

## **Written evidence submitted by Professor Trevor Taylor, RUSI**

Additional Written Evidence after the oral session

Further to the oral evidence session I would like to offer this written evidence note which covers two of the topics addressed briefly during the session: competitive tendering and the land systems sector.

### **Competitive tendering**

Conventional and well-established economic thought stresses the importance of 'competition' as a route to innovation, efficiency and lower cost. It drives out the less successful and rewards those who provide what the market craves. But is there frequently a significant gap between how competition in defence is supposed to work and its actual features?

This requires thought data and thoughts about the features of defence markets from both the supply and the demand sides, the incentives on the parties involved and the frequent outcomes.

The arguments below do not apply to the supply of routine goods and services which are available, in production, from a range of potential suppliers who also can serve a wide range of customers. However, they are pertinent to the major defence projects that account for much of the Ministry of Defence's resources and have caused many past problems.

### **Supply side features**

On the supply side, the specialised defence industrial sector has a long-standing global trend of consolidation, so that today in many sectors there is at most a national monopoly supplier among a Western set of suppliers that make up an oligopoly. Consolidation, which has often been prompted by government action, reflects the need for scale given the finance and range of deep expertise needed for the development and of major platforms, systems and weapons.

In formal defence competitions for major systems, unsuccessful firms in a competition frequently leave a sector or move down the supply chain because it is too expensive to maintain the assets associated with an industrial capability when it may be 20 years before the next national system is chosen. Importantly, export orders are even more difficult when a company's home government has not chosen a product. Thus a national defence competition can represent a single point of failure for a bidder.

Competing firms may also calculate that, should they win a contract, there will be long-term benefits in other markets and projects because their success could well drive out a competitor for good: predatory pricing is a temptation.

Firms leaving a sector are rarely replaced because the entry barriers in terms of time, capital and expertise needed are so great. For their part, surviving firms become national strategic assets that sometimes become 'too big to fail' – arguably Airbus in Europe and Boeing in the US have this status.

## Demand side features

On the demand side, the one key customer is in a monopsony position and thus in a strong position, at least until a contract is signed. As noted, projects involving a major system type are few and far between and the requirements that are demanded are increasingly complex and risky given the growing if uncertain future capabilities of potential adversaries. The term requirement is something of a misnomer beyond the contractual context, since they represent system capabilities that authorities judge will be useful in contexts and operations in perhaps 20 years' time.

The most demanding and expensive defence projects have long development periods, take time to produce and then may be in service for 20 years or more. On the other hand, the officials and officers managing requirements and even production contracts are in post and accountable for just a few years, five being a lengthy term in post.

They are dealing with annual defence funds which are under pressure from a wide range of competing needs within the sector and plans for major projects need pan-government approval, not least from the Treasury. In these circumstances, the lower the anticipated cost and the greater the project's promised performance increase, the more likely it is to win favour.

But the value of a defence project is not a matter of its estimated military utility versus its purchase cost. An initial thought is that through life spending on a major system far exceeds its initial purchase but accurate estimates of through-life costs for something not yet in production are rare. A second thought is expected military utility can change quickly with developments in world politics and the capability of adversaries. Beyond these points, however, are the other dimensions of value beyond cost and performance, which include a system's impact on foreign relationships and a government's domestic popularity, and its significance for national and regional prosperity. Moreover, a national supplier can be seen as more desirable since it can be viewed as a more secure supplier increasing the potential for national freedom of action.

The multi-dimensional nature of value in defence was recognised even in the first Ministry of Defence document explaining the idea which list more than 50 factors under 8 broad headings. The last heading was Strategic and Structural factors which listed Safeguarding of strategic sources of supply; Length of supply chain and its vulnerability to disruption; Offset considerations; and Effect of procurement on price, availability and competition for future supplies (e.g. arising from dumping or artificially depressed quotations) including, as appropriate, supplies for other public purchases.<sup>1</sup>

In brief 'value' in defence should be recognised as complicated (involving many elements), subjective (in that different stakeholders will have different priorities) and dynamic (in that it can change over time).

