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CORRECTION SLIP

Title: Defence inventory management

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Correction one:

The paragraph currently reads:

Page 4, Key facts:

740 million

individual items of inventory held by the MoD

Text should read:

Around 460 million

individual items of inventory held by the MoD

Correction two:

The paragraph currently reads:

Page 5, Summary, paragraph 1:

The Ministry of Defence (MoD) holds more than 640,000 types of inventory and more than 740 million individual items at a net book value of £11.8 billion

Text should read:

The Ministry of Defence (MoD) holds around 520,000 types of inventory and around 460 million individual items at a net book value of £11.8 billion.

Correction three:

The paragraph currently reads:

Page 15, paragraph 1.2:

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Text should read:

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Date of correction: 15 March 2024



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Key facts

£1.5bn

the amount the Ministry of Defence (MoD) spent buying inventory in 2022-23

£11.8bn

the net value of the MoD's inventory at 31 March 2023

£2.5bn

how much the MoD estimates it will spend on the digital transformation of its Support function

89

number of legacy logistics information systems that the MoD currently maintains

75%

approximate proportion of central warehousing space which is full

**Around
460 million**

individual items of inventory held by the MoD

53

the average age of logistics staff

105,500m³

volume of items not currently fit for use in central warehouses

Summary

1 The UK's armed forces require a wide range of supplies and spares for immediate and potential use; these are described collectively as 'inventory'. The Ministry of Defence (MoD) holds around 520,000 types of inventory and around 460 million individual items at a net book value of £11.8 billion. It spent £1.5 billion buying inventory in 2022-23. This inventory falls into three categories: Guided Weapons, Missiles and Bombs (GWMB), Capital Spares, such as wheels and windscreens, and Raw Materials and Consumables (RMC). Managing this inventory is a complex and dynamic task, as the MoD must support a wide range of operations and training exercises across the globe and must be responsive to where these may place sudden demands for items.

2 Several organisations contribute to the management of MoD's inventory. The key organisations include:

- **Defence Support**, an organisation within UK Strategic Command, led by the Chief of Defence Logistics and Support (CDLS).
 - Defence Support is responsible for the central policy and coordination of Support activities, which includes the logistics, engineering and equipment support (including inventory management) needed to maintain military capability.
 - It also oversees the Support function – the community of professionals who carry out Support activities across all of MoD's organisations;
- **Defence Equipment and Support (DE&S)**, an arm's-length body of the MoD responsible for delivering equipment and support services to the armed forces.
 - DE&S is responsible for the central warehousing and logistics of MoD's inventory, supported by its industry partner **Team Leidos** through the **Logistics Commodities and Services Transformation (LCST)** contract. Team Leidos also procures some RMC commodities on behalf of MoD.¹
 - Delivery teams within DE&S carry out demand and supply planning, financial accounting and disposal management, among other activities, for the inventory needed to maintain equipment platforms such as ships, aircraft and armoured vehicles. Delivery teams may contract out certain aspects of this role to industry partners to carry out on DE&S's behalf;

¹ Team Leidos is a consortium composed principally of Leidos Europe, Leidos Supply, Kuehne and Nagel and TVS Supply Chain Solutions.

- **Front Line Commands (Commands)**, such as the Army, Royal Navy, the Royal Air Force (RAF) and UK Strategic Command.
 - Commands are responsible for their inventory demand planning, as well as the storage and distribution of inventory within their bases and at deployed locations; and
- other Defence organisations such as the Submarine Delivery Agency, the Defence Infrastructure Organisation and Defence Digital (a business unit of UK Strategic Command) also manage certain types of inventory for their own use.

3 The objective of inventory management is to balance the risk of having insufficient inventory to support operational capabilities with the costs of holding it. The optimal level to hold will change over time, and the MoD is currently reappraising the levels of inventory it holds, as well as how it engages with industry to supply it. In its Supply Chain Strategy, the MoD set out how it believes that its approach to inventory management currently overemphasises attempting to reduce cost over other factors, such as resilience and performance, particularly in light of increasing global instability.² Events such as the war in Ukraine and the COVID-19 pandemic have demonstrated that supply chains optimised for cost savings can be vulnerable where sudden surges in demand or disruptions to supply emerge. To address these challenges, the MoD intends to improve its Support function to be “resilient by design” and ensure that it has the people and equipment it needs in the right places, able to deploy quickly and efficiently. It calls this “support advantage”.

