PwC Advisory

Turning the Aerospace and Defence industry into a source of added value for the economy

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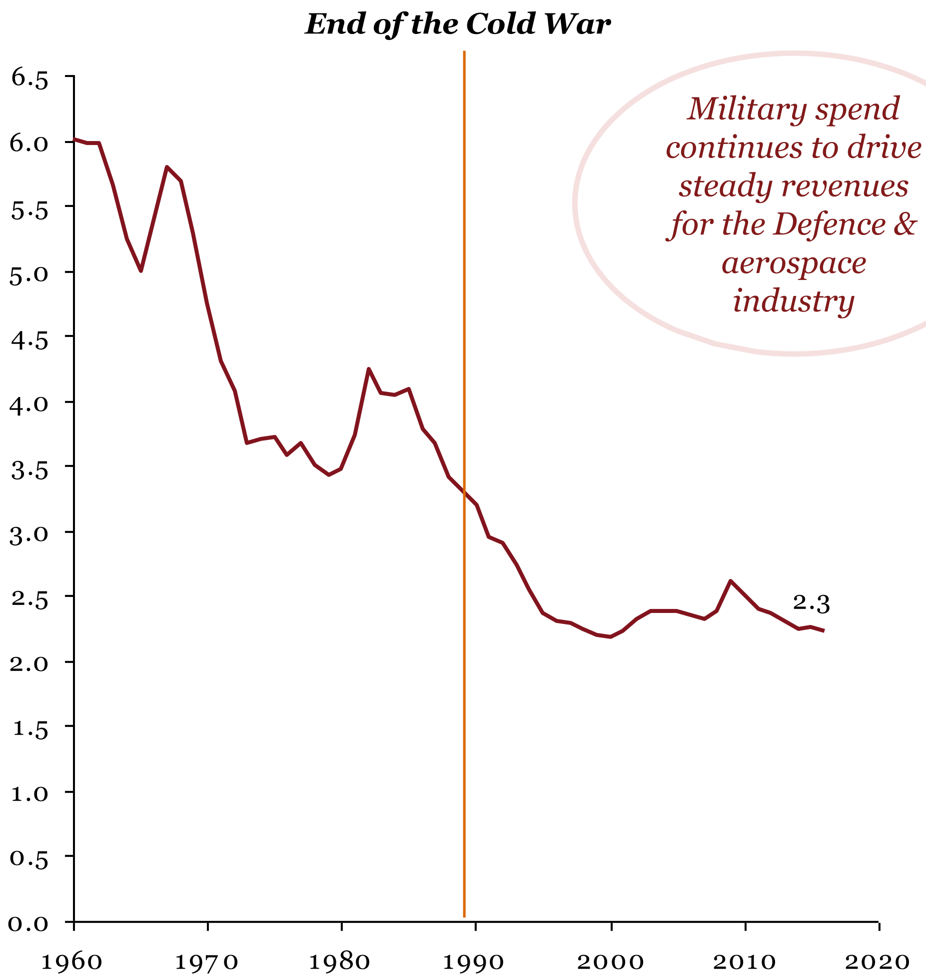
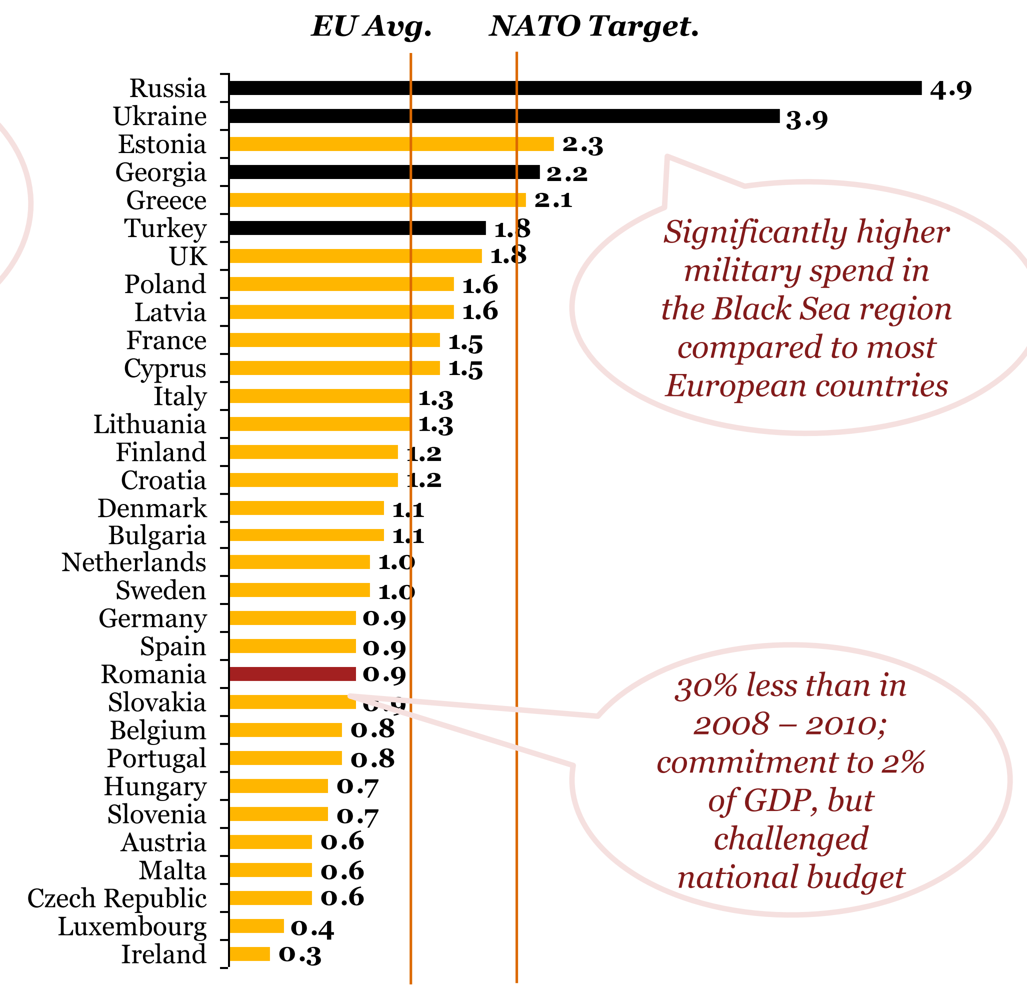
Despite a sharp decline after the end of the Cold War, military expenses continue to represent 2.3% of the global GDP and 1.3 of the EU GDP

