTABLE - EVEN A CAUSE FOR EUPHORIA - FOR MILITARY EQUIPMENT IN A THEATER OF OPERATIONS; HOWEVER, YOU WOULD NOT ACCEPT 90 PER CENT FOR YOUR LEXUS, CAMRY, OR FORD. YOU FULLY EXPECT 99.999 PER CENT! THAT IS WHY YOU DON'T BOTHER TO PACK THE TOOL CHEST AND SPARE PARTS, OR WORRY ABOUT NOT STARTING OR BREAKING DOWN AT THE LEAST OPPORTUNE MOMENT.

FOR US, BREAKING DOWN WOULD BE AN INCONVENIENCE THAT MIGHT SHAPE YOUR NEXT CAR PURCHASE DECISION. BUT BREAKING DOWN FOR PEOPLE IN COMBAT IS THE DIFFERENCE BETWEEN LIFE AND DEATH. SYSTEMS THAT FAIL TOO FREQUENTLY ARE HARD TO SUSTAIN, DRAINING COMBAT POWER AND CAUSING A RIPPLE EFFECT THROUGHOUT THE FORCE.

WHAT ELSE IS DIFFERENT BETWEEN YOUR CAR AND MILITARY EQUIPMENT? YOU DON'T CHECK UNDER THE HOOD BEFORE YOU OPERATE YOUR CAR. YOU DON'T GO THROUGH A PREVENTATIVE MAINTENANCE CHECKLIST. NO, ASSUMING YOU HAVE KEPT PACE WITH TECHNOLOGY, INSTEAD A COMPUTER CHECKS THE VITAL SYSTEMS IN YOUR CAR AND TELLS YOU IF THE BRAKES PADS ARE WORN, LIGHTS ARE INOPERABLE, FLUIDS ARE LOW, OR IF THERE IS A PROBLEM WITH THE ENGINE. IF THERE IS A PROBLEM, THE COMPUTER TELLS THE MECHANIC WHAT IS WRONG FOR MOST OF THE VEHICLE'S CRITICAL SYSTEMS. SOME CARS CAN COMMUNICATE WITH THE MANUFACTURER AND SEND YOU A REMINDER OF AN UPCOMING SERVICE OR WITH AN EMERGENCY SERVICE IF YOU ARE IN AN ACCIDENT OR LOST.

THE MILITARY HAS BEEN TRYING TO HEAD IN THE SAME DIRECTION FOR SOME TIME NOW. THE REASON THERE HASN'T BEEN MORE PROGRESS

IS NOT BECAUSE INDUSTRY CANNOT DO IT, OR BECAUSE MILITARY SYSTEMS ARE UNIQUE, OR BECAUSE SUCH FEATURES ARE UNAFFORDABLE BELLS AND WHISTLES. WHEN JAPANESE CAR MAKERS WERE BEGINNING TO BUILD THEIR HIGHLY RELIABLE REPUTATIONS AS COMPARED TO U.S. (AND EVEN EUROPEAN) BRANDS, WAS THERE A BIG DIFFERENCE IN THE SELLING PRICES OF MORE RELIABLE CARS AS OPPOSED TO LESS RELIABLE ONES? NO. THE JAPANESE WERE ABLE TO DESIGN FOR GREATER RELIABILITY AND SUSTAINABILITY WHILE REMAINING PRICE COMPETITIVE BECAUSE THEY HAD TO IN ORDER TO MEET THE DEMANDS OF THEIR CUSTOMERS AND GAIN AN ADVANTAGE.

BUT PRICE COMPETITIVENESS IS WHERE MOST OF US IN INDUSTRY LIVE AND IF OUR CUSTOMER IS WILLING TO LET SUSTAINABILITY BE A "NICE TO HAVE" RATHER THAN A "MUST HAVE," THEN NONE OF US CAN AFFORD TO TAKE THE RISK THAT WE'LL HAVE OVER BUILT THE REQUIREMENT AND PRICED OURSELVES OUT OF THE COMPETITIVE RANGE.

THERE ARE BRIGHT SPOTS IN THE SUSTAINABILITY FUTURE – FOR EXAMPLE, IN THEIR LOGISTICS SUPPORT VEHICLE REPLACEMENT, OR LVSR, THE MARINES WANTED TO SIMPLIFY LOGISTICS SUPPORT SO THEY IMPOSED A REQUIREMENT FOR A SINGLE LUBRICANT FOR THE ENGINE AND TRANSMISSION AND A SINGLE RESEVOIR.

WE AT OSHKOSH WERE SUCCESSFUL IN PUTTING THAT FEATURE IN THE DESIGN AS PART OF A BROAD PLAN TO IMPROVE SUSTAINABILITY.