4 However, the MoD’s inventory management has many long-standing weaknesses, which we have reported on before. In our 2012 report, *Managing the Defence Inventory*, we found that the MoD was buying more inventory than it was using and was not consistently disposing of inventory it no longer needed.³ The MoD’s management structures for inventory management did not encourage efficient or effective management of inventory and did not incentivise individual teams to consider the impacts of their decisions across the department. This work built on our 2011 report, *The use of information to manage the logistics supply chain*, which examined the weaknesses in the information the MoD uses to manage its inventory, including the risks posed by its legacy IT systems.⁴ These challenges present obstacles to the MoD’s ambitions, and while the MoD has acknowledged these issues and put in place improvement initiatives since these reports, many have still not been fully resolved. In the Integrated Review, the government envisaged a greater deployed presence for the armed forces, which will place an additional burden on effective inventory management.⁵

² Ministry of Defence, *Defence Supply Chain Strategy*, November 2022 (viewed 7 September 2023).

³ Comptroller and Auditor General, *Managing the Defence Inventory*, Session 2012-13, HC 745, National Audit Office, June 2012.

⁴ Comptroller and Auditor General, *The use of information to manage the logistics supply chain*, Session 2010-2012, HC 1202, National Audit Office, March 2011.

⁵ Cabinet Office, *Global Britain in a competitive age: the Integrated Review of Security, Defence, Development and Foreign Policy*, CP 403, March 2021 (viewed 7 September 2023).

5 To achieve its future ambitions, the MoD has published a Support Strategy, which sets out its vision for what it wants the Support function to be in the future and why change is necessary.⁶ This is supported by a plan of activities across the Support function including organisational and digital transformation programmes. The MoD has identified the characteristics that it wants the Support function to demonstrate by 2035. These characteristics, and how we would expect MoD to demonstrate them in its inventory management, are listed below.

- **'Integrated and interoperable'**: inventory management processes are applicable across the MoD and decisions are made with an end-to-end perspective that meets the needs and aims of the whole service.
- **'Information led'** and **'technology enabled'**: these two characteristics enable inventory management systems to provide access to accurate, timely and relevant management information to support decision-making.
- **'Resilient, effective and efficient'**: the organisation of inventory management across MoD is set up to meet its strategic judgements of what optimal inventory levels are, reflecting the operational balance of these three considerations.
- **'People centric'**: inventory management is supported by enough people with the right skills and training to carry out their roles.

Scope of our report

6 Our report examines whether the MoD is achieving value for money in the management of its inventory, with reference to the issues we have found in our previous work. To do this, we evaluate the extent to which the MoD has addressed its long-standing challenges with its inventory management and assess how well set up it is to achieve its future strategic ambitions set out in its Support and Supply Chain strategies. Our scope includes the work of the whole department, including its constituent bodies, as inventory management functions are carried out by many different organisations.

6 Ministry of Defence, *Defence Support Strategy Overview*, April 2022 (viewed 7 September 2023).

7 Our report is in two parts:

- Part One examines the strategic context and structure of the MoD's inventory management, and the systemic issues and challenges that the MoD encounters across its inventory management. We then examine the transformation initiatives that the MoD has put in place to overcome these challenges and meet its strategic ambitions for inventory management.
- Part Two examines how these issues and challenges affect inventory management in practice, through a series of specific examples, such as the management of the MoD's medical inventory and RMC commodities; how it identifies and disposes of inventory it no longer needs; and the inventory-related challenges of supporting equipment platforms. Through our fieldwork, we have found that these examples most clearly illustrate the consequences of the MoD's approach to inventory management.

Key findings

8 The MoD has historically taken a siloed approach to inventory management, resulting in a fragmented organisation which is difficult to align to its strategic goals. It has put in place measures to address this, but challenges remain. The MoD's inventory management is dispersed among many different organisations, with no one individual owner of the end-to-end activity. Individual Commands traditionally managed their own inventories, and separately developed their own policies, processes and ways of working. The MoD's own assessment is that there has been no overarching system design, creating a complex landscape with inefficient working practices. This makes it challenging for the MoD to cohere around strategic objectives or scale up improvements and good practice where they emerge locally. In 2019, the MoD established Defence Support, led by CDLS, to oversee the Support function to introduce a common purpose and standards for Support activities, including inventory management. However, in common with other functions across the MoD, there are conflicting incentives around what the Support function is trying to achieve compared with the individual Commands and other MoD organisations. This means in practice that the Support function does not have levers to direct these organisations and acts only as a representative for these activities, relying on influencing and engagement to achieve its strategic aims (paragraphs 1.9 to 1.12).

