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Embedding Exportability in the UK Ministry of Defence

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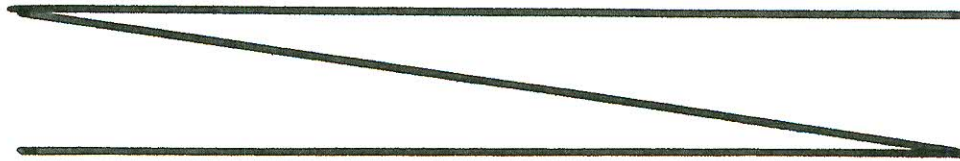
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Executive summary

Exportability refers to the adaptation of UK requirements, procurement strategies or design to incorporate the needs of export customers or international partners. In order to enhance support to exports in line with government policy¹, MOD has mandated that Main and Initial Gate business cases, as well as Genesis Options, address this issue. This report investigates how this policy should be implemented.



In all cases MOD should look to remove barriers preventing industry from exporting responsibly, but in those cases where export potential is identified, attribute more effort to taking an export friendly approach to procurement (i.e. exportability) to secure benefits for MOD.

Key Findings:

1. **Exportability cannot be ‘bolted on’ to achieve maximum impact.** The UK in a number of areas has developed bespoke requirements that lead to the development of products which may be unsuitable for the export market.
 - a. **A new approach to acquisition should be adopted** which considers export potential alongside UK sovereign requirements throughout CADMID to help balance cost drivers and achieve affordability.
 - b. **Consulting appropriately with industry** right through from pre-concept to in-service and becoming more flexible in requirements setting is key.
 - c. **More innovative approaches to acquisition should be explored** which pool common domestic and export requirements to improve affordability but allow flexibility to meet unique customer needs.
2. **To progress exportability both government and industry need to accept and partake in their respective roles.**
3. **MOD currently apportions significant but incoherent effort towards defence exports.**
4. **A difference in MOD and industry planning horizons (20+ and 5-10 years respectively) could damage exportability.**
5. **MOD currently lacks an assured source of market intelligence upon which to base assessments of exportability.**

¹ National Security Through Technology White Paper

² SMART Approvals Guidance v10.9 (May 2013)

6. **MOD struggles to recognise or successfully reap the benefits of defence exports.**

Key Recommendations:

Further exportability

1. Directorate Exports & Commercial Strategy (DECS) should agree with Scrutiny, the Investment Approvals Committee (IAC) and HM Treasury principles for exportability, including how it will be implemented and assessed.
2. Clarify and effectively communicate the policy to MOD and industry.
3. DECS should further develop and implement exportability guidance within the Front Line Commands (FLCs) and DE&S.

Reap the benefits

4. MOD, the department for Business Innovation & Skills (BIS) and industry need to come together to agree a model for how the risks and rewards of exportability will be distributed.

5. 

Address the gaps

6. Consider whether shortening procurement timescales would have more impact on exportability than trying to address it 20+ years in advance with little industry support.
 - a. Ensure this argument is reflected in defence transformation and MOD procurement improvement activities.
7. Review the options for sourcing market intelligence to underpin exportability:
 - a. Support the creation of a UK Trade and Investment (UKTI) Defence & Security Organisation 'plus' (DSO+) with increased long-term market intelligence capabilities and input from industry as proposed by the Defence Growth Partnership (DGP).
 - b. Stand-up a market intelligence cell within MOD that can support exportability in the earliest stages of acquisition and provide assurance for market intelligence received from industry and UKTI.

Maximise the impact

8. Change the format of licence refusal responses to industry to include a description of whether a 'no' could be turned into a 'yes' and how.

9. Investigate whether a 'license in principle' could increase external to MOD investment in programmes by providing clear sight of licensing intent early.
10. Consider the need to formalise/mandate military support to exports/exportability as the current model is personality driven and as such very variable.
11. Investigate further how exportability is interdependent on the implementation of the other National Security through Technology (NSTT) principles and international cooperation.

Work will continue in FY14/15 to address:

1. Detailed development and testing of exportability guidance.
2. High-level analysis to support development of MOD posture on exportability.

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1 Introduction

This report represents the interim deliverable from the Defence Exports Study which sits within the Acquisition Policy element of the Resilience Portfolio, within the MOD Chief Scientific Advisor's S&T Programme (contract STECH/008/Resilience). The study was sponsored by Directorate Exports and Commercial Strategy (DECS).

The other outputs from the FY13/14 study are a report delivered by Niteworks³, summarising an industry consultation on exportability, and draft exportability guidance that will be developed further in FY14/15. The opinion and evidence that underpins the initial study was collected jointly by Dstl and Niteworks through extensive consultation with Industry and Government sources (listed in ANNEX C) as well as from the available literature.

1.1 Background

Following the NSTT White Paper, in May 2013 the UK Ministry of Defence (MOD) introduced a mandatory requirement to formally "consider" exportability in all procurement business cases (as per SMART Approvals Guidance)⁴.

MOD's new exportability guidance interfaces and impacts with the acquisition system in optimising:

- 'Exportability' i.e. changes to UK requirements, procurement strategy or design to incorporate the needs of export customers and/or international partners so as to share and reduce costs and increase influence; and
- 'Support to export potential' i.e. facilitate and promote exports of UK Defence products/services to reap benefits to the MOD.

There is currently no formal, structured process for consideration of export potential or exportability. Historically it has been mostly reactive, informal, ad hoc and highly reliant on personal relationships.

Exports and exportability are increasingly being mentioned in the documents which lay down how a reformed defence will function. The FinMilCap Target Operating Model⁵ brings the attention on exportability to the very earliest stages of acquisition, stating that command developed genesis options will be assessed for proper consideration of exportability.

The behaviours toward exports across the MOD are starting to change because of increased government interest. A number of Project Teams (PTs) and Front Line Commands (FLCs) have independently initiated export activity or setup posts to coordinate it. Centralised guidance and clarity of the exportability policy are lacking, leading to potentially wasted effort and sub-optimal approaches to addressing policy.

³ 'Exportability', Niteworks; ~~████████████████████~~ NW/SP/0581/001 (30/04/2014)

⁴ SMART Approvals Guidance v10.9 (May 2013)

⁵ Financial Military Capability Target Operating Model 'TOM Version3 – Final' 23 Sep 13

1.2 Approach

This study explored issues with embedding exportability within the MOD. The overall package of work was designed to be completed over two financial years so this report represents progress to date. This year's work package had a particular focus on market and benefits analysis.

The study team have focused on gathering evidence/opinion from as many different sources as possible – see ANNEX C for a list of sources consulted. Dstl focused on consulting within government sources as well as reviewing the available literature, Niteworks were commissioned to generate a broad industry perspective. The study overall has worked to connect the many disparate pieces of knowledge collected into useful concepts, recommendations and guidance for acquisition staff and policy makers. Subject matter experts from across defence were utilised as appropriate, especially when evaluating approaches to sourcing market and benefits analysis.

2 Exportability

2.1 Introduction

The NSTT White Paper sets the backdrop for why exports are important to the MOD. “Exports play a critical role in the United Kingdom’s defence and security objectives and policy... defence and security exports develop, build, and enhance bilateral relationships and defence cooperation with key allies and, by helping other like-minded nations to build up their own defence and security capabilities, contribute to regional security, helping to tackle threats to UK national security closer to their source. Defence and security exports leverage more influence in bilateral relations with our allies than any other area of trade”⁶.

“Exports can also reduce the costs of programmes to the UK... export customers can help to spread the costs of fixed assets needed for long-term support and allow the Government to recoup some of its investment by the use of levies [or ‘gain-share’ agreements]”⁶. Increasing the commercial viability of programmes by attracting export customers can secure increased domestic and international investment, reducing large non-recurring development costs usually borne by the MOD. “Successful exports also improve the long-term viability of suppliers, helping to smooth out the impact of fluctuating or limited domestic demand, and potentially ensuring that industrial capabilities that are essential to our national security are sustained”⁶.

⁶ National Security Through Technology White Paper

2.2 The traditional approach to defence exports

The UK defence industry and government have typically taken a domestic market first approach to exports; developing products and services to meet UK requirements exclusively before marketing them overseas.

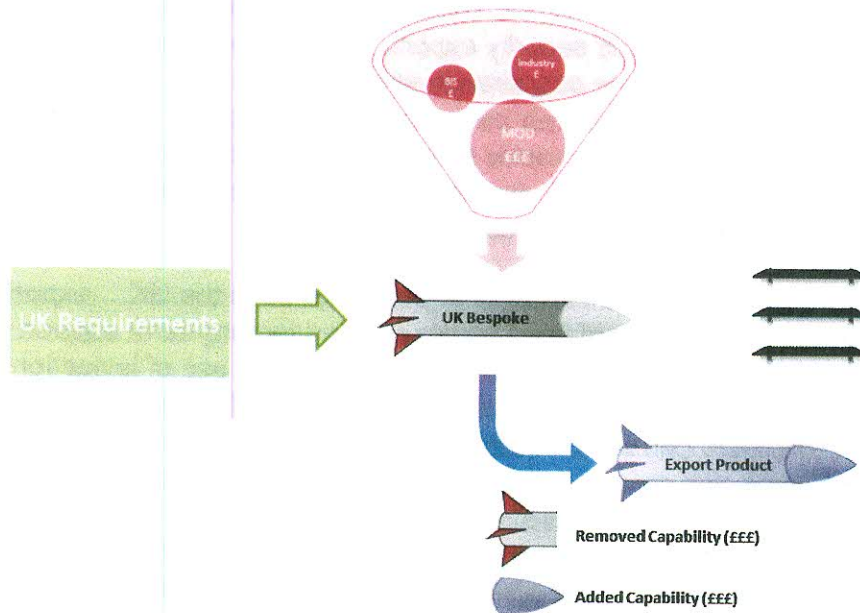


Figure 2-A Traditional approach to defence exports

Interviews across defence have elicited a shared view that this approach has generally led to overly bespoke, expensive equipment that was marketed too late to be viable in many competitions.

If the export order is secured, this additional expense can lead to levy waivers for industry to maintain competitive pricing, removing a potential mechanism for government to benefit.

Not considering the international context can also lead to interoperability issues and a lack of drivers to achieve reduced costs (i.e. international competitiveness). If the UK wishes to maximise the potential benefits it receives from defence exports, there needs to be a fundamental change to the specification and procurement of defence equipment; i.e. exportability.

2.3 What is exportability

The concept of exportability is laid out in the NSTT White Paper and SMART Approvals Guidance⁷. In summary, exportability is the adaptation of UK requirements, procurement strategies or design to incorporate the needs of export customers or international partners. Increased value of defence exports is inferred as the main route for MOD to reap benefits, but this is not explicit.

