REDSTONE RISK

Unwrapping the riddle of defence acquisition in the United Kingdom.

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Introduction.

Observing the Need for Change

UK defence acquisition is perceived by many as a challenging and suboptimal phenomenon. Since 1998, and the early reforms of the Smart Procurement Initiative – and its subsequent derivatives – over a billion pounds has been spent by different British governments on strategic reform of this practice. New organisations have been created and unceremoniously scrapped, lasting less time than many of the equipment programmes they supposedly homed and oversaw: the Equipment Capability Customer, Defence Procurement Agency, Defence Logistics Organisation, and the single service logistics' headquarters are just footnotes now in the evolution of defence capability management. Yet today, the Defence Equipment and Support (DE&S) organisation and the single services are subject still to criticism amid an enduring dominant discourse of cost overruns, delivery delays, reworks and, at the extreme, collapsing programmes and the consequential capability gaps they might generate.

Multiple reasons for this state of affairs have been offered by politicians, from members of the armed forces and by those researching these matters in academia and think tanks. More optimistic observers attest to a perceivable excellence of governmental and contractor project management staff and their management practices, asserting that the supposed narrative of failing programmes is far from universal and championed by folk who fail to properly understand the data. However, for programmes such as the Ajax vehicle system suite of capabilities, data-sets may well demonstrate some well-delivered milestones in the programme's schedule of activities, but no reasonable person observing could think in terms of success as, to date, Ajax cannot be fielded by the British Army.

Other analysts, in contrast, might suggest that problems in UK defence acquisition are rooted in an imbalance in skills and competencies between governmental forces and the lawyers and commercial officers of the defence prime contractors and their supply chains. Put simply, this hypothesis suggests that this skills' overmatch, in favour of industry, biases defence programmes at their inception towards the commercial and cashflow needs of the contractor. An imbalance, therefore, that could be addressed through better employment, training and development practice of government personnel. In this regard, analysts might also point to the frequent turnover of staff in programmes and project teams, especially of those project members employed from the branches of the military. Advocates of this theory might suggest, therefore, that reformed staffing practices might form part of the answer to acquisition underperformance. Other voices warn that defence acquisition programmes are often too large, expensive and complex thereby being resistant to reform. The key thought, of course, is that such programmes were never properly understood in the first place.

It is certainly true that much (though, significantly, not all) of defence acquisition is complicated and at the forefront of human scientific, engineering and management capabilities. How could the endeavour, for example, of putting a ship's company in a newly designed and constructed submarine that can circumnavigate the world underwater – in company with a nuclear reactor – be anything other than a complex social, engineering and scientific achievement of rare significance? Yet, perhaps, in its very complexity, a kernel of understanding might be found for the continuing sense of an acquisition system that for many remains suboptimal and, more importantly, pointing to what practitioners can do about it.

> UK defence acquisition is perceived by many as complicated and in need of transformation. From this complexity, though, an understanding can be found through practitioner engagement and a willingness to learn from experience whilst being open to change.

Better Best Practice?

The authors of this essay have joined forces from their differing perspectives to seek an understanding of the challenges of UK defence acquisition – within the programmes and projects themselves – and the diagnostic options for maximising future performance to eliminate cost overruns, schedule slippages and capability gaps – with a view to actively help improve UK defence acquisition. William Foulds and Gareth Day are Redstone Risk Ltd, working as subject-matter experts across a myriad of defence programmes in all operating domains. Redstone Risk is a consultancy which has worked at the very heart of major defence and national critical infrastructure programmes, giving them exceptional insights into the challenges they face as well as the ways they can manage their uncertainties. To date, they estimate that they have brought their enterprise and risk management skills to approximately £22 billion-worth of defence programmes, contributing to the mitigation and avoidance of costly programme failures and the delivery of intended programmatic military effects. Professor John Louth, in contrast, is an author and researcher who led RUSI's defence, industries and society research and now enjoys a portfolio of activities across prime contractors, commercial technological incubators, universities and public-sector bodies.

Together, their combined expertise brings a potent combination of practical experience and thought leadership to defence acquisition programme improvement. Taking a longitudinal study over the past six years, the authors sought to understand bespoke defence sector best practice in acquiring, sustaining and refreshing effective defence capabilities within challenging programmes and projects. This short paper is the product of that enduring observation and engagement.

> The authors' joint expertise as practitioners and academics brings a potent combination of insight and thought leadership to the challenges of generating more effective defence capabilities.