9 The MoD has been slow to upgrade its legacy IT estate, and its inventory data still have limitations which undermine its ability to make effective decisions.

The MoD manages inventory management information and processes across multiple bespoke systems in different organisations, embedding the variations in working practice between them. Many of these systems are old, increasing the risks of failure and the expense of supporting them. For example, each Command operates its own core inventory management system, two of which are nearly 40 years old. Systems often cannot easily communicate with each other, requiring inefficient manual interventions. This makes data too inaccessible to easily generate an overarching picture of the inventory. While the MoD can account for its inventory with sufficient accuracy to support financial controls and reporting, some aspects of data quality are poor, and system limitations sometimes prevent information from being useful enough to fully understand the inventory and support effective decision-making. For example, the Navy's inventory system can record that an item is damaged but not to what extent, making it difficult to know what could be repaired. The MoD reduced the number of logistics support systems it uses from around 250 to 89 between 2010 and 2022. While this has realised some local benefits, its data remain siloed and difficult to access across the MoD, preventing its inventory management being fully information-led. It is currently seeking to rationalise and modernise its information systems further, such as through its Business Modernisation for Support Programme (paragraphs 1.13 to 1.16, Figure 2).

10 The MoD's outsourcing has generated improvements in its logistics and commodity procurement, including financial benefits.

In 2015, the MoD entered the 13-year LCST contract with Team Leidos. The contract covers the central warehousing and distribution of much of MoD's inventory as well as the procurement and management of around £300 million of commodities per year. Through the LCST contract, the MoD has rationalised and modernised parts of its estate and organisation and gained access to industry knowledge and modern information systems. Team Leidos has also responded flexibly to operational demands, such as supporting operations in response to the COVID-19 pandemic and the gifting of items to Ukraine. At the point of awarding the contract, the MoD forecast that it would achieve net cash savings of £467 million over its life through efficiencies in logistics, commodity purchasing and management. Overall, Team Leidos has performed well against contractual performance targets for inventory management, and the MoD acted to protect the financial benefits of the contract through negotiating a reset in 2021. The benefits achieved through the contract are affected by the scope of MoD's activity and demand, and as of May 2023, Team Leidos forecasts that the contract will achieve £403 million of savings over its life, against its current target of £369 million. The MoD's requirements have changed over time, and it is now looking at how it could reinvest savings it achieves into improving resilience and sustainability (paragraphs 1.17 to 1.20).

11 The MoD's design of the LCST contract did not account for the specific needs of medical customers and there have been problems since the contract began in 2015. Within the LCST contract, the measurement of Team Leidos's performance in supplying medical inventory is combined with that of all commodities, as well as the contract's focus on cost efficiency. However, Team Leidos's performance in supplying certain medical inventory has been consistently lower than for other commodities. Medical inventory also requires higher levels of stock availability and performance because the loss of single specific items can prevent treatments going ahead, something that the MoD did not consider when it let the contract in 2015. This means that despite Team Leidos meeting the terms of the contract, Commands have experienced issues such as a lack of availability of items, even for demands placed months in advance, and items without sufficient shelf life being supplied for long deployments. This has led to Commands carrying increased operational risk on deployments and/or sourcing missing inventory items from elsewhere. The MoD did not set up the contract to manage medical equipment approaching the end of its useful life effectively, and it can take years for safety clearances of new equipment to complete. In 2019 the MoD and Team Leidos began implementing improvement initiatives but these did not deliver sufficient change to fully address these issues. In June 2023, the MoD approved a proposal from Team Leidos to segment medical inventory in the contract and increase its number of staff with medical expertise. Team Leidos expects to fully implement this in 2024 (paragraphs 2.3 to 2.7).

