



[2021] UKFTT 0448 (TC)  
(TC) 08332

*VAT - zero rating - modification or conversion of aircraft - supply of airborne surveillance and control system - additional role for existing aircraft - use of role-fit kits - whether modification or conversion – jurisdiction of Tribunal to reach decision on basis other than one put forward by parties – unusual importance of burden of proof - Item 2, Group 8, Schedule 8, Value Added Tax Act 1994*

**FIRST-TIER TRIBUNAL  
TAX CHAMBER**

**Appeal number: TC/2018/02213**

**BETWEEN**

**LOCKHEED MARTIN UK LIMITED**

**Appellant**

**-and-**

**THE COMMISSIONERS FOR  
HER MAJESTY'S REVENUE AND CUSTOMS**

**Respondents**

**TRIBUNAL: JUDGE ALEKSANDER  
LESLIE BROWN**

**The hearing took place on 4 to 7 May 2020, with written submissions being made by the parties, at the direction of the Tribunal, following the hearing. With the consent of the parties, the form of the hearing was V (video) on the Tribunal's Video Hearing Service. A face-to-face hearing was not held because of the impact of the COVID pandemic. The documents to which we were referred were an electronic hearing bundle of 1504 pages.**

**Pursuant to a direction given by Judge Poole on 22 October 2018 under Rule 32(2)(a) and (c) of the Tribunal Procedure (First-tier Tribunal) (Tax Chamber) Rules 2009 (SI 2009/273), the hearing was held in private.**

**Valentina Sloane QC, counsel, instructed by Deloitte LLP, for the Appellant**

**James Puzey, counsel, instructed by the General Counsel and Solicitor to HM Revenue and Customs, for the Respondents**

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## DECISION

### INTRODUCTION

1. The Appellant (“LMUK”) appeals against HMRC’s decision dated 16 November 2017 that supplies made by LMUK to the Ministry of Defence (“MoD”) were standard rated. The appeal has been classified as “complex”.

2. The issue for determination is whether the supply by LMUK to the MoD of the “Crowsnest project” or “Crowsnest programme” falls within the scope of item 2, Group 8, Schedule 8 to the Value Added Tax Act 1994 (“VAT Act”) which provides for the zero-rating of:

The supply, repair or maintenance of a qualifying aircraft or the modification or conversion of any such aircraft provided that when so modified or converted it will remain a qualifying aircraft.

3. A “qualifying aircraft” is defined to include an aircraft that is used by a state institution, has a weight of not less than 8000kg, and is neither designed nor adapted for use for recreation nor pleasure. There is no dispute that the aircraft in question (Merlin Mk2 helicopters) are qualifying aircraft, as they belong to a State institution, their mass is 14.6 tonnes, and they are neither designed nor adapted for pleasure or recreation.

4. LMUK’s case is that the supply is of the service of the modification or conversion of qualifying aircraft. HMRC’s case is that the supply is one of goods.

5. The VAT assessed by HMRC was £12,506,820.50 and was calculated on the basis that the contract price was inclusive of VAT. Both parties acknowledge that, on any basis, the amount of the assessment was incorrect as the contract stipulated that the price was exclusive of any VAT.

6. At the hearing, LMUK were represented by Ms Sloane and HMRC by Mr Puzey. We heard evidence from Neil Morphett and from Paul McDermott MBE. Both provided witness statements and gave oral evidence, on which they were cross examined. In addition, an electronic bundle of 1504 pages was produced.

7. Mr Morphett is employed by LMUK as Advanced Technology Director, Rotary and Mission Systems UK. Before his appointment to his current role, Mr Morphett was Chief Engineer/Senior Systems Engineering Manager for assessment phases of the Crowsnest project and was involved in drafting the ruling request made by LMUK to HMRC.

8. Mr McDermott is a civil servant employed at MoD Defence Equipment and Support as the Maritime Delivery Project Manager for the Merlin Delivery Team. He is responsible for managing a number of different programmes for the integration of upgrades to, and modifications of, the Merlin Mk2 helicopters.

### HEARINGS IN PRIVATE

9. Because some of the evidence included highly sensitive confidential information relating to matters of national security, on 22 October 2018, Judge Poole issued a direction that all hearings relating to this appeal would be held in private pursuant to rule 32(2)(a) and (c) of the Tribunal’s procedure rules. He also made an order pursuant to s11, Contempt of Court Act 1981 that there shall be no publication of any details of the contract relating to the supplies made by LMUK to the MoD.

10. We have included in this decision extracts from various contractual documents. We have made redactions from the extract from the URD cited in paragraph [54]. We are satisfied that the redacted information (which is not material to the decision) should remain confidential on

grounds of national security. We amend Judge Poole’s order under s11, Contempt of Court Act 1981 to exclude from its scope the extracts included in this decision - but subject to any publication being made with the redactions made in this decision.