The work begins with an analysis of UK defence acquisition this century and the continuing challenges faced within defence programmes. It goes on to discuss the nature of problems identified in defence acquisition and the appropriate and timely application of knowledge in addressing potential acquisition failures and suboptimal practices. Initial findings are generated by way of a conclusion.

The reader should be aware at the outset that this is a practitioner thought-piece rather than an academic article. Many of the themes from this work will be found in Professor Louth's forthcoming book on UK defence[1] which will reference fully the body of knowledge this essay leans upon.

1. John Louth, *Understanding UK Defence Exports* (Routledge: Abingdon OXON, 2023), from 28 April 2023.

UK Defence Acquisition.

The Theology of Smart Acquisition

Defence acquisition in the UK, as shaped by the reform programmes of Smart Procurement, Smart Acquisition and beyond, is a "requirements" led imperative. Indeed, within the copious smart acquisition rules and guidance literature provided by the British government, it is stated that:

Acquisition = requirements + procurement + support + disposal

Through this supposed "whole life approach" capability acquisition was intended to be "faster, cheaper and better." The enduring aim of UK defence acquisition, therefore, is to enhance military capability by acquiring and supporting equipment more effectively in terms of time, costs and performance. Within these parameters, there remains a policy desire to cut the time for key new technologies to be sourced and inserted into the frontline to secure, first and foremost, military advantage to the UK but also, perhaps, national industrial competitiveness and resilience.

Practitioners and the subject literature align in describing the key features of our defence acquisition policy as follows:

- A whole-life approach to capability management embodied in a single, unified project team integrating military users, industrial providers, sources of finance and technologists.
- Clearly identified customers and end-users for the capability sought, rooted in clear-eyed military doctrine.
- A practice of identifying and evaluating trade-offs between performance, procurement costs, whole-life costs and time in development, manufacture and delivery.
- Management budgets set by identifying risk at the inception or outset of a capability programme.
- An open and constructive relationship between government and industry based on partnering principles, underpinned by competitive contractor selection whenever this provides best value for money.
- A focus on defined outputs at the initial concept phase of a programme or project, framed as the User Requirements Document. This document defines the results that military end-users require from the system at the appropriate project cost. This, in turn, drives the Systems Requirement Document where the technologies and competencies are identified to deliver the end-user outputs. From this, a procurement strategy can be derived – a competitive or single-source approach, for example, and outline costs and budgets identified. Following this early years' focus on requirements, the capability can be prototyped and tested within a demonstration phase, constructed at appropriate volume within a manufacturing phase, rolled-out with the military in an in-service phase and finally, as necessary, replaced through a disposal phase.

On paper, such an approach to defence acquisition seems sensible, even elegant, and it certainly has its advocates. A number of high-profile consultancies have developed profitable practices offering advice on defence acquisition guidelines. The challenge, of course, is that scripted elegance and the skills of the many governmental authors and their advisers in crafting policy and guidelines do not always lead to excellence in delivery. Indeed, the experience of the authors has led us to believe that the seeds of suboptimal defence acquisition performance can be found in the policy itself:

The dominant focus on "requirements" is dysfunctional and seldom found in non-defence acquisition practices. If the in-service life of a system is multi-generational (typically the case), then the initial guiding user requirement can become irrelevant over time. This is equally the case when considering the technologies within a systems requirement: they quickly become out-of-date. In an epoch of rapidly advancing technology disruption and transformation, this is hugely significant to our capability generation. Yet, in most defence programmes, our acquisition guidelines still favour a "fixed" set of requirements at the outset.

This focus on requirements leads to management becoming besotted with outputs rather than the military effects or the outcomes being sought. Indeed, often, senior leaders conflate system "output" and "outcome," believing them to be one and the same. They are not. By focussing on a military output, we have a scenario where we could win the skirmish but lose the war as effective programme management is all about the correct set of outcomes per spend and management effort.

In some instances, funding cycles can drive a behaviour of "one shot" rigidity set by discrete risk identification and analysis at the outset of a programme, rather than allowing for change – almost by definition the analysed contingency budget will be inadequate, or at least based on pure hope. This contingency must be iterative.

The management of risk is often based on outright financial risk value, as opposed to the effect a risk may have on capability outcomes. The largest financial value risks are often not the ones which have the greatest effect in delivering the right equipment.