HYBRID ELECTRICS AND ONBOARD POWER GENERATION CAPABILITIES ARE GENERATING MOMENTUM AND THESE CAPABILITIES HAVE THE POTENTIAL TO MAKE VEHICLES SIMPLER AND MORE SUSTAINABLE.

HYBRID ELECTRIC TECHNOLOGY CAN REDUCE FUEL CONSUMPTION, AND DUE TO ITS ABILITY TO PRODUCE EXPORTABLE MILITARY GRADE ELECTRICAL POWER, IT ALSO COULD REDUCE THE REQUIREMENT FOR TRAILERS AND POWER GENERATORS. THIS, IN TURN, MEANS FEWER SYSTEMS WOULD HAVE TO BE SUSTAINED.

THERE IS ANOTHER HUGE OPPORTUNITY ON THE TABLE RIGHT NOW IN THE JOINT LIGHT TACTICAL VEHICLE. AS THE USER COMMUNITIES STRUGGLE TO BALANCE JLTV'S THREE MOST IMPORTANT ATTRIBUTES: PERFORMANCE, PROTECTION, AND PAYLOAD, WHERE WILL RELIABILITY AND MAINTAINABILITY FALL AMONG PRIORITIES FOR A FLEET THAT WILL BE POTENTIALLY THE HIGHEST DENSITY MOBILITY SYSTEM IN EITHER THE ARMY OR THE MARINE CORPS? I CONTEND THAT IMPROVED SUSTAINABILITY CAN BE PROVIDED WITHOUT HAVING TO TRADE MISSION CAPABILITIES.



FROM MY PERSPECTIVE, WE CAN DO BETTER. WE CAN DO BETTER AND IT DOES NOT NECESSARILY MEAN THAT COSTS WILL SUDDENLY MAKE SYSTEMS UNAFFORDABLE. WE CAN DESIGN VEHICLES THAT ARE MODULAR, SO COMPONENTS CAN BE SWAPPED OUT IF THEY BECOME INOPERABLE, BATTLE DAMAGED, OR IF NEWER TECHNOLOGY COMES ALONG. THEY CAN BE INHERENTLY MORE RELIABLE AND MORE EASILY REPAIRABLE BY ASSURING EASIER ACCESS TO ALL ASSEMBLIES, LEADING TO IMPROVEMENTS IN SUSTAINABILITY. THEY CAN TELL THE OPERATOR WHEN SOMETHING HAS FAILED (OR IS ABOUT TO FAIL), THE STATUS AND LOCATION OF THE SYSTEM, AND MORE. IN OTHER WORDS, THEY CAN BECOME SOMETHING MORE LIKE YOUR TRUSTWORTHY CAR.

WE JUST NEED OUR CUSTOMER TO REQUIRE IT FROM US AND WE NEED TO KNOW HOW WE WILL BE FAIRLY EVALUATED. THEN WE CAN DESIGN EQUIPMENT THAT IS DESIGNED ACCORDINGLY FROM THE GROUND UP. IF WE CAN DO THIS, THE IMPLICATIONS ARE HUGE.

CONSIDER THAT LOGISTICS IS LARGEST PART OF THE FORCE ... SOME 70% IN THE CASE OF THE ARMY. THE STRUCTURE DEVOTED TO LOGISTICS IS DIRECTLY RELATED TO THE AMOUNT OF FUEL, WATER, AMMUNITION, SPARE PARTS AND OTHER SUPPORT ITEMS NEEDED. AND, ALL OF THAT REQUIRES TRANSPORTATION OPERATORS THAT

NEED TO BE TRAINED, EQUIPPED, SUSTAINED, PROTECTED, AND PROVIDED HEALTH CARE, AND SO ON.

FOR EVERY REDUCTION IN DEMAND THAT WE CAN DESIGN INTO THE POINTY END OF THE SPEAR, WE CAN DRAMATICALLY REDUCE THE LOGISTICS BURDEN AND MAKE THE FORCE MORE SUSTAINABLE.

AT THE END OF THE DAY WE WILL BID, BUILD AND DELIVER WHAT THE GOVERNMENT ASKS OF US. SUSTAINABILITY IS ACHIEVABLE – AND IT CAN BE A KPP, BUT A GREAT DEAL OF THOUGHT WILL HAVE TO GO INTO THE MEASURES OF SUCCESS AND THE PARAMETERS FOR TESTING IF SUSTAINABILITY IS NO LONGER “TRADE SPACE” AND MUST BE MET AS A CRITERION TO GO FORWARD WITH A PROGRAM.

AND MOST OF ALL – EVEN THOUGH SUSTAINABILITY SHOULD BE AFFORDABLE – WE ARE GOING TO HAVE TO DO A BIT MORE THAN SAY “DEAR SANTA I WANT IT ALL.”

THANK YOU FOR YOUR ATTENTION AND I LOOK FORWARD TO YOUR QUESTIONS AND A LIVELY DISCUSSION!