⁷ National Security Through Technology White Paper and SMART Approvals Guidance v10.9 (May 2013)

Exportability is focused on improving the export potential of products the MOD has a significant role in specifying. Exportability can challenge (and potentially mitigate) the risk to industry's export prospects from a MOD specification that has been drawn up in a way that is too bespoke to the UK, lacks flexibility or is overly costly.

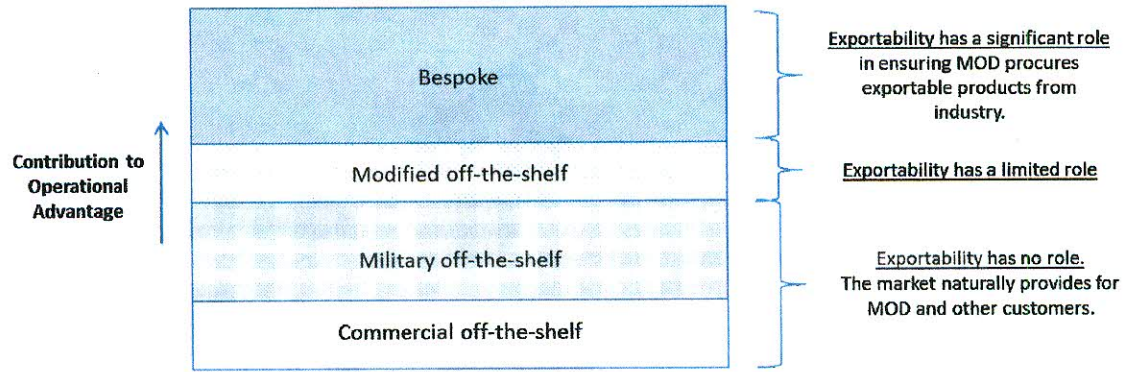
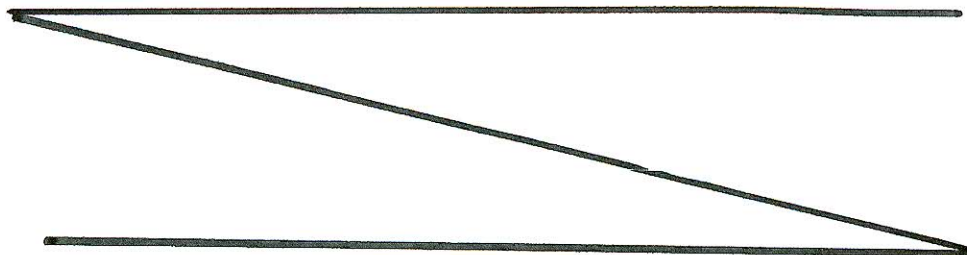


Figure 2-B The role of exportability in acquisition

Generally this means exportability only applies to bespoke developments led by the MOD. There is a limited role in equipment modified by the MOD, but there is generally no role for MOD in exportability in equipment bought off-the-shelf. Industry will have assessed their potential customer base before developing these products and as such market forces reign.

Exportability can however have a significant role in off-the-shelf developments led by industry in the case of disruptive or cutting-edge technologies. Industry need to take the lead in ensuring their developments do not fall foul of potential barriers such as licensing or international controls on defence exports (such as US International Traffic in Arms Regulations [ITAR]). MOD needs to ensure it doesn't stifle innovation in the supply base through seeking to dis-proportionately protect Operational Advantage.

MOD may choose to support the export potential of off-the-shelf products if there is demonstrable benefit to the MOD.



⁸ SMART Approvals Guidance v10.9 (May 2013)

2.4 The exportability approach

To address the traditional approach to defence exports, which took too little account of international requirements early in the acquisition process, export considerations need to be addressed from the very earliest stages by both government and industry.

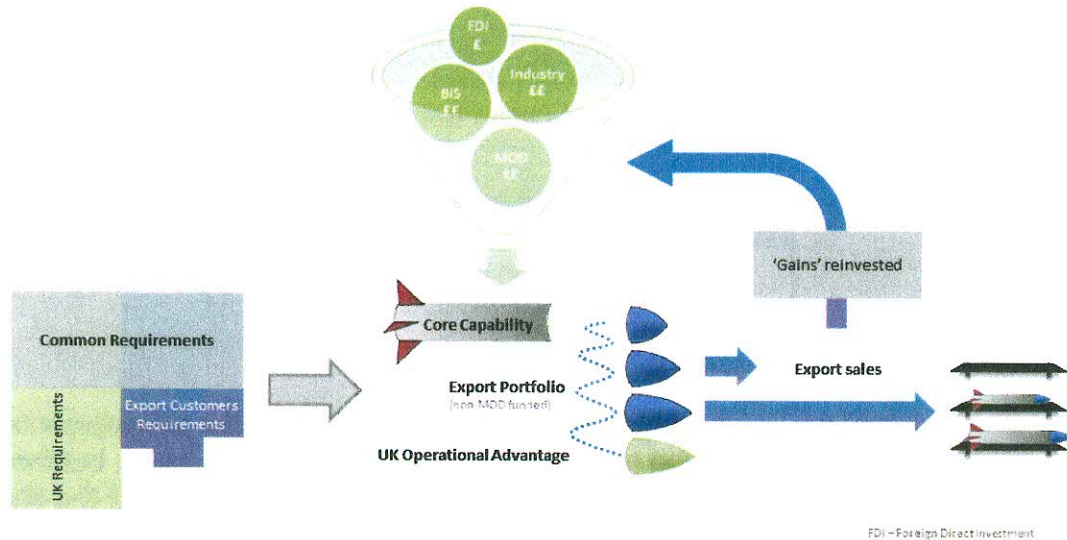


Figure 2-C Exportability approach to defence exports

The exportability approach:

- Takes account of potential international partners'/customers' requirements early, identifying common requirements.
- Explores whether novel approaches to acquisition that can meet both UK and export requirements would provide best value for money through life.
- Encourages industry to harness greater investment from outside MOD through increasing the commercial viability of projects.
- Shares the risks and rewards appropriately, re-investing in the next generation of technology to support a virtuous cycle.

Government and industry will need to work together to access international customers, assessing their requirements and incorporating them in programmes early to avoid barriers to export and maximise potential cost benefits. Taking an exportability approach should put increased focus on whether UK requirements are necessary and their associated cost; driving affordability more strongly in the interests of all parties.

Open dialogue is required on market analysis, campaign prioritisation and how both MOD and industry will reap the benefits of increased exports. Contracting and mechanisms of recouping benefit that incentivise all parties will be crucial. MOD

should be flexible in its approach to recouping benefits depending on whether the risks and costs of a more exportable approach lie with industry or government.

Industry needs to take the lead in ensuring they produce adaptable, affordable solutions that can address the needs of the UK and export market in parallel. MOD will need to embrace flexibility in design (e.g. modularity and open systems) which will be crucial for addressing a number of customer's requirements within reasonable cost boundaries. Implementation of these concepts will need to be justified against MOD's own requirements or funded from outside MOD, as the current scope for 'spend to save' in relation to exportability is limited. A portfolio approach to product development that maximise commonality and minimises cost will be beneficial to both MOD and securing exports.

Industry must also take increased risk and commit more private or external to MOD funding to programmes in return for a more exportable approach which increases commercial viability. Industry must recognise that a suitable product at the right price can achieve export success without government support. MOD should however only expect full industry buy-in where a potential return on investment can be demonstrated.

Changing our approach to acquisition to one that is more export focused and complies with exportability policy will require behavioural as well as process change within government and industry. The next section outlines the current situation on the ground with regards to exportability and details the main barriers to implementation / compliance with the policy.

3 Current Situation

Both Industry and Government have positively engaged with the increased exports agenda being promoted by senior government ministers. Because of a lack of guidance and clarity of the policy, many are not sure how to take steps to support the initiative, although potential willing is there to be tapped.

3.1 Front Line Commands

Each Front Line Command (FLC) has made differing progress with regards to addressing the White Paper Principles (incl. exportability). Navy Command's initial work in this area has helped identify key issues with the implementation of exportability:

1. A potential disconnect between MOD's (~20 years) and Industry's (5-10 years) planning horizon, which could exacerbate problems due to industry being able to offer little input 'pre-concept'.
2. How to engage industry in an open and inclusive manner with limited resource and without damaging competition?
3. What mandate commands have to commit resources in either supporting exportability or industry/UKTI in export campaigns?

3.2 DE&S

The approach to exportability across DE&S is far from consistent. Projects or Operating Centres often have very different priorities for improving exportability; from the Typhoon PT focusing on re-drafting partner nation agreements to remove export barriers; to the Weapons Operating Centre (OC) putting in place a gain-share arrangement with MBDA. In the absence of central guidance each project team/operating centre has put in place its own arrangements and the resourcing it believes appropriate.

The Weapons OC has put in place a long-term partnering and gain-share arrangement with their main supplier, MBDA. This arrangement gives them stability and the ability to manage complex weapons as a portfolio, driving down costs through commonality and stability efficiencies. The arrangement also incentivises both the OC and MBDA to achieve export success as a proportion of the 'gains' made are reinvested back into the portfolio. They have also put in place an exports focus in both the OC and industry, both with performance targets associated with export success. These leads are ensuring the correct business transformation and focus on exports occurs, setting up appropriate governance boards that allow MOD and industry to come to a common view on markets, prioritisation of export campaigns and the resources required for them. MBDA have started to invest in features that will boost export potential in their portfolio, but higher cost opportunities are beyond the company's financial reach.

This model has been put together for a specific scenario where MOD has significant Freedom of Action/Operational Advantage issues and a single source supplier.

Competition in the market complicates matters, but with early and open communication with industry, similar approaches can be utilised.

The Type 26 project team made an attempt at implementing exportability by identifying and consulting potential international partners/customers early in the projects lifecycle. This aspect was successful but did not occur earlier enough and there wasn't a real appetite to compromise on UK requirements to accommodate export customers. The premise of achieving exports of the platform was also based on flawed market intelligence, leading to a poor export strategy.

DE&S face similar issues to the Commands in terms of long-term planning and engaging industry but these problems become tractable as the project progresses.

3.3 UK Defence Industry

Industry are broadly supportive of the initiative and most have realised the necessity of exporting to secure their businesses future with declining MOD budgets. Many are sceptical having seen similar initiatives deliver little tangible change. Most are aware of increased attention on defence exports but not the specifics of MOD's exportability approach.

Industry needs confidence in the stability of MODs long-term planning to get behind the exportability initiative and contribute significant private venture funding. Reducing the timescales involved in procurement would help secure buy-in as industry will see a more rapid return on investment. Deep rooted acquisition issues such as changing requirements, budget cuts, deferral and the 'valley of death'⁹ have a significant impact on industry's support for the initiative but are outside the scope of this study.