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<sup>1</sup> Ministry of Defence, 'Value for Money in Defence Procurement', Defence Open Government Document 83/1, 1983

## Outcomes

These insights underline that running a competition that is technically 'fair' in that all bidders are given an equal and accurate sense of how their bids will be assessed, is somewhere between difficult and impossible for the most demanding defence projects. The incidence of appeals in the US bears this out.<sup>2</sup>

Once a contract has been awarded, the supplier's grip on the customer is much strengthened. Because of the scale of costs, governments must fund most development activity and become loath to cancel a project or abandon a supplier because of the disruption to military plans and of concerns about having 'wasted' public money. But lengthy development periods usually mean that requirements have to be modified, rarely by scaling them back, and the prime contractor, along with leading sub-contractors, are in a very strong position to dominate work in the in-service phase because of their system expertise and intellectual property ownership.

With these conditions on the supply and demand sides, bidders are incentivised to offer low prices and unrealistic time scales to win a once in two decades contract, and procurement officials short of funding are drawn to accept them. Despite the multiple aspects of defence value, the temptation is always to go for lowest initial purchase price to tie up as few resources as possible. As contract implementation proceeds, delays should not be a surprise, nor should companies charging significantly for dealing with requirements changes and in-service work when they need to recoup losses associated with an initial optimistic bid.

This all suggests that formal competitions where rival firms offer contractual terms regarding performance, time and cost deliverables, are at best a mixed blessing for a government such as that of the UK. The 'result' of a competition is often seen in terms of who was the winner, but a better concept would be a comparison of what was first offered with what was eventually provided when and for how much.

In practice, the relatively limited use of such competitions, which account for less than 45% of the MoD's contracting spend, reflect recognition of these points.<sup>3</sup>

## Conclusion

Selection on a sole source basis of a partner prime contractor, like any decision, carries risk, but it is notable that countries that arguably punch above their weight in defence industrial matters, such as Israel, Singapore and Sweden, focus on 'national champions' rather than competitions to achieve their ends. Moreover, in the UK the 15-year positive experience with MBDA and Team Complex Weapons shows long-term partnering can also work in the UK.

## Land combat vehicles

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<sup>2</sup> [https://www.gao.gov/legal/bid-protests/reference-materials#annual\\_reports](https://www.gao.gov/legal/bid-protests/reference-materials#annual_reports).

<sup>3</sup> <https://www.gov.uk/government/publications/mod-trade-industry-and-contracts-2019/finance-and-economics-annual-statistical-bulletin-trade-industry-and-contracts-2019>

There is a question of whether the UK needs an industrial strategy for land systems. The armour and propulsion systems associated with armoured vehicles mean they continue to have important heavy engineering features but the growing complexity of their sensor, communications and fire control systems means that their electronics, computing, software and systems integration complexity is high and growing.

The current position shows that UK industrial activity in this sector has four prominent businesses which operate in a competitive but partially cooperative context. In alphabetical order they are:

Babcock, which bought the Defence Support Group (which included the former Army Base Repair Organisation) from the Ministry of Defence in 2014/15 for £140 million. The deal includes a ten-year contract with Babcock to maintain, repair and overhaul the British Army's vehicles and light weapons, including Challenger tanks and Warrior armoured vehicles. DSG is based in Andover, Hampshire, but has a major plant at Telford in Shropshire among other sites. Lord Astor, the Parliamentary Under-Secretary (Ministry of Defence) told the House of Lords in January 2015 that 'Babcock has committed to develop the DSG land business, putting it in a strong position for the future'. This deal had an initial value of £900 million over a decade which the Government recognised could rise to £2 billion.<sup>4</sup>

BAE Systems, which moved into this area in the UK when it bought the Royal Ordnance factories from the British Government in the late 1980s and subsequently took over the land systems businesses of GKN, Alvis and Vickers, has created a joint venture with Rheinmetall in the UK to be an armoured vehicle, design, manufacture and support business.