12 While the MoD has removed the financial incentives for over-purchasing, weaknesses in its management of commodities remain. Since our last report, the MoD has removed the financial incentives which encouraged Commands to over-purchase commodities, where Commands were charged only for their use. Since our last report, it has put in place a new financial framework, through which Commands are charged for items on purchase. The amount of RMC it purchases annually has fallen from £2.1 billion in March 2011 to £1.1 billion in March 2023, with its RMC holdings falling from a net value of £7.7 billion to £4.1 billion in the same period. However, the MoD told us there is a risk that its financial framework does not incentivise keeping its war reserve items up to date, as it does not provide financial cover where these items expire. We also found that new management arrangements put in place to control the demand and consumption of commodities were not consistently adhered to. This is in part because Command commodity managers lack all the information needed to scrutinise their commodity purchases and stockpiles. This creates inefficiencies where Commands may purchase the wrong type of commodity or must make expensive rapid purchases when shortfalls arise. Defence Support told us that it has not been resourced to perform its intended role of overseeing management arrangements for RMC (paragraphs 2.8 to 2.12, Figure 6).

13 The MoD has identified inventory shortages as one of many contributory factors to a lack of readiness. However, the complexity of its arrangements for supporting equipment platforms makes it difficult to address these shortages.

The MoD is not satisfied with the level of readiness across its units and is investigating how it can improve this. Inventory is one of many factors which affect the readiness of a unit, particularly its availability – how many units can be used, and for how long. At present the MoD assesses that a lack of inventory contributes to a small proportion of availability losses compared with other factors, such as pilot or crew shortfalls, and the level and kind of equipment maintenance needed. However, its inventory arrangements are varied and complex and will need to be optimised to contribute to improvements in readiness. Many parts are bespoke and cannot be used interchangeably by different equipment platforms, and where they can be, this can create complex interdependencies between delivery teams relying on each other to secure items. Some platforms also rely on cannibalisation, where spare parts are taken from platforms in maintenance or storage, to meet their required level of availability. This approach will become less feasible if more platforms are put into use. The MoD does not have good management information for understanding how different factors affect readiness and the complex ways they can interact. It has begun work to better understand which factors affect readiness and to what degree, and to generate better metrics for this purpose (paragraphs 2.21 to 2.24).

14 The MoD does not consistently dispose of inventory that it no longer requires and this has resulted in large build-ups of excess and obsolete stock in warehouses.

We reported in 2012 that the MoD was not consistently disposing of inventory it no longer required, resulting in large build-ups of surplus and obsolete inventory in warehouses, and this remains the case today. The MoD also holds increasing amounts of items classified as unserviceable – not currently fit for use. While the MoD recognises the problem as significant, it is not able to quantify the scale of the problem across its whole estate. However, in April 2023 its 584,000 m³ of LCST-managed central warehousing was at 75% capacity, and the MoD held items occupying 115,700 m³ (20%) which were marked as overstocked, 105,500 m³ (18%) marked as unserviceable, and 7,200 m³ (2%) marked as past their out of service date. Not all of this inventory will necessarily require disposal, as understanding what inventory should be disposed of is complex and requires judgement. For example, where the MoD holds inventory from platforms which have gone out of service, these items may have uses for other platforms, or there may be opportunities for sale to other governments. Some overstocked items may also be held as contingent stock and only used in certain infrequent scenarios. Nonetheless, the build-up of potential disposals places pressure on scarce warehouse space and the ability to increase inventory levels where needed strategically (paragraphs 2.13 to 2.15).

15 The MoD has put in place short-term initiatives to improve disposals activity, but it does not have a coherent plan to address disposals across all of its holdings.

Delivery teams in DE&S are responsible for decision-making in consultation with the Commands and must identify and authorise disposals for warehouse staff to carry out. DE&S told us that staff resourcing is a challenge for many delivery teams, who prioritise support to the front line over disposals as a result, and limited capacity to action disposals was written into the LCST contract initially. Delivery teams are not incentivised to free up space by actioning disposals, as they are not charged for warehouse storage. This means the MoD has to periodically supplement its disposals activity with short-term projects. The MoD currently has three projects: one through the LCST contract to address the backlog of disposals within LCST-managed warehouses, as well as two others to identify potential inventory disposals within the RAF and the Navy. However, these projects are inconsistent in their scope, methods and duration, and only one has developed into an enduring process. Unless the MoD can create consistent disposals processes across all its warehouses, the need for short-term projects to deal with problems when they arise will persist (paragraphs 2.16 to 2.19, Figure 7).