A flagship exportability project which very clearly demonstrated MOD was prepared to listen to industry and compromise on its requirements to achieve affordability and exportability would go a long way to building industry confidence. Demonstrating real change has occurred and getting full industry buy-in could take a number of years unless a current or recent project could be touted as an exemplar.

Industry value UK Trade & Investment (UKTI) Defence & Security Organisation's (DSO's) in-country support, especially in making contacts. There is some concern that competition between UK companies can diminish support though. DSO's market analysis tends not to be sufficiently detailed or robust enough for the larger defence firms who can conduct bespoke internal market intelligence activities. Smaller firms rely more on DSO identifying opportunities and bringing together potential UK offerings. Inconsistency between MOD and UKTI views causes significant problems in licensing and identifying opportunities. Industry feel a more coherent approach from government that pulled together resources across a number of departments would be more successful.

Whilst high-level governmental support for Defence exports was appreciated, there is a danger of the public sector raising expectations that industry or the private sector were unable, and unwilling to meet in too many countries.

⁹ 'Valley of Death' i.e. the vulnerable gap between technology development and exploitation through manufacture.

Industry believe the defence export licensing system could be improved in a number of ways. Most prominently by forcing declined licenses to be reviewed for whether a 'no' could be turned into a 'yes', rather than the current binary 'no' response. A 'license in principle' is also seen as a useful mechanism by some to reduce the risk to industry of investing private-venture funding early in export product development. The Australian Government has implemented such a system; "in-principle permission may assist a company to decide if its product would likely have export approval, and is therefore, on balance, worth the investment"¹⁰.

3.4 UKTI DSO

Occasional urgent requests from DE&S to the DSO Market Analysis team have been received, usually just before Initial Gate or Main Gate, for assessments to support the progress of projects.


UKTI DSO's market intelligence function has been in decline in its various guises over the past decade or more. The DSO now focus mainly on near-term marketable opportunities where they can bring to bear various UK and in-country resources in support of a campaign. This support is in-line with industry timescales on return on investment (5-10 years) but not MOD's long-term view (20+ years) potentially required to implement exportability pre-concept.

3.5 FinMilCap

FinMilCap have a role in the strategic management of exportability as they assess genesis bids, which now include exportability, for coherence across the commands (i.e. identifying dependencies etc). Some areas, such as the UAS strategy, are starting to grapple with this responsibility to consider exportability, but FinMilCap's role has not yet been fully established.

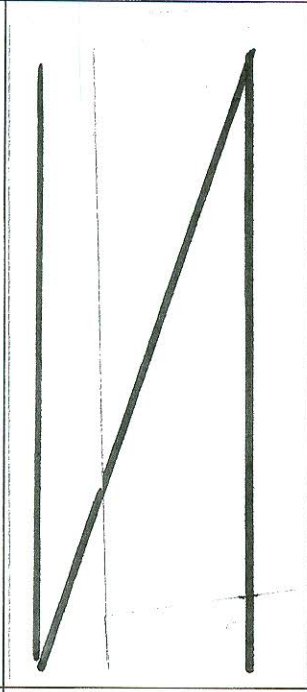
¹⁰ <http://www.defence.gov.au/deco/InPrinciple.asp>

Table 1: Major barriers to exportability.

Barrier	Issue	Potential Mitigation
<p>Maintenance of Operational Advantage</p>		<ul style="list-style-type: none"> - Technology protection - Spiral/Incremental Acquisition - Modularity/Flexibility in design to accommodate UK bespoke capability - Industry challenge of MOD requirements supported by robust market intelligence - License in principle/early disclosure of export refusal - Ensuring assessments of technology advantage are realistic and up to date (i.e. not based on legacy judgements) - Clearer direction from MOD as to where OA is important (i.e. which capabilities)
<p>UK bespoke requirements</p>	<p>The UK has a different heritage and force driving requirements to potential export nations. This can lead to equipment unsuitable for the export market due to high costs and/or a lack of flexibility to incorporate an export customer's needs.</p>	<ul style="list-style-type: none"> - Early industry engagement and challenge to find creative ways to meet both domestic and export requirements - Spiral/Incremental Acquisition - Modularity/Flexibility in design - Use of international, commercial or NATO standards - Compromise of UK requirements to achieve affordability
<p>Lack of clarity over the extent of MOD's role in exports / exportability</p>	<p>Currently unclear what priority exportability holds compared to other acquisition considerations – this leaves it vulnerable to being traded out early or seen as a 'box ticking' exercise. Commands are unlikely to prioritise resource to support exports in an increasingly austere environment.</p>	<ul style="list-style-type: none"> - Reach high-level agreement within MOD on what priority exportability should receive and how this should be traded against other criteria.

<p>Treasury & Scrutiny processes</p>	<p>Inability to justify any additional spend on exportability features or features that overlap MOD/export requirements in return for potential benefits (i.e. MOD takes on no export related risk).</p>	<ul style="list-style-type: none"> - MOD to agree clear guidelines with treasury on 'spend to save' and risk sharing - MOD to work with BIS to secure launch funding where neither MOD nor industry can invest - Agree how benefits will be fed back into MOD/BIS/HMT and also provide clarity on the impact of provision of state aid rules
<p>FLCs inability to recognise exportability benefits</p>	<p>Potential exportability benefits are relatively intangible to the commands and generally long-term in nature (compared to the transient nature of military postings).</p>	<ul style="list-style-type: none"> - Use a framework of benefits that can present compelling cases - Mandate and/or encourage military support to exports/exportability - Enforce exportability considerations through investment appraisal
<p>Lack of a source for long-term market intelligence</p>	<p>A robust source of market intelligence out to beyond ten years is currently lacking. Industry's horizon is generally 5-10 years (same for most market intelligence companies) which is incompatible with MOD's 20+ year horizon.</p>	<ul style="list-style-type: none"> - Investigate recommendations to establish a MOD market intelligence cell or refocus UKTI DSO effort - Investigate the possibility of shortening procurement timescales to bring industry and MOD more in to line
<p>Lack of industry buy-in</p>	<p>Without industry taking increased risk and attracting more investment from outside MOD the benefits will likely be limited.</p>	<ul style="list-style-type: none"> - Clearly establish MOD's role in exportability and make commitments to industry - Clarify and communicate exportability policy to industry to allow them to act as an effective challenge to MOD - Use a 'flagship' project to demonstrate MOD's intent and best practice - Provide industry with a clear view of future requirements - Export 'license in principle' with contract award or earlier - Incentivise exports through contracting that provides benefits to all parties i.e. 'gain-shares' - Include how to turn a 'no' into a 'yes' on export license refusals

<p>Ability to prioritise between government departments and industry</p>	<p>Without clear market prioritisation the limited resources of government and industry are spread too thinly and are ineffective.</p>	<ul style="list-style-type: none"> - MOD, FCO and BIS should come together to agree priority markets, but most importantly why each market is important i.e. is it for defence engagement purposes rather than potential for sales - UKTI to test priorities with industry and use market intelligence to understand which markets represent the greatest opportunity to the UK defence industry as a whole - UKTI to take the lead in orchestrating a strategy to pull on industry and govt. resources for each market identified
<p>Lack of MOD stability in funding / requirements</p>	<p>Without improvements in the overall acquisition business it may be difficult to get full support from industry due to the risks associated with an unstable procurement programme.</p>	<ul style="list-style-type: none"> - Ensure exportability appropriately represented through defence transformation and the materiel strategy (exploit opportunities for a mandated approach to exportability) - Use a 'flagship' project to demonstrate to industry changes that have occurred and build their confidence
<p>FLCs / DE&S lack of commercial models to engage/contract industry appropriately</p>	<p>Acquisition/requirements staff lack the commercial models/confidence to engage industry early without damaging competition. Contracting models that can incentivise all parties to export are not available for all competitive scenarios (i.e. 'gain-shares')</p>	<ul style="list-style-type: none"> - Include commercial models/guidance in any rollout of additional exportability guidance - Use the IAC/Scrutiny as levers to ensure interaction with industry occurs as appropriate
<p>Lacking guidance on how to assess exportability through acquisition process</p>	<p>Lacking detailed guidance leads to inconsistent evidence from acquisition staff and inconsistent decisions from the IAC/Scrutiny. Clarity is lacking on how exportability should be applied to multi-national and foreign bidders.</p>	<ul style="list-style-type: none"> - Agree guidance with the IAC/Scrutiny to ensure consistent decisions which reinforce the right behaviours in acquisition staff - Further develop exportability guidance and rollout through an implementation plan across MOD
<p>International Barriers to Export</p>	<p>International cooperation and supply chains can lead to external influences over UK defence exports. Poorly defined MOUs leave scope for partner nations to block exports and unknowing inclusion of trade restricted parts (such as US ITAR controlled components) can also cause problems.</p>	<ul style="list-style-type: none"> - Use exportability guidance to ensure these risks are identified early and managed

Potential legal barriers to exportability	EU competition law and/or provision of state aid rules may impact the legality and extent of exportability that is permissible.	<ul style="list-style-type: none">- Conduct a legal review of exportability as a concept within MOD procurement- Look to international comparisons to establish where the system works differently/better than the UK and what lessons can be learned
Current model to recognise and recoup benefits is ineffective		<ul style="list-style-type: none">- Investigate and implement through the exportability guidance other mechanisms to share the risk/rewards of defence exports such as 'gain-shares'

¹¹ CEL Defence Internal Audit Report – October 2013 (3015-21-12)

4 Implementing Exportability

This section is all about addressing the identified barriers to the implementation of exportability. A general discussion around what can and cannot be realistically influenced by the policy owners is followed by more detailed sections on key areas of intervention. These include:

4.2 Development of exportability guidance – to enable acquisition staff and the scrutiny/approvals community to take a consistent approach to exportability.

4.3 Market intelligence – understanding in more detail government’s role in assessing and assuring the defence export market.

4.4 Recognising the benefits – establishing how MOD should approach identifying and securing benefits from an exportability approach to procurement.

4.1 Overcoming the barriers

Although most of the barriers identified in Table 1 are beyond the direct control of the exportability policy owners (DECS) they can have a significant role in influencing how these areas are addressed and as such avoid/manage the potential barriers.

Reform and improvement of acquisition business is a key dependency which will underpin the success of exportability. Improvements in understanding cost in requirements, the use of modular and open systems, how we use standards, and shortening procurement timescales would all be mutually beneficial to exportability.

DECS will need to put significant effort behind the development of exportability guidance, communicating and implementing this through a behavioural change programme to achieve the desired effects. This needs to include briefing out to industry so they can act as an effective challenge to MOD through the requirements setting process. Levers available to DECS through the scrutiny and business case approval process need to be used coherently to enforce exportability policy. Buy in from the Commands and DE&S will be essential for successful implementation.

DECS will need to work with BIS and other government departments to address the challenges that are not under their direct control and also understand the implications of the DGP and how their outcomes will interact with exportability.