Moreover, the centrality of requirements and an output focus leads programme managers and oversight communities to value certainty over ambiguity, at a moment in history where uncertainty and disruption allow for rapid technological research, development, adoption and insertion. This, in turn, probably offers the future critical military advantage sought.

Given this, there is no single notion of technology. It is observable that an approach dependent upon a systems requirement to house the necessary delivery technologies can assume a common maturity for those technologies. This is a profound error. An effective acquisition system has to allow for continuing technological refreshment and overhaul, through-life, or risk redundancy or the disaster of battlefield overmatch. An approach to a smart technological portfolio within capability systems is to be encouraged.

Lastly, woolly thinking around requirements, technological certainties and outputs over outcomes pervade governmental and defence commercial decision-making. It becomes the cultural norm of defence acquisition professionals, bequeathing us, perhaps, the same acquisition results today as we had yesterday. And setting, of course, a pathway for the same outcomes tomorrow. This is troubling if those common outcomes include a continuance of perceived poor project management and sub-optimal delivery: cost overruns, performance failures, schedule delays and failures in integration. Historically, this has led the UK to depend upon a system of speedy urgent operational purchases and work-arounds that lead to short-term fixes, perhaps at the cost of longer-term, strategic benefits. A view paraphrased by a junior officer who had served in Iraq and Afghanistan telling researchers that he was always deploying "with the wrong stuff for the wrong wars."

2023: The Parliamentary Critique

This is a timely moment in defence management for this paper to offer these points. The House of Lords' International Relations and Defence Committee published its report into UK defence policy in January 2023 calling for the Government to fundamentally restate its priorities through its refresh of the Integrated Review and Defence Command Paper. In this regard, the Committee called for a fundamental rework of procurement of capabilities reliant upon high-end, disruptive and emerging technologies. It described MoD as "one of the worst customers in the world" and, by extension, condemned its acquisition practice.

In parallel, the House of Commons Defence Select Committee has established a review of DE&S and the manner in which it has traditionally approached defence acquisition. An emerging view is that specialist practitioners, with pan-sector experience in programme management, shifting the focus to outcomes and ongoing risk mitigation rather than input costs and budget management (important those these things remain), are important to reform. Learning from both defence and parallel sectors hints at the criticality of effective risk management within the enterprise and across programmes and projects, with the proactive management of benefits and effects as the capstone of all other enabling activities. The importance of: one, a reimagining of the requirement set at the planning stage and, two, an ongoing, through-life understanding of the risks to success which could inhibit execution, cannot be understated.

> An acquisition approach dependent upon an early systems' requirement can be a profound error. Also, attempting to manage the highest financial risk may not necessarily bring focus to areas that pose the greatest risks to capability delivery.

The Application of Specialist Knowledge to Wicked Problems.

Complexity in Acquiring Effective Defence Capabilities

Generating effective defence capabilities in the modern epoch is hugely challenging. Geopolitical strategic scenarios are in a state of perpetual flux and our potential enemies and future challengers are also our trade partners. Globalisation has generated a set of interdependencies that make us vulnerable to choices made by other states, to the extent that notions of "sovereignty" themselves are challenged and contingent. Defence inflation is running higher than for any other year this century, challenging defence budgets even further and the blend of technologies calling for investment is in many ways overwhelming, as indeed are the integration challenges associated with them. Moreover, intellectual property (IP) as a concept is now more fragmented than any time previously, with multiple ownership models of intangible knowledge-based assets, complex licencing and permission constructs, IP piracy and off-shore control making it difficult to house and assure a country's IP. With all of these challenges, little wonder some folk regard defence acquisition management as an exercise in impossibility.

> The Redstone Way combines effective risk management with an unwavering focus on defence capability effects and programme delivery. It starts with decision making geared towards the capability outcome rather than programme inputs.

Redstone: Application of Learning from Practice and Experience

Redstone Risk provides trusted risk management consulting, modelling, and analytics services to Defence, Nuclear and Construction customers throughout the UK. With over 20 years' combined experience creating and managing risk processes that deliver genuinely useful risk intelligence to help senior leaders make better decisions, Redstone are well placed to advise on best practice approaches to risk and opportunity management.

