

There are many similarities between the defense acquisition environments of the USA and the United Kingdom of Great Britain. Perhaps that's not too surprising, given the "special relationship" between the two countries that goes back over 75 years. Because of those similarities, we take an interest when somebody publishes a report addressing "persistent challenges" in the UK's defense acquisition environment, because the analysis may hold some applications for the US.

Recently, the RAND Corporation (Europe) [published](#) such a study. It's not a very long analysis, and you can easily read it for yourself. But we know our readers, so we thought we'd note some of the report's highlights because, otherwise, you'd just skip the whole thing.

Warning: British spelling and grammar ahead.

The RAND report begins with a summary of the defence acquisition environment: "Defence acquisition is complex, uncertain and constantly exposed to the chance of failure, requiring sound risk management." That would seem to ring true for both the US and the UK.

The report identifies three main drivers that lead to cost or schedule problems, or "performance shortfalls" in the delivered products. Those drivers are: (1) skills/capabilities of both the buyer (in this case, the UK Ministry of Defence or MOD) and the seller (the contractors), (2) supplier performance, including contracting issues such as incentives, and (3) programme management, budgeting, and delivery.

There's probably nothing earth-shattering about those root causes. We probably all knew them intuitively or through our experience. Still, it's nice to have an independent analysis to point to when the discussion arises.

According to the report, the first driver (skills and capabilities of buyer and seller) include: "a sufficient quantity of suitably qualified and experienced personnel (SQEP) and appropriate design and production systems, processes, tools, materials and facilities." In addition, the report identifies: poor requirement setting, production inefficiencies, and "workforce and skills challenges" as drivers in this area. The report dives a bit deeper; the authors assert:

Where technical specifications are set out in too much detail (instead of, for example, setting out the broad military requirements and use cases), industry has little manoeuvre in defining how the requirement could be delivered in a most efficient and effective way in terms of the key criteria: performance, cost and schedule. In these circumstances, programmes basically start off trying to deliver an end product that may not be the best solution from a capability perspective in the first place and is likely to end up being more costly than necessary due to the ambitious nature of the design.

With respect to inefficient production methods, the authors assert:

Long gone are days when most defence manufacturers benefited from economies of scale, driving down unit production cost through mass manufacturing. In fact, many large equipment programmes have relatively short production runs, with only limited number of units produced (e.g. ships, submarines, combat aircraft, helicopters) and there is a wider trend in recent decades towards ever more complex, expensive and 'exquisite' designs and a decades-long acquisition cycle. This means that each unit could almost be its own prototype and there are only limited opportunities for economies of scale, reducing the productivity benefits to be derived from learning or use of new technology over the lifetime of a production run.

Finally, with respect to workforce skills (SQEP), the authors assert:

Defence is a niche business where skills are critical and costly to rebuild, particularly in areas where unique skillsets require years of experience and may only reside in a relatively small number (even single digits) of key individuals. Once the appropriately qualified and experienced workforce is diminished – whether due to demographic changes such as retirement, departure of employees to other industries, or a lack of sufficient demand to justify the expense of new recruitment – it can be prohibitively costly in both time and financial terms to train up the SQEP from a low or zero base.

Similarly, long gaps between programmes mean that critical skills, particularly in the design and development stages of the equipment lifecycle, are not sufficiently exercised and tend to atrophy. ... Rebuilding, retraining, recruiting or sourcing these skills from sources external to the programme (or seeking to bring in external subcontractors or partners to fill known gaps) can be costly and time-consuming, and can jeopardise the programme's overall performance.

Looking at contracting, the report identifies “misaligned assumptions” and “poor understanding” of the technical, integration, and other business risks associated with the programme. As the authors wrote:

This lack of understanding then makes risk management less effective and can result in a mismatch between risk sharing approaches and contractual arrangements and incentives. As a result, cost overruns, schedule slippages and quality issues may be difficult to identify, foresee, track, quantify and address, also because liability can be difficult to apportion and there may be limited visibility for the MOD to see what is happening in the supply chain below the prime contractor level.

Other points made in the RAND report include:

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A culture of optimism permeates defence equipment programme decision making, distorting assumptions and planning outcomes.

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Lack of institutional memory means that lessons from the past are not learnt as quickly and efficiently as they could be – or not learnt at all.

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The UK defence acquisition system is prone to moral hazard whereby poor delivery results in only limited negative consequences.

Do those points apply to the US defense acquisition environment? We believe they do.

To wrap this up, let's one of the RAND-recommended corrective actions.

Acquisition best practice suggests that 'chaos' (i.e. red teaming and challenging of underlying assumptions) should be introduced at the early stages of the programme set-up in order to identify weak assumptions, appropriately assess risk and prevent unrealistic estimates from becoming contractual milestones. ... well-functioning independent cost and risk analysis and assurance have an important role to play in mitigating the adverse impact of optimism and other biases.

Though the recommendation is pointed at the UK MOD, it would seem to be applicable not only to the US DoD, but also to many large defense contractors. If you want to understand where the program is likely to end up, you need to be rigorous in evaluating the initial assumptions. On the other hand, we also understand that, given the predilection of the US DoD to buy via Lowest-Price, Technically Acceptable (LPTA) methods, it may not be in the contractor's best interest to actually price the realistic cost estimates. But at least such an approach would help to quantify the size of the program buy-in, so that the company could reserve for losses upon award, rather than recognizing losses piece-meal over the life of the program.

In any case, the RAND (Europe) report presents another independent analysis of what's wrong with the defense acquisition system, and points to some things that might be done to address those root causes. Though largely focused on the UK, it seems to be applicable to the US environment as well.

Will anything be done? Doubtful. Tackling some of these challenges will take a lot of political will; we don't think it's there.