4.2 Development of exportability guidance

Combining the theory of how we believe exportability should operate and the current situation established during consultation (best practice and barriers), we have been able to design preliminary exportability guidance to support acquisition staff in the FLCs and DE&S. The draft guidance and understanding developed in this project will be further developed, refined and piloted in the next financial year.

The exportability guidance in part will be a risk/opportunity framework, which will support the FLCs and DE&S ask the right questions about exportability and address it

in a coherent way. Combining this with an agreed position on exportability within MOD will lead to effective and consistent assessment by the IAC and Scrutiny.

4.2.1 Exportability guidance key points

As discussed in Section 2.3, exportability will only play a significant role in those projects where MOD shapes the product developed by industry (i.e. bespoke products rather than off-the-shelf).

Assessment of exportability at the earliest stages of acquisition will need to build on MOD's understanding of its freedom of action and operational advantage risks and opportunities.

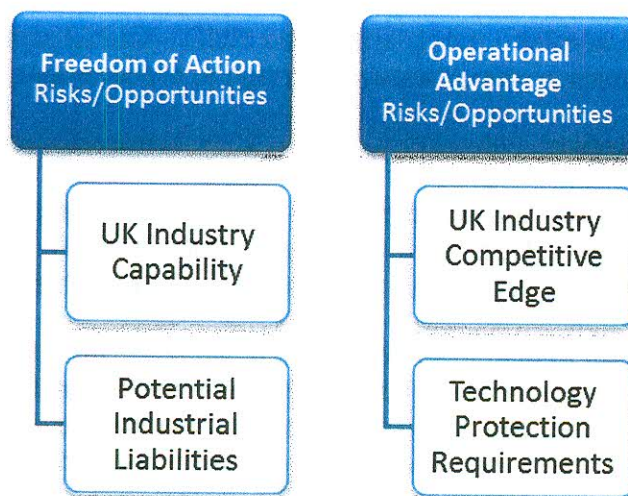


Figure 4-A How freedom of action and operational advantage support understanding of exportability.

This assessment will help inform MOD of the capability and competitiveness of the UK industrial base.

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Exportability guidance needs to build from understanding developed from addressing the other white paper principles and emphasise:

- Open and constructive engagement with industry from the earliest stages.
- Suitably accountable individuals to coordinate effort towards exportability.
- How MOD and industry can come to an assured view of market potential and engage potential international customers/partners.
- How to understand and demonstrate the potential benefits of an exportability approach.
- How to overcome potential barriers through the use of technology protection and flexibility in design/acquisition (e.g. spiral acquisition, modularity, open-systems).

- How to build exportability into user and system requirements documents.
- How to incentivise all parties to export with appropriate risk and reward sharing, including early identification of licensing issues.
- How to present appropriate evidence at gate reviews.

Construction of initial exportability guidance identified a gap in market intelligence availability and the ability to assess the benefits of defence exports, both of which are discussed in more detail in the following sections.

4.3 Market intelligence

To effectively adopt an exportability approach within procurement, MOD, industry, and potentially BIS, will need to understand the export potential of proposed capabilities or products at various points in the projects lifecycle. Market intelligence is the route to determining the export potential of a product/capability through understanding the requirements of other nations as well as the potential magnitude of export orders.

Once a prime contractor has been appointed in any acquisition, it is reasonably straightforward for MOD, industry and BIS to work together to form a shared view of the market. Before contract issue in a competitive situation however, there are significant challenges.

The key issues are summarised below:

- Important decisions are taken in the early stages of procurement (pre-concept and concept) that could damage exportability without an understanding of whether there is a market and what international requirements might be.
- It will be difficult to source market intelligence and input to exportability from industry early in procurement due to a disconnect in planning horizons between MOD and industry (20+ and 5-10 years respectively) and potential complications due to competition and information sharing.
- Unless procurement timescales are shortened, MOD will require an assured source of market intelligence to inform the exportability approach until the burden can be transferred to industry (an assurance function may still be required for industry or UKTI sourced information).
- UKTI Defence and Security Organisation's (DSO) market intelligence is the only source currently available to acquisition staff in the early stages of procurement. Their expertise however is mostly in near term opportunities (aligned with industry horizon), not long-term market intelligence. MOD and industry currently lack confidence in DSO's output to support major investment decisions¹².

¹² DSO's market analysis function has been in decline over the past decade and both industry and government sources agree its products are not sufficiently detailed or analytically robust enough to support major project

The ownership/exploitation (not production) of market intelligence in the current system will by necessity lie with the FLCs, as the process of assessing the market and exportability needs to begin pre-concept phase. The FLCs will need to be responsible for ensuring DE&S, industry and/or other external providers meet market analysis/exportability requirements laid out by them with oversight from DECS.

FinMilCap will also require a strategic view of the defence export market. This will be necessary to successfully assess genesis options presented by the commands, understanding key dependencies (e.g. weapons on an air platform), issues with scheduling to meet the market and any conflicts.

As industry will deliver defence exports, not the MOD, it is crucial that industry buy in to any market analysis as early as possible. The burden for market intelligence and exportability more generally should be transferred to industry as early as possible, with MOD retaining an assurance and decision making role (potentially alongside BIS – dependent on whether government has invested in the project).

MOD has two options to secure a supply of market intelligence to underpin exportability in the early stages of acquisition:

3. Support the creation of a DSO+ with increased long-term market intelligence capabilities and input from industry, as recommended by the Defence Growth Partnership (DGP).
4. Stand-up a market intelligence cell within MOD that can support exportability in the earliest stages of acquisition and provide assurance for market intelligence received from industry and UKTI.

The study team have had access to a limited set of market analysis from industry, UKTI DSO, independent commercial providers and CAAS. The analysis conducted by industry and CAAS have shown the most analytically robust methodologies, with work conducted in CAAS suffering from less optimism/bias and more awareness of potential export barriers. Commercial providers only tend to provide market analysis out to a time horizon of about 10 years, which is incompatible with genesis options looking 20-30 years in the future.

Principles for sourcing market intelligence:

- As early as possible MOD, BIS and industry should come together to agree a view on the market to prevent government pursuing exportability in areas of no interest to industry.
- Robust market intelligence is formed by combining as many sources as possible (e.g. MOD, industry, UKTI DSO, external providers).
- MOD will need to use extant relationships and the tools at its disposal to help improve understanding of the international market, working more closely with BIS and industry to ensure coherency.

investment decisions. The DGP has recommended boosting DSO's market intelligence capability but UKTI's current preference is unclear.

The alternative to addressing the extant shortfall in market analysis is to shorten procurement timescales. This would bring MOD and industry horizons' more into line and allow industry to buy-in from the earliest stages of acquisition (reasonable return on investment timescales). Industry and UKTI DSO could then drive exportability from the earliest stages of acquisition instead of the burden falling on the FLCs, negating the need for MOD to conduct market analysis (other than for assurance purposes). Competition could still present issues unless industry are prepared to come together and agree a view of the market (as the DGP have suggested).

4.3.1 Market prioritisation

Market prioritisation is required to provide focus for limited government and industry resources. Prioritisation however presents a number of difficulties as all parties prioritise by different criteria.

Industry have the simplest criteria, return on investment. Industry as a term however is misleading; every defence company has conflicting priorities based on market potential for their products and existing relationships.

UKTI are well placed to support industry but have other conflicting influences based on government interests. The MOD and FCO have further government interests such as military and political influence, export licensing and proliferation that influence a market prioritisation.

For all parties to come together, government will have to make clear decisions around what basis this should occur. For example, will all parties come together and prioritise on a purely commercial basis? Will government put more weighting to supporting the likely large platform sales or other smaller sales? How will MOD proportion effort between them and ensure all parties are incentivised and supported appropriately?

If the DGP proves effective at providing an holistic 'industry' view of the market, that would be a significant step forward. UKTI could align its effort behind this whilst applying filtering such as likelihood of securing export licenses (requires more consultation with MOD/FCO than may have occurred in the past). The MOD and FCO would then need to decide whether this approach should be corrupted with other government drivers or run on a purely commercial basis and not as an instrument to support government's efforts (although it would likely do this to a certain degree anyway).

Government support to defence export campaigns should not however be seen as mandatory. Government support should be seen as another tool to be used in specific circumstances where the benefits outweigh the risks and costs. There are many examples of successful defence exports within and outside the UK that have had little government support; such as UK exports of military hovercraft or electric wing de-icing, or the German MEKO frigates.

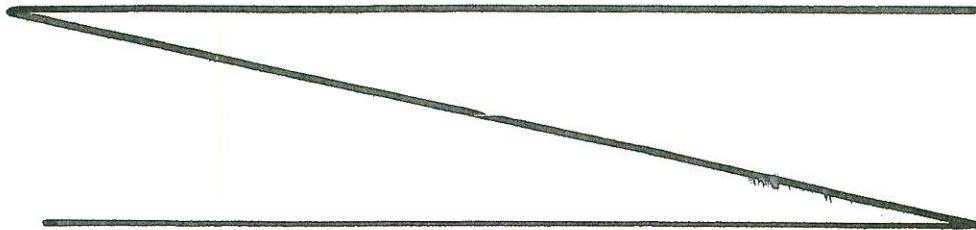
4.4 Recognising the benefits

For MOD to effectively decide whether to pursue exportability within a project, it needs to not only be able to understand the market for such a capability, but also what benefits predicted sales would bring to the MOD and whether they outweigh any risks, costs or dis-benefits.

The potential benefits of defence exports have been a long running and contentious issue. Most of UK industry believes the case is obvious, but this is based on the presumption that MOD requires their business to be sustained. In many cases MOD has a number of options and it is less clear what is in the best interests of the MOD and the UK more broadly.

4.4.1 The economic argument

Economic analysis conducted by Oxford Economics and others¹³ generally shows the defence industry is a viable place for government investment (due to a highly skilled workforce, potential for exports and above average returns to the exchequer). Analysis also shows that defence exports are only a small part of the UK's trade balance, suggesting sustainment is not crucial from an economic perspective.



Due to the limiting nature of current policy and a lack of appetite within MOD to compromise decision making with broader economic factors, the study has focused on the potential benefits of exportability and increased defence exports to the MOD. A limited number of economic benefits have been included in the proposed benefits framework for completeness.

4.4.2 Export Benefits Modelling

A review was conducted of existing defence export benefit models to establish if any had potential utility for a wider roll-out across defence acquisition.

Case studies of three differing benefits models currently in development or in use were undertaken. These included models owned by UKTI DSO, DE&S and CAAS.

¹³ Oxford Economics ("The economic case for investing in the UK defence industry" [2009 & 2011], "The economic contribution of BAE Systems to the UK in 2009", "The contribution of Finmeccanica to the UK"), Chalmers, et al, "The Economic Costs and Benefits of UK Defence Exports", Polaris Consulting & ██████████ under contract from Dstl – "What are the benefits to the MOD and the wider UK economy of increased UK Defence exports."