Having worked on over £22 billion-worth of major defence programmes, our unique experience has led to the formalisation of the 'Redstone Way', a novel approach to risk management that focusses on the achievement of programme outcomes rather than just the avoidance of threats. An extract of our work is at Annex A. Thereafter, our 'Investment Ladder', shown at Annex B, brings fresh thinking to the old problem of how to balance defence acquisition and investment to generate a programme which is both achievable and delivers the right outcomes. The significance of the Investment Ladder allows for a smart overview and active management of known and mature contributing technologies for a capability – the Body – when integrated with disruptive or emerging 21st Century technologies – the Mind – enabled by a change management process and budget focussed overtly on a culture of technology integration and maturation for defence effects – the Spirit.

This experience has taught practitioners that both the costs of technological maturation and the time typically taken in developing, proving and integrating technologies are seldom known when user and systems' requirements are set in the early stages of programmes. Consequently, the cost of developing a capability or its time to delivery in service is often unknown and, in truth, unknowable. A project, therefore, cannot be managed to time or cost when, at the planning stage, both are wild variables.

In its best and most effective incarnation, an effective risk management process, facilitated by dedicated SMEs, can unite "siloed" programme teams (including directors) by teaming against a common enemy - outcome failure.

Consequently, Redstone focusses on generating accurate forecasting data and "outcomes management" for effects-based decision making rather than just relying on conventional approaches to risk management. This is a fundamental shift in mind-set for many programmes, which should move away from relying on team members telling decision makers what they already know (the conventional approach) to intelligent risk-taking and an outcomes-based approach which embraces and prepares for change. In this manner, it can generate a strong data-set for decision making that looks to the generation of the capability itself rather than single, specific milestones or budget lines. It is a step beyond existing project and risk management protocols thereby addressing the wicked problem of defence complexity. The goal of any major programme should not be to avoid risk but to achieve intended outcomes through embracing intelligent change. The Redstone Way helps achieve this.

Redstone, is a small and agile business that is curious and challenging, perhaps, in contrast to large, confident and bureaucratic consulting teams. Its prime contractor client base values this approach and the observable results it delivers.

> Generating accurate forecasting data for effects-based decision making is the key to flexible and agile defence delivery. Major programmes should not avoid risks, but manage them to achieve intended outcomes through embracing intelligent change.

Conclusions.

The reader will have deduced that the Redstone Way interdicts the certainties associated with conventional UK defence acquisition. The contention is that UK defence acquisition exceptionalism, anchored in a linear contract that assumes knowable cost and time parameters, could seldom be fit for purpose and requires practitioner-led reform. This has been the key insight from the Redstone practice over the past decade or so, concluding as follows:

1

Given the speed of technology innovation, changing budget assumptions and evolving conditions of warfare and its guiding doctrine, change has to be prioritised over certainty within acquisition programmes. Managing for change rather than protecting a sanctified baseline schedule drives strategic success. Given this, there must be a place within UK defence for a strategic change budget within the overall Equipment Plan.

2

The centrality of the user requirement and systems requirement, at inception, across UK defence acquisition projects is misplaced. Rather, management teams need to continually recalibrate and work to the outcomes or effects sought for the capability, not a "user milestone" or schedule output. This profound change in emphasis of a programme's "aiming point" will mitigate much programme risk whereby delivered equipment packages can be perceived as out of date or not fit for an evolved purpose.

3

Such a change in emphasis requires a rework of financial planning, its permissions and, ultimately, the budgeting process itself within a defence acquisition programme. The importance of the maturity of technologies, their roadmap to progression and integration, and other enablers, linked to both emerging expenditure and risk versus capability trade-off profiles, makes for a more visible and manageable budgetary architecture. The Redstone Way, for example, focusses specifically on its Investment Ladder with measurable benefits for programme decision makers.

4

The Investment Ladder gives greater flexibility to the adoption of novel technology improvements to defence acquisition. The traditional artefacts of programme and project management – scheduling, budgeting, change and risk management – are homed within this refreshed construct of effective defence capability generation.

5

Given this active re-imagining of defence programme management within the work streams refreshed and transformed by the Redstone Way, a critical success factor has been an enduring change in staff behaviours and values. A shift in focus from outputs to outcomes or defence effects is powerfully transformative culturally when aligned to decision making taken through the Investment Ladder.

6

The Redstone Way's contribution has been effective within discrete defence programmes and across parallel sectors. Its approach, of course, is highly applicable to the defence enterprise as a whole, at the portfolio level or Equipment Plan, given that the Investment Ladder provides both a mirror and a lens onto future doctrines, operational scenarios and force structures.