16 The MoD does not fully understand the people and skills it needs across its inventory management, and staffing pressures are currently posing risks to delivery to the front line.

Under-resourcing was cited by MoD staff as a key root cause of many of the specific issues we encountered in inventory management. The inefficiency of working practices and the training requirements imposed by bespoke IT systems exacerbate these challenges. The MoD does not have a comprehensive understanding of the Support workforce, as the MoD's various organisations manage their workforces separately and data were not previously available to analyse centrally. However, analysis of 2022 staff data indicates that the civilian logistics workforce is relatively old compared with other MoD professions, at an average age of 53, compared with 47 in other areas, and 49% of staff who left post did so for retirement. DE&S told us that it has reduced the number of inventory manager posts over time in response to workforce reduction targets, but that it is difficult to understand its true resource requirement as it has not produced definitive data on the level of staffing it might need. Training for inventory managers has also become outdated. Without a more detailed understanding of the roles it requires and where it has gaps, the MoD cannot understand what risks it currently holds in its staffing of the Support function (paragraphs 1.24 to 1.26).

17 The MoD has established transformation programmes to address its challenges, although these face risks from shortages of people at the outset which threaten their success. To overcome its historical weaknesses, and support the delivery of the Defence Support Strategy, the MoD is implementing several transformation and change initiatives, including two transformation programmes. Business Modernisation for Support (BMfS) is a £2.5 billion pan-Defence business change programme which aims to upgrade Support's legacy IT estate and implement a set of standardised processes based on industry best practice. The Future Defence Support Services programme aims to identify the best commercial arrangement to support commodity procurement and inventory management once the LCST contract ends in 2028. There are inherent challenges in delivering large digital and business transformation, which government has struggled with in the past. Both programmes have adopted good principles in understanding the organisational change they wish to achieve, particularly in improving the quality and consistency of working practices and data, and in aligning MoD's commercial arrangements to the same strategic objectives. However, both programmes have staffing gaps at their early stages, which will affect their ability to refine and deliver their scopes. They will also require support from the Commands and other Defence organisations to succeed, as they must change their working practices and train their staff (paragraphs 1.21 to 1.23, Figure 3 and Figure 4).

Conclusion on value for money

18 The MoD manages a vast inventory worth £11.8 billion across a complex and dispersed enterprise. Growing global instability, and the greater deployed presence envisaged in the Integrated Review, are making it ever more important that the MoD has the inventory it needs, in the right places and amounts. While the MoD has taken steps to improve its logistics and commodity procurement, and removed financial incentives for over-purchasing, many long-standing weaknesses with its inventory management remain. These include its inefficient and poorly aligned activities and ageing legacy IT, which it has been slow to address. These weaknesses stand in the way of the MoD's ambitions for inventory management set out in its Support Strategy. As a result, despite some improvements, the MoD is not yet set up to deliver value for money from its inventory management.

19 The MoD has started a number of transformation initiatives which provide opportunities to move towards realising effective, efficient and resilient inventory management. However, the scale of the change needed is substantial. If MoD does not prioritise the required resources to do this, it will frustrate its ability to build resilience and deploy the people and equipment it needs in the right places. It will also lose the opportunity to reduce waste and achieve cash savings or release resources for other priority expenditure.

Recommendations

- 20** To address its long-standing challenges in inventory management and successfully deliver its transformation initiatives, we recommend that the MoD:
- a** defines the levels of inventory needed to support its new strategic aims, and develops an understanding of what arrangements are needed to support these, and the barriers to achieving them;
 - b** ensures that a management framework for raw material and consumable commodities is in operation, which controls demand and consumption, incentivises the upkeep of reserve items, and is supported by appropriate management information and tools;
 - c** draws together the best practice from its current projects to identify surplus inventory, supported by a coherent plan covering its whole inventory estate. It must also ensure this approach is brought into its future inventory management outsourcing;
 - d** develops an assessment of the skills and resources its needs across inventory management, whether current resourcing levels are sufficient to meet these, and what resourcing risks it is carrying in its current and future operations; and
 - e** identifies and prioritises the resources it needs within Defence Support and across MoD's constituent organisations to ensure its transformation programmes can be implemented successfully to deliver the available financial and operational benefits.