¹⁵ SMART Approvals Guidance v10.9 (May 2013)

While each may be useful for their respective organisations, our assessment found that none of the models were suitable as-is, or as the basis for, a broadly applicable benefits model. The main reasons for this conclusion were the lack of flexibility to cope with the many and varied export scenarios anticipated and the ability to verify and validate the model for such a diverse set of circumstances.

An assessment of the individual models and case-by-case justification for discounting them is included in ANNEX A.

4.4.3 Benefits Framework

As no suitable model was identified, a simple framework has been put together to assist in benefits assessment. The framework was developed by identifying all the potential benefits of defence exports (see ANNEX A) before winnowing the possibilities down to those of most significance to MOD. The framework requires further development, testing and incorporation in broader exportability guidance.

The most important potential benefits of defence exports identified, which have been included in the assessment framework, are:

- Financial benefits to MOD:
 - Earnings from the Commercial Exploitation Levy (CEL) on sale of equipment (*current mechanism - 'gain-share' type arrangement preferable*)
 - Reduced contribution to industry fixed overheads and/or unit production costs (UPC) (*see notes below*)
 - Returns from 'Gain-share' or similar undertakings to incentivise all parties to export
 - Attracting additional funding to the project from outside MOD due to greater commercial appeal (i.e. private-venture, UKTI, foreign direct investment etc.)
 - Reduced industrial liabilities or reduced cost to maintain Freedom of Action (FOA) / Operational Advantage (OA)
 - Potential to share certification, integration or enhancement costs between customers
 - Potential to reduce through-life costs through sustainment of production facilities, increased orders/stockpile flexibility, joint spares or training to reduce costs, deferral of obsolescence etc.
- Defence engagement:
 - Enhanced political and/or defence relationship (through increased understanding/influence over buying nations)

- Supporting country specific objectives i.e. capacity building or basing
- International cooperation (incl. burden sharing) and interoperability
- Economic benefits:
 - Value added to GDP (economic rents through higher wages, higher profits and higher taxes)
 - Improved balance of payments (import/export)
 - Potential for growth (i.e. R&D intensity, potential for commercial or defence spin-out etc)

Notes on unit costs: lower unit costs should occur with increased output through the spreading of 'fixed' overheads, economies of scale and learning. If lower unit costs are not fully reflected in lower unit prices to MOD, then firms will gain from higher unit profits (or lower efficiency and greater organisational slack). This is a particular problem when MOD is the lead customer for any UK defence product. Any benefits from economies of scale or learning¹⁶ are likely to be reaped by export customers or the firm developing the product as increased profit.

Generally defence products are produced in modest volumes through low rate batch production. Each customer tends to have bespoke requirements, which leads to many different versions and configurations, further limiting the extent of any economies of scale and learning.

The US market is potentially the only market that offers real economies of scale for defence products (i.e. JSF production > than 3000). This opportunity however is only really applicable to sub-systems/systems as larger platforms tend to have to be manufactured in the US, providing limited benefits to UK industry and the MOD.

4.4.4 **Costs, Risks and Dis-benefits**

There are potential costs, risks and dis-benefits for government associated with support to increased defence exports and these should be factored into any balanced assessment.

Costs include the additional potential burden of supporting the UK defence industry to achieve increased defence exports (e.g. discounted training, demonstration etc) and the costs of regulating additional defence exports.

Risks could include, training resources being diverted from UK personnel to export customers, potentially damaging capability; additional export finance, or legal challenge (through EU competition or provision of state aid legislation).

¹⁶ In aerospace equipment, learning economies might lead to reductions in unit production costs of 5% - 10% for every doubling of output of one type of equipment - "The Economics of Defence Policy" Hartley, K (2011)

Risks also include potential reputational damage to the UK from inadvertent proliferation or misuse of defence exports. There are also risks and costs associated with technology transfer/off-set agreements.

5 Conclusions

The FY13/14 exportability work package has consulted over a hundred individuals and organisation, within government and industry, to elicit best practice to defence exports and understand the barriers to implementing exportability. From this consultation and a review of the available literature, draft exportability guidance has been written along with this report which details the barriers to furthering exportability in the MOD and how they might be overcome.

The key findings from the study are as follows:

1. **Exportability cannot be 'bolted on' to achieve maximum impact.** The UK in a number of areas has developed bespoke requirements that lead to products unsuitable for the export market.
 - a. **A new approach should be adopted** which considers export potential alongside UK sovereign requirements throughout CADMID to help balance cost drivers and achieve affordability.
 - b. **Consulting appropriately with industry** right through from pre-concept to in-service and becoming more flexible in requirements setting is key.
 - c. **More innovative approaches to acquisition should be explored** which pool common domestic and export requirements to improve affordability but allow flexibility to meet unique customer needs.
2. **To progress exportability both government and industry need to acknowledge their respective roles.** MOD needs to recognise that the defence industry is not subject to normal market forces and industry needs to work with BIS to take increased risk to exploit opportunities. All parties are supportive of progressing exportability.
3. **MOD currently apports significant effort towards exports.** Acquisition staff across defence are increasingly considering exports part of their role. Acting too late and incoherently across defence is hampering efforts.
4. **A difference in MOD and industry planning horizons (20+ and 5-10 years respectively) could damage exportability.**
 - a. Industry input at the very earliest stages of acquisition is lacking, meaning MOD has to drive exportability at its own risk.
 - b. MOD's procurement timescales drive the need for market intelligence to 20+ years in the future, beyond current market practice.
5. **MOD currently lacks an assured source of market intelligence upon which to base assessments of exportability.**

- a. UKTI DSO has largely withdrawn from long-term market/technology intelligence. Neither industry nor MOD have sufficient confidence in their output to support robust business cases.
- b. The burden for market intelligence can be transferred to industry as procurement progresses but MOD requires a source in the earliest stages and an assurance function for information received at a later stage.

6. **MOD struggles to recognise or successfully reap the benefits of defence exports.**



- b. Long-term 'gain-share' arrangements, or similar mechanisms that re-invest 'gains' from exports in project/portfolio sponsored R&D, can incentivise all parties to achieve increased exports.
- c. The most significant potential benefits to MOD from an exportability approach are likely to be:
 - (1) Increased investment – more commercially viable projects supported by exports are likely to attract increased domestic (private-venture, BIS etc) and foreign direct investment.
 - (2) Reduced industrial liabilities or cheaper maintenance of Freedom of Action, through decreased industry dependence on MOD.
 - (3) Re-investment of 'gain-shares' to reduce future development costs.
 - (4) Intangible benefits in support of defence engagement.
- d. An exportability approach may also more generally incentivise focus on affordability to create internationally competitive products.
- e. Reduced unit costs are unlikely due to low unit outputs, MOD often acting as lead customer, and the bespoke nature of each customers requirements reducing learning/scale economies.
- f. Presenting and securing tangible benefits of an exportability approach to the FLCs will be crucial to effective implementation.
- g. No existing benefits models are suitable for a wider roll-out and development of new model is unlikely to be effective.

7. **Government provided launch aid is likely to be necessary to translate exportability into increased defence exports.**

6 Recommendations

Further exportability

1. DECS should facilitate high-level discussions amongst Scrutiny, the IAC and HM Treasury to agree principles for how exportability will be implemented and assessed, and then use these levers to enforce policy consistently.
2. Further develop and implement exportability guidance within the FLCs and DE&S, appropriately communicating the outcome of discussions above. Focusing and increasing, in a limited number of areas, MODs current level of effort on exports would be sufficient to begin to address exportability policy and overcome many of the barriers identified.
3. Effectively communicate to industry MOD's agreed position on defence exports/exportability and their role in challenging MOD requirements setters.

Reap the benefits

4. MOD, BIS and Industry need to come together to agree a model for how the risks and rewards of exportability will be distributed and how to effectively prioritise markets and campaigns in a consistent manner – this is likely to involve understanding how the MOD and DGP need to work together.

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Address the gaps

6. Consider whether MOD should be driving exportability in the earliest stages of procurement or whether the drive should be to not put in place any potential barriers and shorten procurement timescales to allow more substantive engagement with industry.
 - a. Ensure this argument is reflected in defence transformation and MOD procurement improvement activities.
7. Review the options for sourcing market intelligence to support MOD decision making in the early stages of acquisition.
 - a. Support the creation of a DSO+ with increased long-term market intelligence capabilities and input from industry as recommended by the DGP.
 - b. Stand-up a market intelligence cell within MOD that can support exportability in the earliest stages of acquisition and provide assurance for market intelligence received from industry and UKTI.

Maximise the impact

8. Investigate further whether a 'license in principle' would be a useful mechanism to increase external to MOD investment in programmes by providing clear sight of licensing intent early.
9. Change the format of licence refusal responses to industry to include a description of whether a 'no' could be turned into a 'yes' and how.
10. Consider the need to formalise/mandate military support to exports/exportability as the current model is very personality driven and as such very variable.
11. Investigate further how exportability is interdependent on the implementation of the other White Paper principles and international cooperation to help provide robust and 'joined-up' processes/guidance.

Work will continue in FY14/15 to address:

1. Detailed development and testing of exportability guidance.
2. Further high-level analysis to support development of MOD posture on exports and exportability.

ANNEX A Export Benefit Models Assessment

Export Benefits Modelling

As part of the study, a light-touch review was conducted of existing defence export benefit models to establish if any had potential utility for a wider roll-out across defence acquisition.

Case studies of current capabilities

Case studies of three differing benefits models currently in development or in use were undertaken. These were;

- UKTI DSO - UK Defence exports economic impact model,

- DE&S (CAAS) - @Risk model.

While each may be useful for their respective organisations, our assessment found that none of the models were suitable as-is, or as the basis for, a broadly applicable benefits model.

Of the models reviewed, the MBDA and DE&S (CAAS) models were both found to be useful and informative implementations of benefits modelling but not suitable for a wider roll-out. It is recommended that groups attempting benefits modelling in the future should review these approaches.

Views on utility of outputs

Through the process of assessing the above models we were able to discover the views of various organisations on the utility of benefits models.

Due to UKTI DSOs remit their interest is the most holistic, seeking to understand the impact of exports upon the UK generally. DSO contracted Ernst & Young (E&Y) to develop a macro-economic model of outputs such as GDP, employment and FDI. The economic research leveraged by E&Y to develop the UKTI DSO model showed that *direct* spending is multiplied to create *indirect* spending, which is in turn multiplied to create *induced* spending. As such *induced* spending produces the largest impacts upon UK wide benefits, and so is of interest to UKTI DSO.

UKTI DSO was the only organisation consulted that had such an interest in *induced* spending. MOD economists and those involved in exports more generally across the department / industry dismiss *induced* spending as a useful metric. It was the view of Defence Economics that the research behind *induced* benefits was of insufficient validity to have utility.