7

Also, intellectually, such a flexible and adaptive approach – top-down and bottom-up – bakes-in agility, early technological adoption and best £-for-£ spend of risk mitigation, leaving decision-makers empowered through the data and fleet-of-foot when it comes to maximising capabilities for the taxpayer.

8

The Redstone Way is unashamedly bespoke and differs from traditional management processes. It accepts that one size can never fit all scenarios but suggests that its experience of "guiding" multi-billion pound sums of challenging UK defence programmes has proven transformative. Its approach beyond the constraints of conventional project management is worth exploring.

To be a country that intends to maximise its defence outputs to deliver critical military effects requires a culture and set of values and behaviours that champion deep learning from successful experience. It requires also a confidence and curiosity to embrace and empower change. The Redstone Way has proven to be an effective route to change. Few informed people could doubt that the complexities of defence acquisition management could benefit from such an approach.

ANNEX A

The Redstone Way – Case Studies.

Focus on achieving outcomes not avoiding threats: The benefits of a future submarine programme

Submarine programmes are a minefield of complexity and uncertainty, compounded by a through-life time horizon stretching multiple decades.

Redstone have supported a key Industry Partner (IP) in a future submarine programme to better understand and quantify their uncertainties by applying a novel, Outcome focused, change-based methodology (the Redstone Way). The Redstone Way encompasses their established approach to intelligent risk taking, combined with a unique focus on pursuing change initiatives that deliver programme benefits. Shifting the effort away from habitual risk management techniques that focus on threat avoidance towards proactive Outcome management that promotes intelligent risk taking, marks a considerable step change in the approach to managing complexity and uncertainty on major programmes.

It is Redstone's assertion that change is inevitable on major programmes, and proactive change identified and embedded early in a programme lifecycle is favourable; it costs less and requires fewer responsive changes (is less risky) than the same change identified at a later stage in the programme lifecycle. Through their collaborative approach to delivering a novel process for identifying change events (opportunities and risk mitigations), maturing, and quantifying programme benefits and assessing the effects on programme Outcomes, Redstone has helped the client achieve greater ROI from change events designed to reduce in-service submarine support risks, and ultimately, ensuring the Royal Navy's availability targets are achieved.

Redstone helps clients achieve a greater ROI for the Royal Navy, for example, by managing change events designed to reduce risks to the UK Submarine Enterprise.

Risk management: The key to collaboration on a major programme

Redstone have been an important and trusted support partner in the construction of a novel defence-nuclear facility for over half a decade. In that time, the client's relationship with their customer has been transformed, in no small part due to a renewed collaborative spirit driven by Redstone's improvements to the risk management process.

To support this aim, Redstone re-designed the risk management approach, delivering a straightforward, jargon-free, forward-looking, collaborative process, that delivered original information to support decision makers. This stood in stark contrast against the extant industry standard approach that was overly complex, excessively bureaucratic, crowded with cottage industry jargon and focused on telling decision makers what they already knew.

As a result of this new process and the increased engagement it engendered, the Construction Manager was able to improve their standing with their customer and began having open and honest dialogue about their risks and uncertainties, which improved future planning iterations. Redstone continue to provide best practice schedule and cost risk analysis to support investment decisions up to board and treasury level.

The sky is the limit: De-risking space acquisition

Redstone partnered with a major defence contractor for the duration of a tender to provide ongoing support to a major satellite programme. Redstone were responsible for the suite of risk management deliverables for the tender and tasked with de-risking the proposed solution.

Following their recognised approach to engaging with SMEs to optimise stretched time to deliver risk-based strategic insights and tactical responses, Redstone delivered a body of genuinely useful, understandable risk information to support not only the development of the proposed industry-led solution but also a contingency pitched at the optimal level to provide effective response to through-life change.

Key to this, was the approach taken to challenge traditional risk thinking; moving away from a focus on extreme and improbable threat mitigation, towards intelligent risk-taking, reflected in scenario-based quantitative schedule and cost risk analysis. This approach instilled confidence in the deliverability of the proposed solution for the bidder and for the MoD, ultimately contributing to a successful tender outcome for the industry partner.

Improving Industry and Government collaboration in the national shipbuilding strategy

Redstone have been fortunate enough to work amongst several acquisition projects helping to deliver the National Shipbuilding Strategy. Our unique role has helped to enhance the collaboration between Industry and Government, ensuring that the strategic desires of the customer balance with the available skills, production and manufacturing capabilities within industry. We have provided analytical services to industry which has helped to optimise the level of risk which can be taken to maximise the effectiveness of the solution being offered.

