Global Industrial Cooperation Conference

European Consolidation in the Emerging Global A&D Market

Prepared for:
Competitive Environment

Europe’s Position

European Approaches
Defence spending Growth in Asia-Pacific is making that region the focus of potential defence exports, technology transfer, and collaboration.

**Regional Defence Spending USD Billions**

- **Analysis**
  - Western defence spending is growing at a CAGR of approximately 2% per annum compared with 7% in the Middle East and 8% in Asia-Pacific.
  
  - This is driving a shift in the focus of defence procurement away from Europe and toward Asia as demonstrated by successful Boeing sales in India and Australia (P-8, Chinook, etc).

- **Sources:** Historical Defence Spending statistics; percentage of GDP matched with IMF GDP Forecasts (CAGR 2021-26; US forecast is current Administration Forecast)
- **Notes:** Asia-Pacific includes China & India, Russia is included in Europe, Turkey in Middle East.
Rising global tensions and increasing competition is resulting in shifting dynamics in the global aerospace and defence market.

European Defence Companies no-longer see Russia as a potential defence market.

Potential antagonism between the US and key Latin American players may make defence sales more challenging.

Middle Eastern countries are subject to technology embargoes from western providers so are looking to China.

Improving Defence industries are reducing the need for imports in some Asian nations whilst increasing competition in more price sensitive markets and creating concerns about IP protection for Western suppliers.

Desire for NATO standard equipment and increasing procurement spending is making Australia a key target market for Western companies.

Potential antagonism between the US and key Latin American players may make defence sales more challenging.
There are three waves of defence exporting countries approaching the market as Japan, India and Australia now seeking to export.

- The US, European countries and Russia are still the dominant exporters of high-value A&D platforms and systems such as combat aircraft, warships/submarines, and missile systems.
- Increasingly ceding lower value market segments such as armoured vehicles to new providers.
- Generally compete on quality and geopolitical relationships rather than cost.

- Turkey, South Korea and China are making an increasingly significant impact on the global defence market.
- China is currently competing at the lower end of the price-performance curve.
- South Korea has moved into increasingly high value segments and is now directly competing with European firms.
- Turkey is focusing on the Middle East region where it threatens legacy providers from Europe.

- India, Australia, and Japan have expressed ambitions to become major defence systems exporters.
- Japan and India have portfolios of existing indigenous designs though of questionable competitiveness.
- Australian industry is still dependent on imported designs and technology.
- All three countries lack experience of defence exporting.

Sources: RSAdvisors Analysis
All countries use collaboration as a means of increasing production volumes and reducing R&D cost

<table>
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<th>Countries</th>
<th>Technology Area</th>
<th>Analysis</th>
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| South Korean led project with Indonesian funding and airframe support | KAI KFX | • South Korean led project with Indonesian funding and airframe support
• Using Lockheed Martin as a key technology partner |
| Japan is providing the rocket motor for the latest SM-3 variant demonstrating its desire increased collaboration | SM-3 | • Japan is providing the rocket motor for the latest SM-3 variant demonstrating its desire increased collaboration |
| Indonesia and Turkey have signed an agreement to collaborate on the development of a MALE UAV for surveillance operations demonstrating Turkeys export ambitions | Anka UAV | • Indonesia and Turkey have signed an agreement to collaborate on the development of a MALE UAV for surveillance operations demonstrating Turkeys export ambitions |
| South African and Brazilian collaborative programme leveraging a Brazilian IR seeker in a South African airframe | A-DARTER Missile | • South African and Brazilian collaborative programme leveraging a Brazilian IR seeker in a South African airframe |
Competitive Environment

Europe’s Position

European Approaches
Defence spending will grow at a 2.9% CAGR until 2027, however more than half of spending will go to meet personnel costs.

**Analysis**

- **Following a period of decline**
  European defence spending is forecast to grow at a 2.9% CAGR
  - Spending is driven by increasing regional tension, notably Russian military aggression

- **Spending is driven by both a desire**
  for modernisation and a need to enhance readiness
  - Several countries are pursuing service-wide equipment modernisation with an emphasis on conventional threats

- **Despite defence procurement increasing, most spending still goes to personnel support**
  - Over the forecast, personnel spending average ~50% compared with ~25% in the US

**Sources:** EDA, World Bank, RSAAdvisors Analysis
European defence R&D spending has been flat to declining for the past decade restraining development of next generation products.

- US R&D spending fluctuates, along with the US defence budget, to a greater extent than that of Europe but has consistently been higher.
- Much R&D sending is duplicated by different countries working in the same segments.
- This assumes that European politicians will remain committed to spending promises made in the last few years.
  - The 2007 peak spending number is not forecast to equalled unto 2022.
- This accumulative difference explains why Europe has struggled to generate new product such as UAS and 5th gen combat aircraft.

**EU Defence R&D Expenditure**
*(2005-2027, BN $US)*

### Analysis

- **Actual**
- **Forecast**

**CAGR ‘18-'27**
- **2.6%**

**Sources:** US Government, EDA, World Bank, RSAdvisors Analysis
Whilst the US has seen sustained growth in defence exports, European growth has been flatter suggesting declining competitiveness.