Summary of Model Assessments

UK Defence exports economic impact model - UKTI DSO, E&Y¹⁷	
Purpose: Resource allocation within UKTI DSO.	
Outputs:	<ul style="list-style-type: none"> • Primarily UK wide benefits covering direct, indirect and induced. • GDP impact, FDI¹⁸, trade balance, employment, tax take, R&D spend, plant stoppage costs. • MOD specific; cost spreading, plant stoppage costs, CEL receipts.
Inputs:	<ul style="list-style-type: none"> • Expected market volumes and confidence levels over time. • Capability details; import vs. indigenous vs. value added, current demand. • Business relationships; supply chain breakdown, employee compensation. • Onwards economic spend ratios by sector, indirect and induced.
<p>Comments:</p> <p>The model was built based upon academic work. The outputs include a series of macroeconomic metrics e.g. GDP. While the model may be valid to calculate the positive impacts on such metrics, it does not take into account the impacts of exports on other economic sectors. As such the model can only ever calculate a maximum value. Most likely this value will not be achievable in reality as resources drawn to increase defence production will impact upon the competitiveness of other sectors. The impact of the above was not captured or communicated in the literature we examined relating to the model.</p> <p>The model fails to take into account multi-year effects such as decreasing costs over production runs (i.e. learner curves), or increasing production efficiencies over time.</p> <p>It was the view of both Dstl and MOD Defence Economics that the model should therefore not be considered to be a macro-level model, and that the relevant UK wide outputs were not useful without significant additional analysis.</p> <p>In discussion DSO were unclear on whether the IPR was retained by DSO or by E&Y. DSO also commented that they would be unwilling to transfer ownership of the model to any third party, even within Government.</p> <p>DSO stated that they did not have detailed specifications for the model, and so were unsure as to the precise workings of the model. No comprehensive verification & validation of the model has been conducted and it is unlikely that it could be proved</p>	

¹⁷ Ernst and Young were the contracted to develop the model for UKTI DSO.

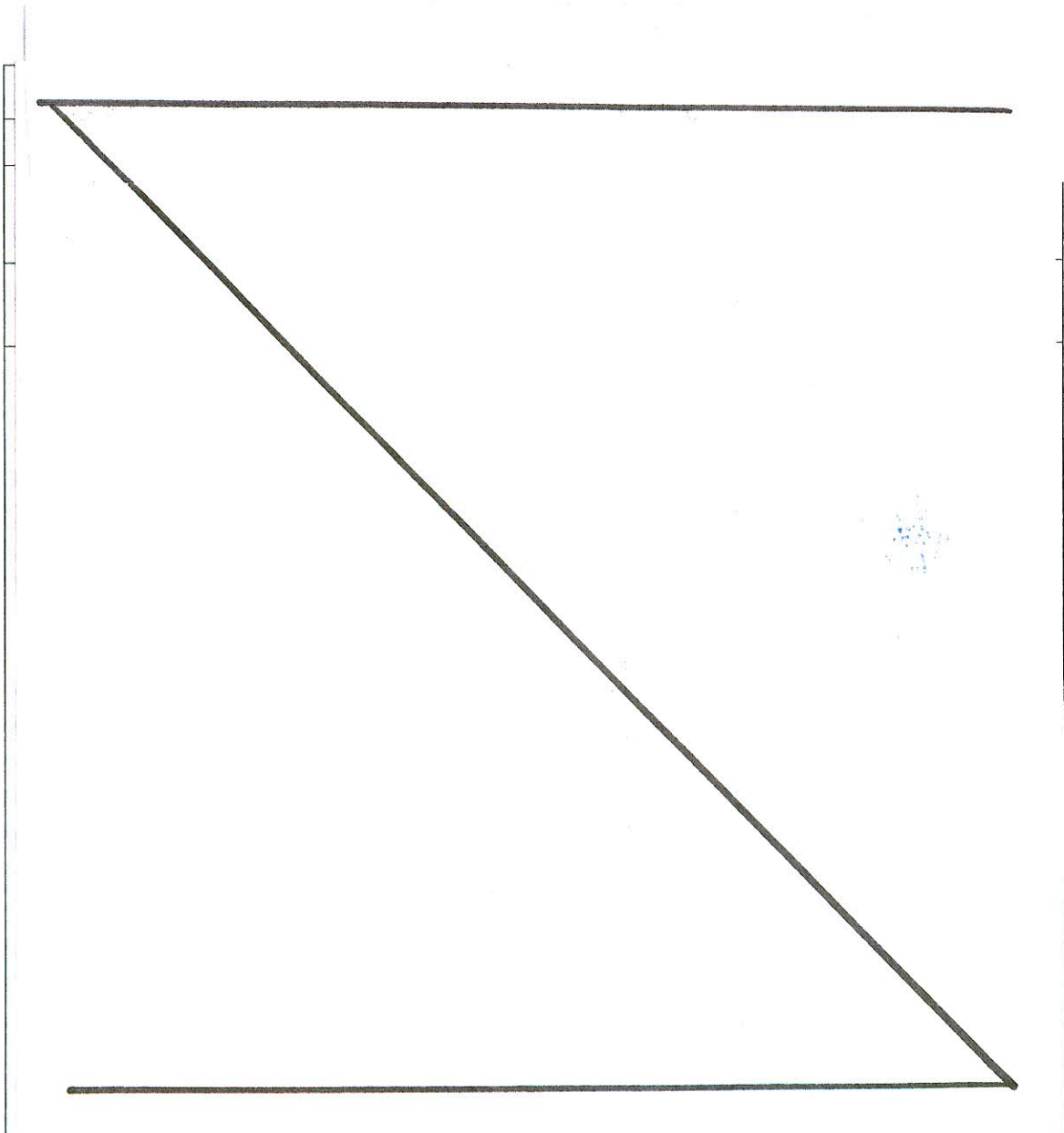
¹⁸ Foreign Direct Investment

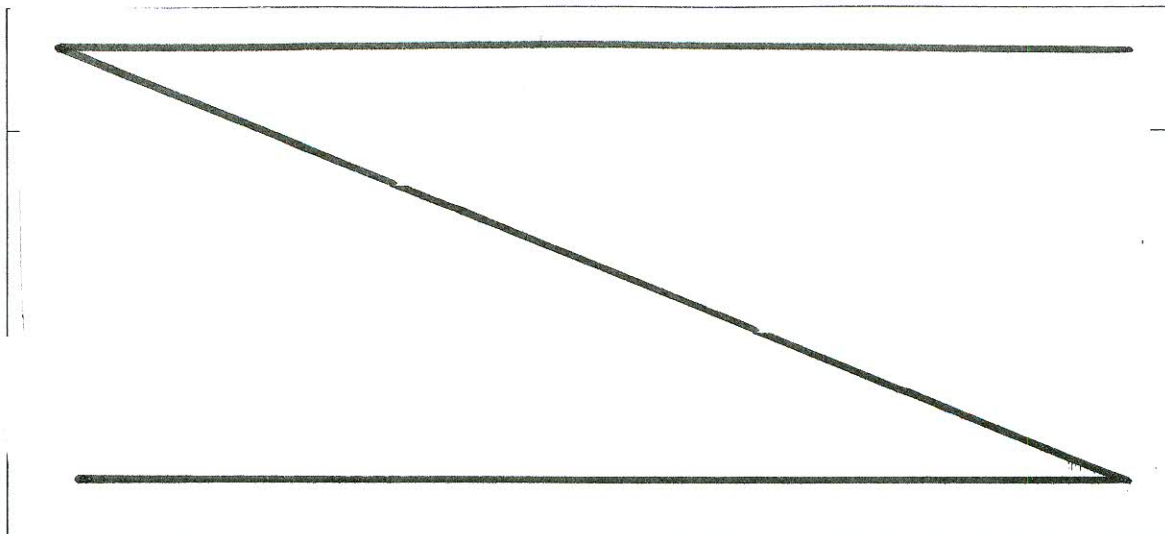
'fit for purpose'.

DSO stated they had never seen the model exploited to inform a decision.

Conclusion:

Lessons can be drawn from an interesting and informative attempt at modelling top-level benefits across projects. However, the model suffers from numerous serious issues that, taken together, render further development of the model for usage by other organisations as highly impractical.