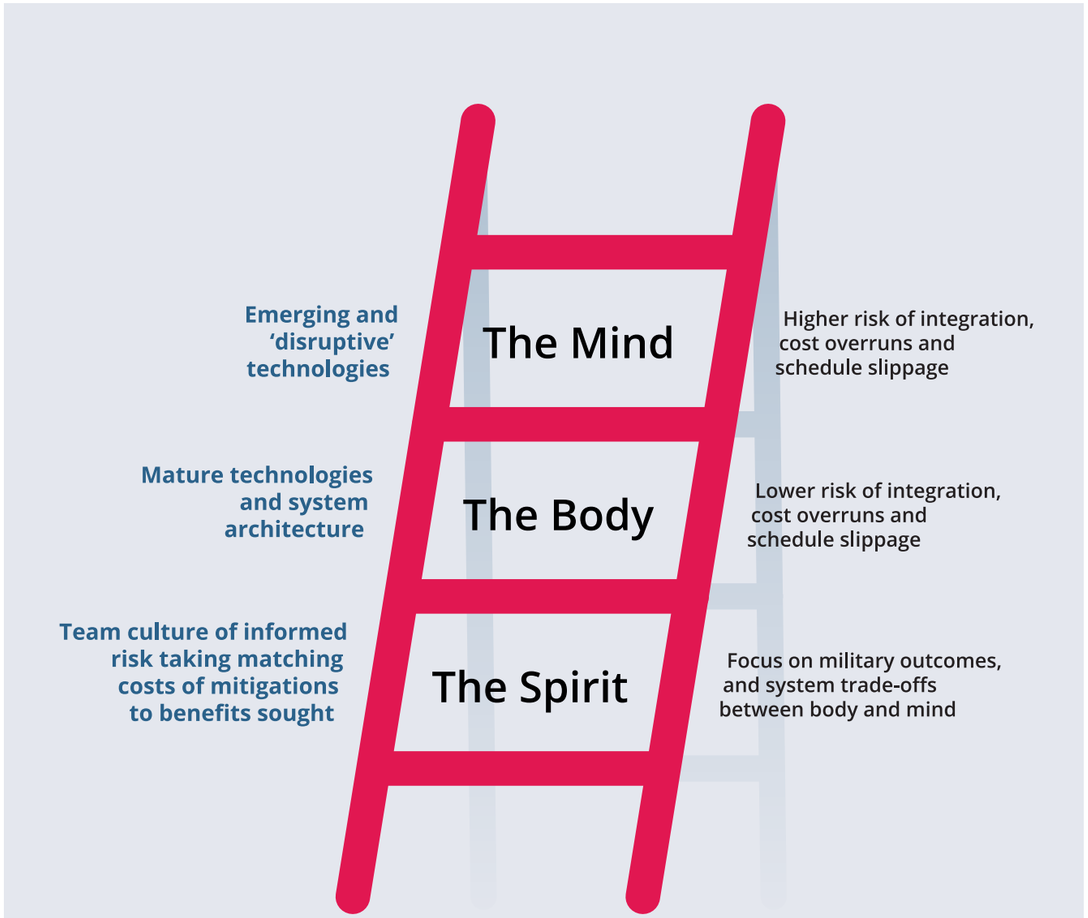
We are now a trusted team-member within a major defence contractor to provide cost and schedule analytics and decision-making services within the project controls of their shipbuilding and refit activities. These have helped significantly improve the confidence that the MoD has on timely delivery of the equipment and improved the collaboration on proactive risk management.

Delivering the benefits of better armed forces accommodation

As part of a team working for the Royal United Services Institute (RUSI), Redstone undertook a benefits management study in a programme looking at the future improvements to armed forces accommodation. Our Redstone Way approach mapped the outcomes and benefits that the study proposes to the risks involved in their delivery. This change to the traditional approach of risk management delivered great insights to the UK Government, where the clear links between the programme, its outputs, its risks and its outcomes could all be graphically connected, and understood, for the first time.

ANNEX B

The Investment Ladder.



THE REDSTONE WAY'S INVESTMENT LADDER

Integrating the challenger risks of emerging technologies needs to be anchored in the "knowns" of proven technologies. Team culture is critical in achieving the optimum blend of technology-rich defence capabilities.

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Professor John Louth is an author and academic. He sits on a number of defence boards as either a non-executive director or strategic adviser.

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