World Defence Spending (% of GDP)



Military Defence Spending (2016, % of GDP)



Military expenses can be (partially) compensated by economic value added: in US, Aerospace and Defence generate 1.8% of total GDP and 2% of the employment base

Contribution to GDP

- The **largest defence spender** with a budget of over **586.7 BN $** in 2017
- 2013-2015: **~ 301 BN $** in total **economic value,** or **1.8% of nominal GDP**
- A&D exports represented **10.1% of total US exports**, **reducing the trade balance by ~85 BN $**

Employment and salary revenue

- **Over 1 MIL jobs in A&D, supporting 1.7 MIL additional jobs** across the value chain
- **~ 2% of the employment base** and 13% of manufacturing employment base
- Directly paid salaries: ~ 76 BN $ per year, plus ~ 75 BN $ annually by suppliers

Research & development

- US D&A companies increased **R&D spending by almost 12 BN $** in 2017
- Top US companies R&D spend: Boeing 4.63 BN $, United Technologies 2.34 BN $ and Lockheed Martin ~1 BN $

In EU, the impact of the A&D industry on the economy is important, but lower than in US

Lead system integrators

Prime contractors
- Aeronautics Systems developers and platform developers
- Space & Missiles System developers and platform assemblers
- Land Defence System developers and platform assemblers
- Naval Industry System developers and platform assemblers
- Engine/ propulsion manufacturers

Tier 1 contractors
- **Specialized systems producers (electronics)**
- **Complete sub-systems producers and assemblers**

Over 1,500 SMEs, concentrated in 6 EU countries

Tier 2 contractors
- Electrical & electronic
- Mechanical engineering
- Metal working casts & molds
- Etc.