The combination of Rheinmetall's military vehicles technology and products with the additional capabilities and products brought to the Joint Venture by BAE Systems, such as Trojan, Terrier, Warrior, military bridging and the AS90 self-propelled artillery system will create a European market leader in the military vehicle sector. RBSL will have the potential to create hundreds of additional UK jobs, both in Telford and the wider supply chain. While initially focused on these major UK programmes, RBSL will also form an integral part of Rheinmetall's Vehicle Systems Division and will participate in and contribute to various global military vehicle pursuits and contracts.

Prior to contract signature in late 2019 Rheinmetall BAE Systems Land had said it "intends to play a major role in manufacturing the Boxer 8x8 for the British Army's Mechanised Infantry Vehicle (MIV) program" but specific arrangements are not yet publicly available. BAE Systems' vehicle factory is at Telford in Shropshire. BAE Systems tank plants were closed in Leeds (in 1999) and Newcastle (2013). The Leeds site is being re-developed for housing but the international engineering Reece Group bought the Newcastle plant where it undertakes engineering tasks for a range

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<sup>4</sup> <https://www.parliament.uk/business/publications/written-questions-answers-statements/written-statement/Lords/2015-01-06/HLWS148/>

of sectors including defence.<sup>5</sup> BAE Systems overall land division is run from the US, where it is a prime contractor on several programmes, and also includes the former Haaglunds business in Sweden.

General Dynamics is the prime contractor for the delivery of the Ajax fleet and has built two assembly lines near Merthyr in Wales to build most of the fleet and then undertake maintenance and repair work. GD is also the prime contractor for the Bowman tactical communications system and it is likely to have a significant role in its successor system Project Morpheus. The company reports that

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We have established a new Armoured Fighting Vehicle Assembly, Integration and Testing (AIT) facility in South Wales to deliver AJAX to the British Army. We have invested more than £12 million in a new UK Armoured Fighting Vehicle Centre of Excellence on the site of a former South Wales colliery.<sup>6</sup>

Lockheed-Martin, which in 2005 bought Insys (originally a 2001 management buyout from Hunting Engineering) is the prime contractor for the Warrior modernisation programme and has a facility at Ampthill in Bedfordshire. It is responsible for building the turret for the Ajax system and Warrior itself. The company make this assertion about the site.

Lockheed Martin UK Ampthill is the largest and fastest growing Lockheed Martin facility in the United Kingdom. It is a wholly owned, 64-acre facility with exciting growth opportunities. Working closely with strategic partners and suppliers, its 900 employees are committed to helping Lockheed Martin's customers achieve their most challenging goals.

Ampthill's niche capabilities and proven, battle-winning solutions make it a partner of choice for the British Forces. Backed up with dedicated research and development, it offers proven, technology-driven solutions for the 21st century. The facility's skills and expertise support a range of capabilities, including air-land integration, battlespace management, ground-based air defense and weapons safety, integration and support.

Ampthill is at the forefront of complex mission systems integration, system design and development and the implementation of electronic architecture.

This short note does not address important sub-contractors including steel manufacturers but this is clearly not a sector dominated by one firm.

Issues of assurance and agility of supply, freedom of action and operational advantage, prosperity and interoperability with allies are clearly relevant to the land combat vehicles sector which means a strategic approach to the design, manufacture, support and upgrade of these systems is justified. The capabilities, investments and aspirations of the companies listed above need to be reconciled

<sup>5</sup> <https://reece-group.com/about-us/>

<sup>6</sup> <https://generaldynamics.uk.com/about/our-economic-benefits-to-the-uk/>

with the Equipment plans of the Army, which would imply decisions being taken on a portfolio rather than a case by case basis.

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