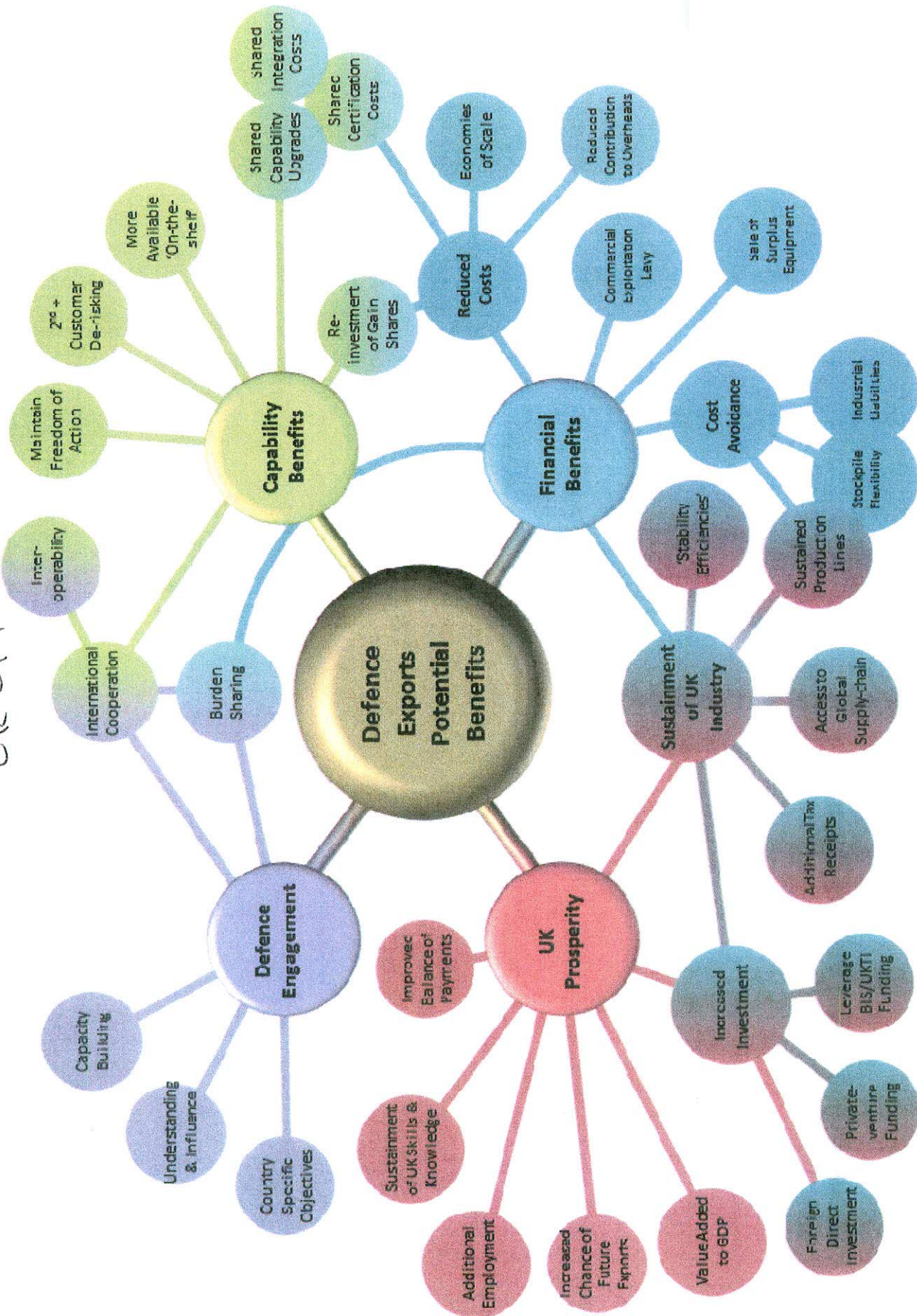
DE&S (CAAS) @Risk model	
Purpose:	Experimental, impact of market analysis on benefits.
Outputs:	<ul style="list-style-type: none">• Primarily MOD specific benefits; cost spreading due to volume, Gainshare receipts, plant availability.• Covering direct, indirect.• Impact of differing export scenarios.
Inputs:	<ul style="list-style-type: none">• Expected market volumes and confidence levels over time.• Business relationships; supply chain breakdown.
Comments:	<p>Based upon the above MBDA model, DE&S developed the model further to allow divergent export scenarios to be understood with greater fidelity.</p> <p>@Risk is an excellent example of how the MBDA model could be developed in future, and an example of how internal MOD analysts could inform decision making if such an approach was undertaken.</p> <p>However, in discussion it became evident that the DE&S approach appeared to have had only a limited effect upon MOD decision making, with the calculated benefits not being of sufficient magnitude to significantly alter course.</p>
Conclusion:	<p>The DE&S method should be reviewed by PTs attempting to undertake benefits modelling. With MBDA providing a detailed business plan DE&S was able to undertake exploratory analysis of the export markets to inform decision making. However, PTs should note that the benefits calculated by the @Risk model were primarily narrow and monetary in nature. Given the limited value of current direct quantitative benefits this approach would best be complemented with additional wider and qualitative benefits analysis.</p>

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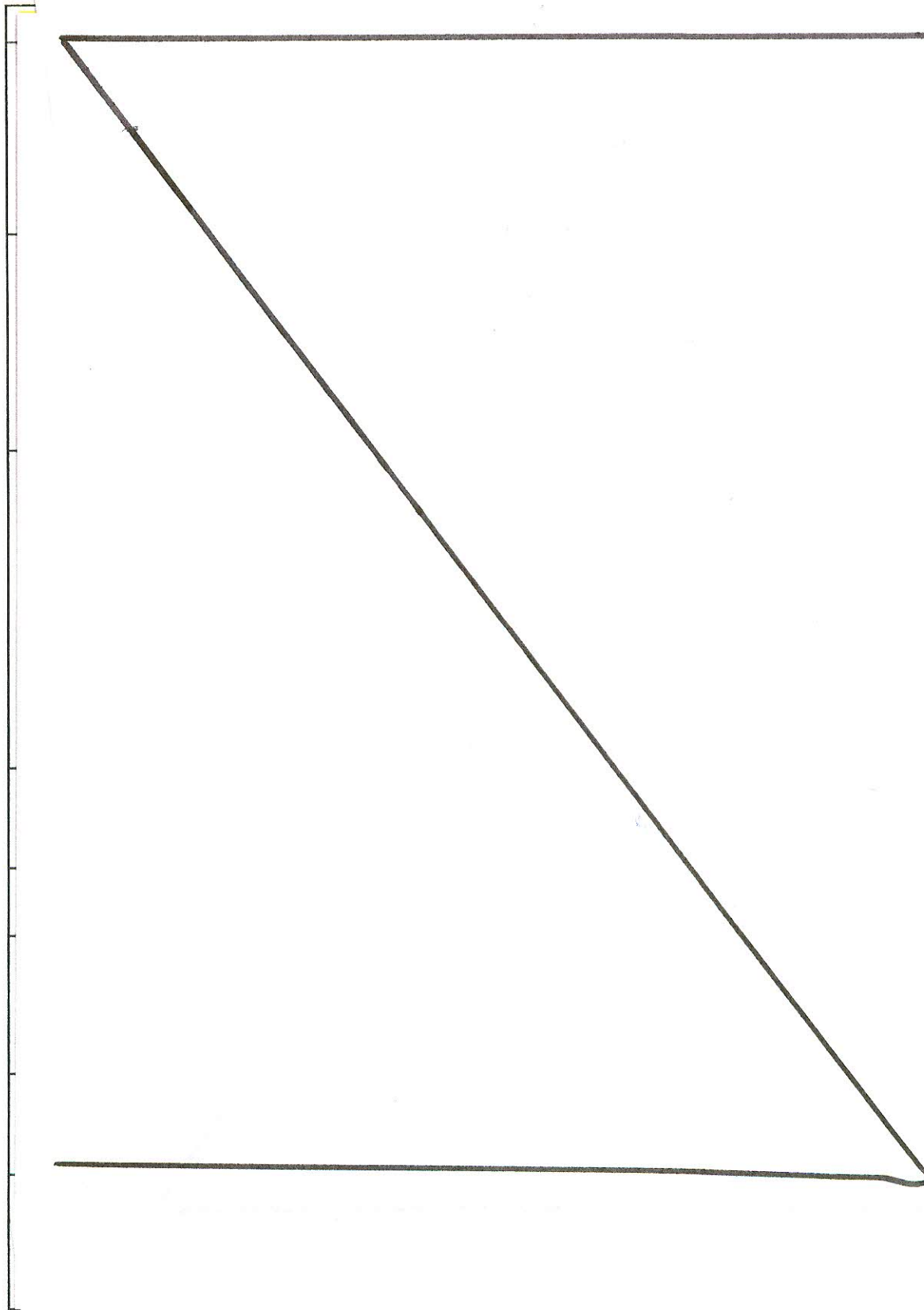
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ANNEX B Potential Benefits from Defence Exports

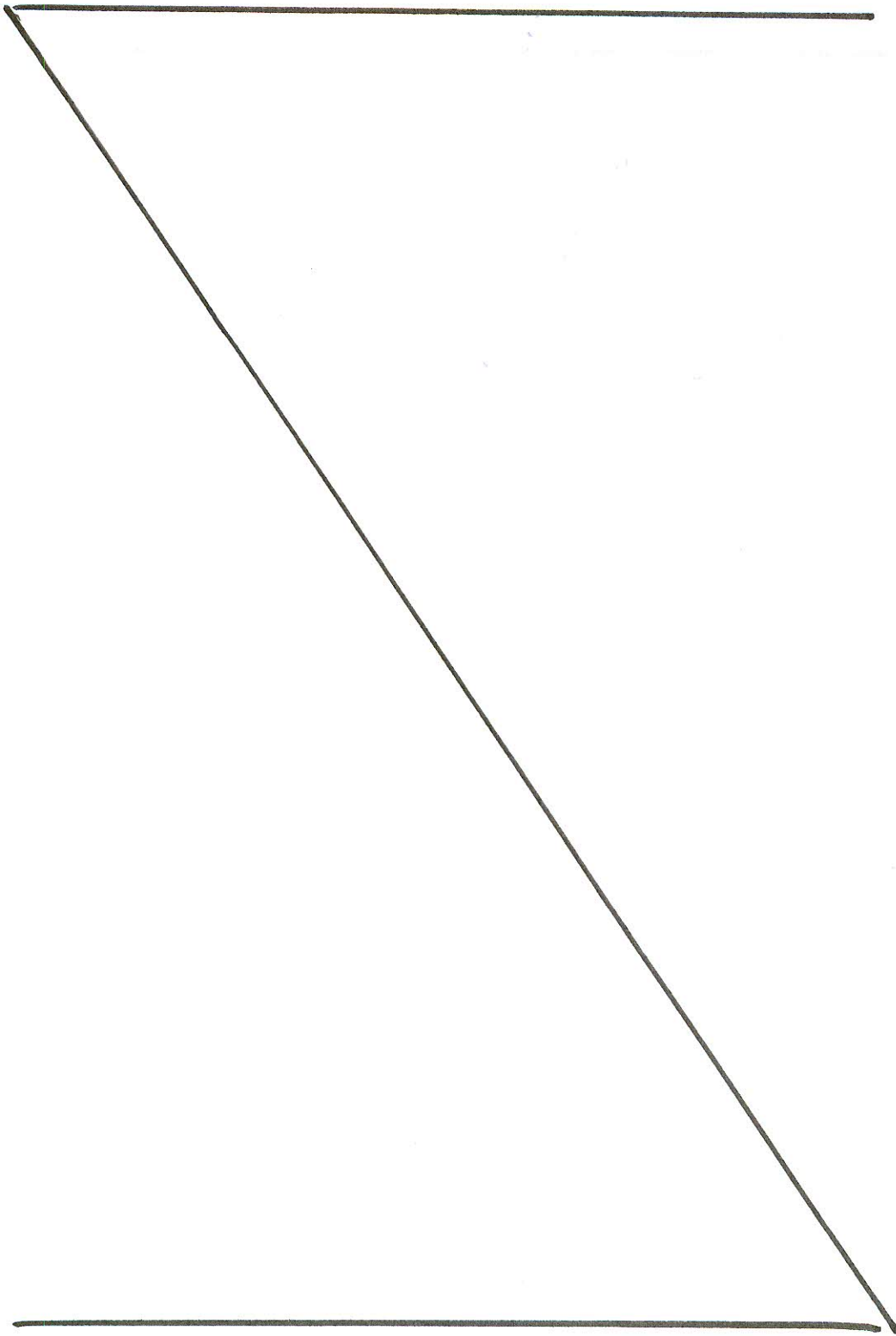
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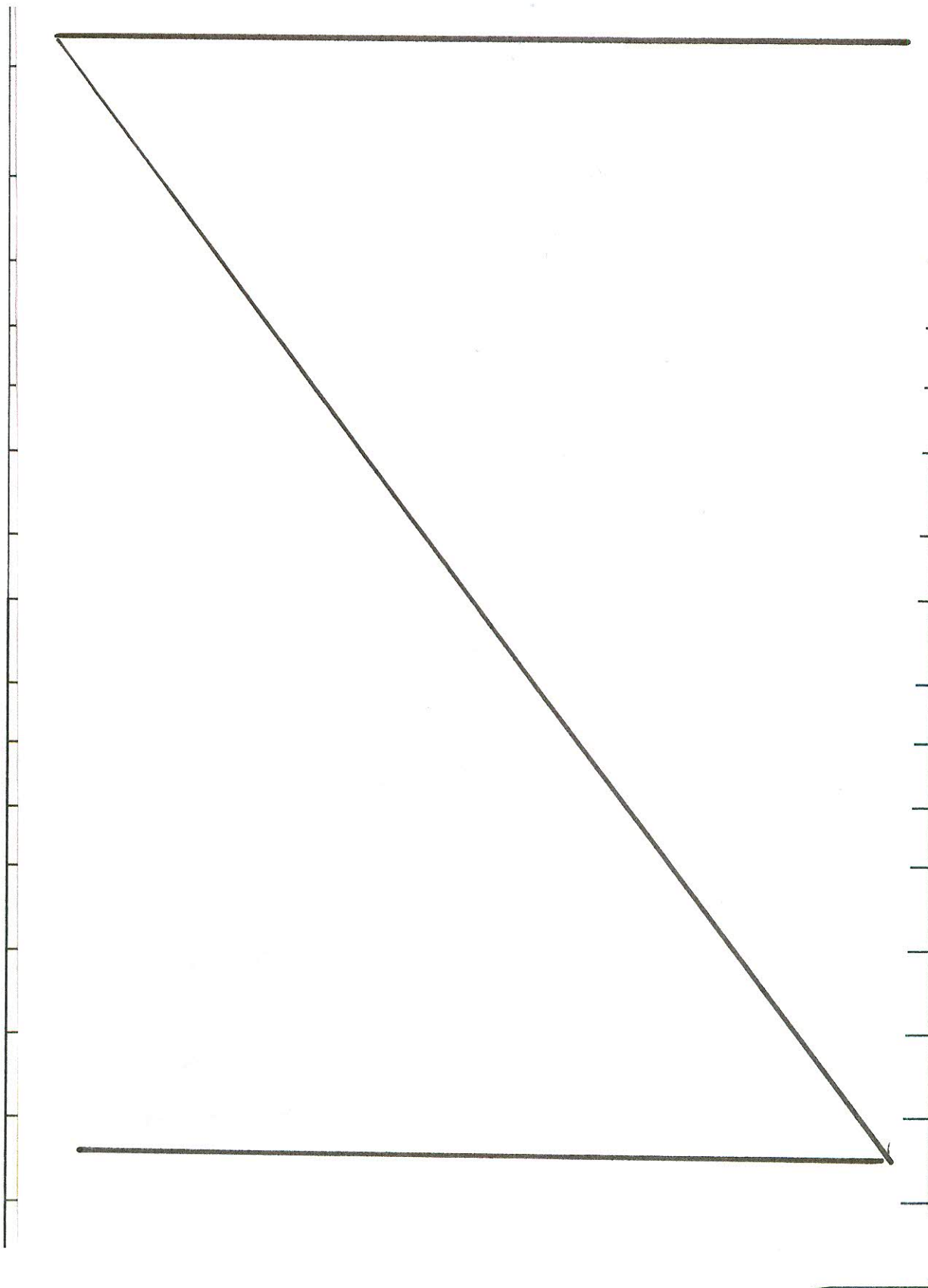
ANNEX C List of Interviews



