

# How experiences from the Ukraine war are shaping arms production and defense strategies

The security challenges of the 21st century are testing European defense strategies. Russia's war of aggression against Ukraine has revealed that traditional concepts of weapons technology, territorial defense, and procurement are no longer sufficient. Germany and other European countries can draw lessons from Ukraine's operational experiences. At the same time, there is growing scope for new technological and organizational solutions in the field of security and defense, a need emphasized equally by industry, experts, and policymakers.

### **Germany's Defense Industry**

Since World War II, Germany's defense industry has primarily focused on developing and producing technologically advanced weapons systems for export and for national defense. For decades, with no immediate threat to its borders, the Bundestag suspended conscription in 2011 and replaced it with voluntary military service.

With reduced personnel, high-tech systems became increasingly central. However, these proved expensive, time-consuming to produce, and only available in limited quantities. The war in Ukraine now highlights the limitations of this approach. Against this backdrop, the adaptation and scaling of production in Germany's defense industry have become significantly more important. Germany and Europe can derive crucial insights for national and alliance defense from the practical experiences gained in the Ukraine war.

# **New Defense Concepts: Learning from Ukraine**

The National Association of the Ukrainian Defense Industry, representing approximately 100 enterprises, concludes from wartime experience that Ukraine's defense depends less on the number of high-precision systems and more on the broad availability of reliable weapons. Consequently, the Ukrainian defense industry focuses on costeffective, rapidly producible arms.

Other countries and defense industries can also draw lessons from these operational experiences. Key considerations include modular design, production-ready manufacturing, and the ability to rapidly scale production. This ensures that operational systems are available in sufficient quantities in the event of a conflict—through stockpiling as well as rapidly deployable production capacities.

The Ukrainian defense industry also emphasizes flexible, cost-efficient serial production combined with emerging technologies such as artificial intelligence (AI) and robotics. Collaboration with start-ups is equally important to optimize resource use and increase production efficiency.

A long-term balance is critical: rapid availability of standard weapons alongside continuous development of modern technologies. Ukrainian defense firms offer valuable insights in this regard. Their direct wartime experience provides expertise both in mass production and in the development of innovative systems, such as those in the drone sector.

# **Investment and Cooperation Opportunities for German Companies**

Medium- to long-term opportunities for collaboration emerge for German companies and European partners. Aerospace and defense are among the five most important sectors of the Ukrainian economy. Since 2023, production in the defense industry has increased significantly and must continue to expand to ensure adequate defense capabilities.

Simultaneously, the war has triggered a security-policy reorientation in many other countries: defense strategies are being realigned, budgets are rising, and the demand for equipment, ammunition stockpiles, and production capacity is growing. National and alliance defense is increasingly becoming a central focus of NATO planning. This creates new markets and cooperation opportunities for companies within a dynamically growing defense sector.

"Currently, Europe's defense industry is undergoing a restart. To ensure the capability to defend both our own country and allied states, a new level of defense readiness must be established. Among other measures, areas of digital technology must be leveraged in the sense of Software Defined Defence."

# Stefan Hefter

Partner, Head of Defence & Space KPMG in Germany

This trend is also reflected in the EU initiative "ReArm Europe Plan/Readiness 2030." The plan envisages increased public spending on national defense, substantial defense investments through joint procurement by multiple member states, and the use of private capital via a savings and investment union. German manufacturing companies thereby gain new opportunities to cooperate with the Ukrainian economy while learning from the experiences of Ukrainian defense firms in developing modern defense systems.

# **Ukraine as a Strategic Location**

Experiences from Russia's aggression have made Ukraine an important partner and innovation engine for European and international defense technologies. The country brings several strengths to the table: extensive know-how, significant raw material reserves such as lithium, uranium, coal, and titanium, as well as short transport routes. Additionally, cooperation opportunities exist in cybersecurity, demining, and modern drone technology, in which Ukrainian start-ups play a leading role.

Key economic hubs include Lviv, Kyiv, Odesa, Kharkiv, and Dnipro. These cities host technology, construction, energy, and manufacturing companies, as well as central players in aerospace and defense industries. This includes the state-owned defense conglomerate Ukroboronprom, which represents more than 100 Ukrainian defense enterprises. The conglomerate is responsible, among other things, for promoting cooperation between state institutions and private companies as investors.



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