Beat: Technology

Opposing cultures: combat-proven or calculus-driven?

the future of military industries

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USPA NEWS - Within the world of high-complexity industrial products, which mix high-tech, harsh operating conditions, safety considerations and the requirement to be constantly available, both operational progress and commercial success rely on innovation. It meets present and future needs, by hinging on previous approaches which have undergone operational experience. Therefore, open discussions and regular contacts between industrial firms and military operatives are crucial for innovation.

Rocket operators and airline companies develop, and encourage the development of, relationships between their personnel and the clients they serve. The reason is simple: calculations and simulations will only go so far and separation between supplier and user would cause manufacturers to miss many valuable pieces of information. Retired Nasa-expert Richard Hagart writes (1) : "It´s concerning to learn that some of the newer private space ventures launching today don´t appreciate the same safety standards we learned to emphasize on Apollo. Elon Musk´s SpaceX, for example, announced he intends to save time and money by fueling their Falcon 9 rockets after the astronauts board."� Indeed, SpaceX may have clients and partners, but it has no users, as no one has ever flown of one of its aircrafts, unlike other companies which have undergone the test of fire. This makes a big difference: no feedback, no practical information on which to build and correct future products, as of yet. The aviation world also regularly sets up feedback programs (2) to improve engineering security.

The necessity of close interaction between builders and users is particularly important in military equipment industries, where seeing equipment fail, at the very moment it is needed, is inconceivable. The military industry in Europe provides readers with a good illustration of this discreet yet important phenomenon. The two military industrial leaders of the continent each have their own way to produce: one based on predictions and calculations, the other based on hard feedback from users.

Germany´s military has been on the backfoot for decades, ever since the Second World War. With very limited participation to multilateral and peacekeeping operations, and non-existent national deployments, Germany has put its military days behind it (3). The industry, which once supported the country´s military might, however, has carried on thriving. Then and now, the German military industry has been known for the immense effort they put into innovation and the care they put into production. As a result, Germany is one of the world´s leading exporters of armament, with high-profile firms such as KMW and Rheinmetall, both specialized in heavy equipment. However, once the equipment has been bought, client armies do with it as they see fit, and send back little information to the engineering firm, for future corrections. Feedback will therefore only come under the form of general analytical audits and reports, and will take considerably more time. Germany´s engineers will rely mostly on assumptions and calculations to better serve the market. The type of equipment, built by non-war-waging countries, is built on the simple prediction of what armies might need.

France, Germany´s main competitor in Europe, has a somewhat different approach to engineering and production. The French army has a long-standing history of active, or leading, participation to inter-ally operations, or even unilateral interventions. Although the French army is not limited to French equipment (the most recent infantry rifle purchase is German, for instance), it mainly uses domestic equipment. Paris therefore encourages the cultivating of numerous ties and relationships between those who build the equipment and those who use it. This stance applied namely to the development of new artillery systems, some of which breaking away from traditional designs, under the influence of observations made by tactical units.

For instance, the French intervention in Mali (4) saw the deployment of Caesar artillery truck, with excellent results. The truck had been designed on the basis of feedback from past high-mobility operations (such as Koweït and Afghanistan). These ultra-mobile high-power howitzers were used to cover entire areas, thus denying them to enemy units. The information currently being gathered from the Malian battlefield will be used to design New Generation Caesar. The same tight-knit cooperation between the military and the industry applies to all fields, with light and heavy armor, or missile systems. In comparison, the German PzH 2000 howitzer, albeit a technological jewel, seems ill-adapted to modern-day battlefields, as it lacks the high mobility of the CAESAR, a crucial asset for today´s operations. It is anything but stealthy and is vulnerable (5) to Russian ammunition. Its girth and weight prevent it from being transported by air, in an age where rapid deployments are crucial. Despite its technical perfection, the Pzh 2000´s inadequacy in today´s battlefields has led to the bizarre absence of use doctrine for the howitzer.

The equipment is therefore not used, and its role (6) is carried by attack helicopters. Finally, the complexity of the weapon system brings the operators to barely reach (7) 50 % availability rates, despite the howitzer not being used. In comparison, the French Caesar is built on a robust truck chassis, which guarantees the mobility and availability which operators crucially need today.

Army recognition writes (8) : "The CAESAR® is a 155 mm / 52 calibre gun self-propelled wheeled howitzer which, today, constitutes the spearhead of 21st century artillery. The first version of the Caesar was shown in public for the first time in June 1994. The first version of the GIAT Caesar used a Unimog chassis 6x6 U2450. During the edition 2006 of the International Defense Exhibition Eurosatory, Nexter Systems presented for the first time to the public, the Caesar with a chassis and cabin of a Sherpa 5 truck from Renault Trucks Defense. Its low weight, less than 18 tons in combat configuration, reduces both complexity and cost. Its strategic, operational and tactical mobility is superior to that of other materials, while matching the reactivity of the self""propelled guns and the lightweight of the towed guns."� Engineers, through this approach, can rely on immediate and direct feedback (9) in order to design future weapons systems, upgrades or equipment.

The point is not to place one method over another: despite the poor levels of ground-level feedback, Germany is still known for its quality armament production capabilities. But it must be pointed out that the time for power-above-all is long gone, in this day and age where extreme levels of adaptation are necessary to face an ever-more flexible enemy. The risk, in military industrial matters is to cultivate technology for the sake of technology: military equipment must be designed to serve men and their missions, with reliable and operational systems. What those future systems might be cannot be described by anyone better than the soldiers whose lives depend on them.

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