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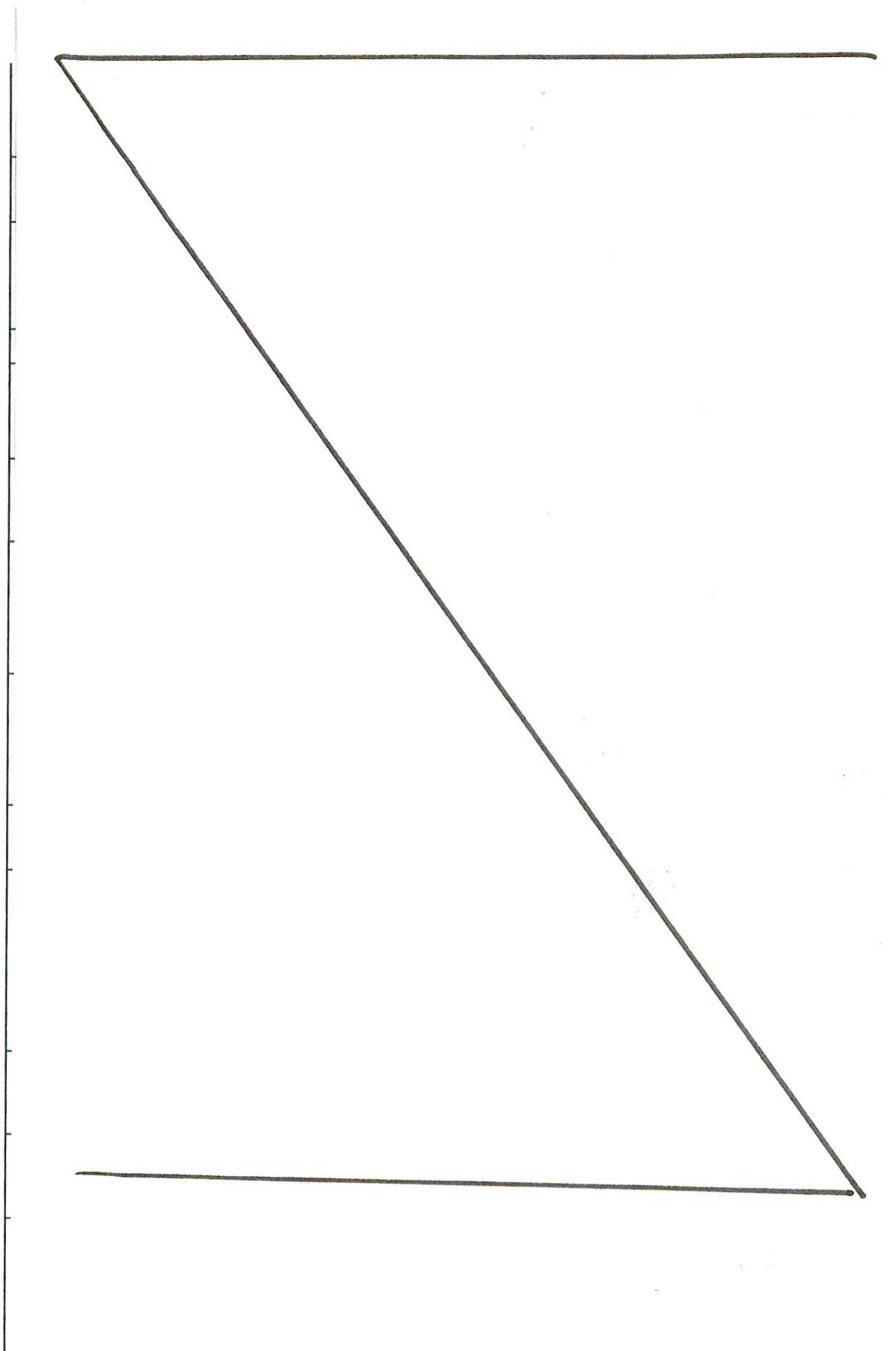


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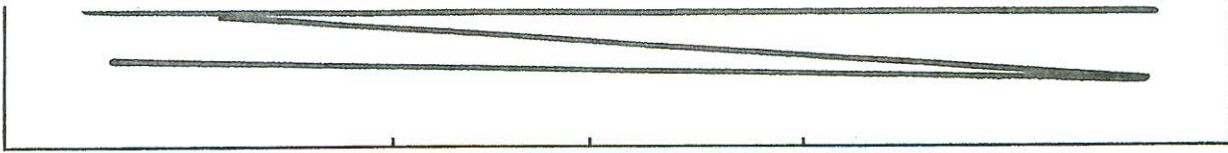
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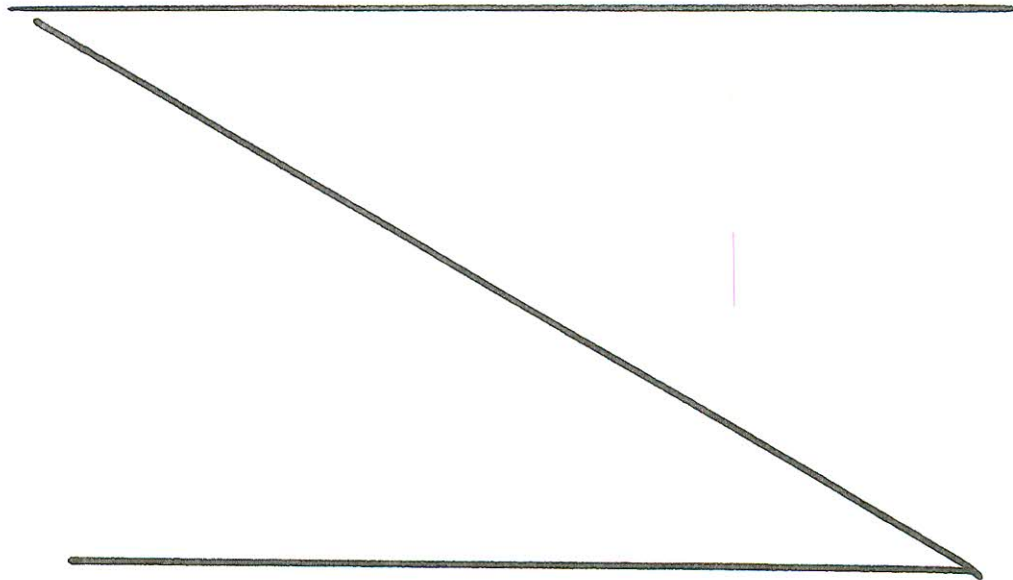
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* See Niteworks report for a list of industry consulted¹⁹.

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16a. Abstract: *	<p>Exportability refers to the adaptation of UK requirements, procurement strategies or design to incorporate the needs of export customers or international partners. In order to enhance support to exports in line with government policy , MOD has mandated that Main and Initial Gate business cases, as well as Genesis Options, address this issue. This report investigates how this policy should be implemented.</p> <p>There is currently no formal, structured process for the consideration of exportability or export potential. Guidance states that exportability should be achieved at zero net additional cost to MOD and not inappropriately impact on the capability of UK forces . Increased volume of defence exports is inferred as the main route to generate benefits, but this is not explicit.</p> <p>In all cases MOD should look to remove barriers preventing industry from exporting responsibly, but in those cases where export potential is identified, attribute more effort to taking an export friendly approach to procurement (i.e. exportability) to secure benefits for MOD.</p>		
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