**United States FMS Agreements 2003-16**

$US Millions (CAGR 6%)

**Europe Defence Exports 2003-16**

$US Millions (CAGR 5.5%)

- US defence exports have remained relatively steady, largely thanks to FMS
- FMS has helped US companies beat European competitors in a number of high value competitions
- In addition sustained R&D has allowed US companies to continue offering competitive product (e.g. F-35 becoming dominant on the export market)

- European defence exports were largely static between 2004 and 2012
- Higher sales between 2013 and 2016 were driven by platforms such as the Typhoon and Rafale that are suffering from declining competitiveness compared to the F-35
- Other major platforms such as the A400M and Tiger helicopter have struggled on the export market

*Sources: DSCA, EDA, CAAT, RSAdvisors Analysis*
South Korea and Turkey represent the primary competition to legacy providers and both have increased their defence exports in the last 15 yrs

**South Korea Defence Exports 2003-17**

$US Millions (CAGR 20%)

- South Korea has set a target of $10bn of annual defence exports by 2020, but are unlikely to reach this
- South Korean defence exports are proving increasingly competitive, with armoured vehicles, advanced jet trainers, and submarines all winning contracts against European competitors
- The K-9 Thunder Howitzer has been successful within Europe (Finland and Norway)

**Turkey Defence Exports 2003-17**

$US Millions (CAGR 12.5%)

- Despite their relatively low value, Turkish defence exports have seen rapid growth since the late 90s
- Turkish firms are increasingly in competition with Europeans with the Turkish PARS beating the Swiss Piranha and Finnish Patria AMV for a Malaysian armed vehicle contract
- Close relationship with Pakistan including a contract for submarine modernisation

Sources: DAPA, SSM, RSAdvisors Analysis
Missed Market Opportunities – Legacy Providers

Failure to productionise new technologies has resulted in Europe missing key market opportunities for MALE UAVs and 5th gen fighters

Available Now

Unmanned

• General Atomics Predator family has been in service since the 1990s
• Has been exported to multiple countries including the UK, Italy and France
• European competitor, currently being developed under the EuroMALE 2025 programme is unlikely to be available before 2025

General Atomics Product Portfolio

Developmental

Unmanned

EuroMALE 2025

Combat Air

• The 5th F-35 has already secured competitions wins (Japan and South Korea) against the European 4th gen Typhoon and Rafale
• Europe is unlikely to have a competitor platform before the 2030s with only concept work now underway

F-35

Airbus 5th Generation Concept

Sources: RSAAdvisors Analysis
New Providers are competing with European providers by offering lower cost/capability solutions in traditional European market segments.

**New Provider Offering**

**Armoured Vehicles**
- South Korean K9 Thunder Howitzer has been bought by Norway, Finland and Estonia despite the presence of European options.
- The system has also been successful on the export market in India and Turkey.
- Armoured vehicles are a traditionally strong segment for Europe but international competitors are emerging.

**Surface Warships**
- Highly efficient Chinese shipyards are able to compete on price for military programmes and increasingly winning orders with price sensitive customers.
- Sales of warships to Algeria (C-28A), Pakistan, and Nigeria demonstrate growing competitiveness.
- This is a risk to established European yards.

**Sources:** RSAdvisors Analysis
Future Providers are already targeting market segments where Europe has previously competed or wishes to do so in the future

**New Provider Product**

- **Maritime Patrol**
  - Japan has begun marketing its aircraft designs, notably the P-1 MPA, on the export market
  - In some of these market segments Europe currently lacks a product offering
  - This increased competitiveness risks undermining the business case for future European developments

- **Radar**
  - India is developing a range of products and has been actively marketing radar systems to price conscious customer nations such as Armenia
  - Other areas of interest include small arms and armoured vehicles

**Developmental**

- Proposed Airbus MPA
- Giraffe Radar

Sources: RSAdvisors Analysis
Agenda

Competitive Environment

Europe’s Position

European Approaches
Europe is using three approaches to drive defence industry harmonisation across the block...

### Regulation

**Defence Directive 2009/81/EC**
- Regulatory structure intended to force countries to open up their defence markets and reduce the use of offsets
- 5 member states have infringement procedures against them

### Collaboration

**Permanent Structured Cooperation**
- Formalised EU driven cooperation though still requires individual member states to opt-in to individual projects
- Focusses on harmonisation of R&D and operational readiness

**Ad-hoc Collaboration**
- Continued collaboration between European states outside of EU structures
- Continues the approach taken for Typhoon and Tornado
- Mostly, involve UK, France and Germany

### Decreasing Formality

- The EU is slowly driving towards a more integrated defence material market that limits the ability of member states to protect their own industries whilst facilitating European-wide collaboration
- Process has proven slow moving and the latest PESCO arrangements still fail to encompass all member states
- UK departure from the EU may ultimately speed up integration as the UK has historically been unwilling to make significant use of EU structures to the extent envisaged by some
- Ad-hoc collaboration will continue as it remains an efficient approach at a bilateral level

**Sources:** EU, EDA, RSAdvisors Analysis
Europe’s approach to offset and lack of new product development risks undermining its defence industry despite efforts at collaboration

**Conclusions**

**Directive 2009/81/EC**
- **Positive**
  - Drives open competition
  - Increases market efficiency
  - Should increase military effectiveness through better allocation of resources
- **Negative**
  - Weakens defence industries in smaller countries as ability to use offset or protectionism is degraded
  - Favours large exporting countries such as France and Germany

**Collaboration**
- **Positive**
  - Increases efficiency of R&D spending
  - Spreads risk and cost
  - Increases standardisation between national militaries
- **Negative**
  - Industrial planning and operational requirement writing can be delayed and inflexible
  - Requirements to satisfy multiple customers can drive inefficiency

**The Future?**
- European industry may become more concentrated in larger countries such as France and Germany
- Smaller countries will increasingly be limited to sustainment rather than manufacturing activities
- Collaboration will drive increased consolidation of industry
- Offsets will continue to decline in use in Europe

Sources: RSAAdvisors Analysis