

Industrialising the future of autonomous warfare

The key role of additive and advanced manufacturing in realizing a low-cost warfare

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Bottom-line-up-front: Defense Industry Strategies must introduce cutting edge production technology like additive and advanced manufacturing to be able to live up to the demands of the future autonomous and unmanned warfare.

Problem statement: Current Defense Industry Strategies are still based on traditional ideas of producing weapon systems. The new situation regarding the massive use of more and more autonomous and unmanned weapons systems asks for new mass production methods which exist but are for now not being used in the defense industry.

Abstract:

Due to the experiences in current conflicts, the issue of low-cost warfare has been coming up. The missile and drone attack on Israel were successfully defeated, but at a cost of estimated 1-1,5 billion Dollar. The Houthi drones at cost of 2000 Dollar each were successfully shot down with Standard Missile-2 which costs 2 Million Dollar each. The Russian Black Sea fleet was severely reduced by sea drones costing between 250000-350000 Dollar each. There are two consequences deriving from this: On the one hand, several future weapons programs are being reconsidered or adapted, for example the U.S. Future Attack Reconnaissance Aircraft Programme or the German-French Main Ground Combat System. On the other hand, there is a massive need for combat drones. It is estimated, that the Ukrainian defense industry alone is able to produce up to 3 million drones per year. Little is known about the production technology and processes to achieve this. The paper will shed a light on how modern manufacturing techniques contribute to this and what adjustments for national and European Defense Industry Strategies must be taken.