Tier 3 contractors
- Commodity suppliers
- General service suppliers
- Basic economic infrastructure

Over 0.5 M direct jobs, 1.7 M jobs total

Significant R&D

*A&D play an important role not only for the large companies in industry, but also for **SMEs** and more generally, for stimulating **R&D** in new technologies*

EU developed financial support mechanisms to encourage the industry; aerospace clusters are supported

European Defence Fund (June 2017)

- **Grants for collaborative research** in innovative defence technologies and products: over 600 MIL EUR for the period 2017 – 2020
- Incentives for member states to cooperate on **joint development and acquisition of defence equipment and technology**
  - 500 MIL EUR for 2019-2020
  - 1 BN EUR / year after 2020
- For 2021-2027 the EU plans to allocate 13 BN EUR for the **European Defence Fund**

Industrial Development Program (May 2018)

- **500 MIL EUR in 2019 and 2020** (e.g. development of drones for military use or a EU cyber defence mechanism).
- Funding to increase to **1 BN EUR/year after 2021**

European Aerospace Cluster Partnership (2009)

- **42 clusters** (aerospace) in 17 countries
- **3 fields of action**:
  - **Knowledge exchange** (cluster excellence, funding schemes)
  - **Push innovation** (skills, EU projects, connecting member clusters)
  - **Strengthening the position of EU** (internationalization, supply chain infrastructure, global competitiveness)
- EU awarding **grants to clusters partnering in the defence and security sectors** for the first time this year

Poland is the best example in SEE for leveraging Aerospace and Defence as drivers for added value in the economy

Aerospace Industry

- **Polish Aviation Valley** is a **specialized cluster**
  - **Concentration of** aerospace **manufacturers**, scientific **research** and **educational** facilities
  - **Over 100 operating companies** and more than **23.000 employees**
  - **Total annual exports** of the cluster grew in average by 21% per year, from 0.25 BN EUR in 2003 to **2 BN EUR** in 2014
  - Major Polish manufacturers acquired by large multinational companies (e.g. Sikorsky, AugustaWestland)
  - Several major of aerospace component producers (e.g. PZL Rzeszow – United Technologies, Pratt & Whitney Kalisz – United Technologies, EADS PZL Warszawa – Airbus)

Defence Industry

- Polish army acquisitions of equipment have been historically combined with **offset contracts** which enabled the **transfer of technology** or **know-how** or **licensed rights** to Poland
- Prime foreign contractors investing in the industry include: Lockheed Martin (Black Hawk helicopter manufacture at Sikorsky/PLZ Mielelc), Finmeccanica/ Leonardo/ AugustaWestland
- Among the most successful domestic achievements in cooperation with the multinational contractors are: Anders tracked infantry vehicle, Krab Howitzer, Rak mortar crawler, Rosomak infantry vehicle, and modernized Leopard 2 Tank

*Polish local A&D industry is supporting the **continuous development of the Polish army** and its defence budget which targets **up to 2.5%** of the **GDP by 2030***

In Romania, companies related to A&D generate only ~400 M EUR turnover, but could constitute a nucleus for further development of specialized clusters

Highlights, Romanian A&D Industry

- The Romanian aerospace industry grew by over 70% in the past 3 years, but generated only ~340 M EUR in 2016
- Companies acting in the defense / weapon manufacturing industries generated revenues below 100 M EUR in 2016
- Romania has 1 A&D cluster, Transylvania Aerospace Cluster, in Brasov

Romania could capitalize on its EU and NATO membership, as well as on the strategic position at the Black Sea and on the Eastern flank

Strategic Role & Position

- Romania is a **key strategic partner for NATO and EU**: 1,600 km of the EU SE frontier, close to open or frozen conflicts generating regional instability
- **Key role in the Common Security and Defence Policy:** member of Satellite Centre of the EU (Spain), Security Studies Institute of the EU (Paris) and European Defence Agency in Brussels, active participation in 2 EU battlegroups (HELBROC and ITROT) and strategic contribution in critical NATO missions in sensitive operational theatres (e.g., Iraq, Afghanistan)

Commitments for Defence Budget

- National Defence Strategy shaped on the **"broader security" concept** and based on significant US and NATO investments
- The 10-year **2% of GDP allocation** from the Romanian state budget presents sound opportunities to:
    - Develop military capabilities and modernize the Romanian Army
    - Raise performance standards to enhance interoperability with other MS
    - Boost investments in civil infrastructure with dual use
    - Develop production clusters (e.g. Aviation Valley on the Polish model)

*Romania has **clustering potential** (e.g. with Poland), leveraging the strategic military partnerships, common affiliations with NATO and EU, country sizes and proximity, labour cost differential and numerous other synergies*

Romania can turn the A&D industry into a source of economic value for the economy

Develop a Strategy	*Conduct a detailed study in order to define the strategy for the A&D industry in Romania, by identifying key focus and main differentiators*
Setup a Framework	*Setup a framework for attracting investors, including policies, legal framework, models to be applied (e.g., PPP) , fiscal incentives, governance structure*
Smart Defence	*Develop capabilities for a regional market approach; strengthen profile as credible partner*