#### **APPLICATION FOR ADDITIONAL DISCLOSURE**

11. During the course of the hearing, and in particular during the course of Mr Puzey’s cross-examination of Mr Morphett, it became apparent that not all of the contractual documentation relating to the Crowsnest project had been disclosed by LMUK, and in particular, a “Statement of Work” relating to the work to be undertaken by Thales UK Limited (“Thales”) under their subcontract with LMUK had not been disclosed. Mr Puzey made an application for disclosure of the Thales’ Statement of Work on the basis that it was relevant to the issues to be determined by us. Mr Puzey made his submission on the grounds that whatever Thales had agreed to supply to LMUK was onwardly supplied by LMUK to the MoD. Ms Sloane opposed the application on the grounds that the bundle already included the contractual documents between the MoD and LMUK. Included in the bundle at HMRC’s request was a copy of the subcontract between LMUK and Thales dated 30 November 2016 (“the Thales Subcontract”), which referred on its face to various annexes which had not been included in the bundle. Ms Sloane submitted that HMRC had been in possession of the contract for a considerable period of time and could have asked for the annexes (such as the Statement of Work) before the hearing. She submitted that HMRC’s application was for a document which was not directly relevant to the issues before the Tribunal, and which was not part of the contract being considered by the Tribunal. We decided not to direct further disclosure. The Tribunal rules do not require disclosure of all documents that are potentially relevant to the appeal, they only require disclosure of documents on which a party intends to rely at the hearing – although the Tribunal has discretion to direct additional disclosure. We found that it was apparent on the face of the documents included in the bundle and which had been in HMRC’s possession for some time that the Thales contract included in the bundle was not complete and so an application for disclosure could have been made prior to the hearing. We noted that the supply between Thales and LMUK is not the supply we are analysing for the purpose of this hearing. Whilst we recognise that the supplies made by Thales to LMUK are largely (if not wholly) on-supplied by LMUK to the MoD, the specification for the totality of the supply made by LMUK to the MoD (incorporating whatever is on-supplied from Thales) is incorporated into the LMUK contractual documents which are before us. Having regard to the overriding objective, we held that it was in the interest of justice to proceed with the hearing rather than to order the disclosure of a lengthy document of (at best) marginal relevance to the issues before us, and consideration of which would delay the hearing.

12. Following the closure of the oral evidence, Ms Sloane made an application to admit correspondence between LMUK and HMRC relating to the basis on which estimates had been made as to the proportion of the total contract costs that related to the role-fit kit. We decided not to admit this letter as evidence as (a) LMUK were not relying on the percentage allocation of costs to the role-fit kits as part of their argument, and (b) during the course of Mr Morphett’s oral evidence it became clear that not only was the allocation estimated, but there were doubts about the basis and reliability of the estimates. We decide that there was therefore nothing in this letter which would assist the Tribunal in reaching its decision, and it was therefore not in the interests of fairness and justice to introduce this additional evidence at a late stage, after the oral evidence had closed.

#### **ADDITIONAL WRITTEN SUBMISSIONS**

13. During the course of the hearing, we raised with both parties the possibility that the supply made by LMUK to the MoD was neither a supply of goods (as submitted by HMRC), nor a supply of zero-rated modification/conversion services (as submitted by LMUK). This

potential analysis was rejected by both parties at the hearing. However, following discussions between the members of the Tribunal panel after the conclusion of the hearing, we considered that this potential analysis ought to be given proper consideration and gave directions for additional submissions from the parties on the following two questions:

- (1) Under what circumstances (as a matter of law) it is possible for there to be a supply of goods by supplier to customer where the tangible property that is the subject of the supply incorporates tangible property that belongs to the customer?
- (2) In the event that such a supply cannot be a supply of goods, could the supply by LMUK to the MoD be a supply of services which is not a supply of modification services?

In view of the difficulties and delay that would result from arranging a further hearing, we invited the parties to provide their submissions in writing, with LMUK invited to file their submissions first, HMRC to respond, and LMUK having an opportunity to file a reply.

14. Ms Sloane's submissions included the following:

18. Before addressing this issue in more detail, LMUK raises an important point of procedural fairness. It is right that the Tax Tribunal has its own rules of procedure and is able to raise points of its own motion. However, this remains subject to important qualifications of procedural fairness. The Supreme Court has recently criticised the Court of Appeal for embarking upon an inquisitorial function and has emphasised the fundamental importance of the parties clearly identifying the issues, so that each party has an opportunity to respond to points made by the other. See *Sainsbury's Supermarkets Ltd v Visa Europe Services LLC & Ors* [2020] UKSC 24:

242. In the adversarial system of litigation in this country, the task of the courts is to do justice between the parties in relation to the way in which they have framed and prosecuted their respective cases, rather than to carry out some wider inquisitorial function as a searcher after truth. In *Al-Medenni v Mars UK Ltd* [2005] EWCA Civ 1041, Dyson LJ observed (at para 21): "It is fundamental to our adversarial system of justice that the parties should clearly identify the issues that arise in the litigation, so that each has the opportunity of responding to the points made by the other. The function of the judge is to adjudicate on those issues alone." As Lord Wilberforce stated in *Air Canada v Secretary of State for Trade* [1983] 2 AC 394, 438:

"In a contest purely between one litigant and another ... the task of the court is to do, and be seen to be doing, justice between the parties ... There is no higher or additional duty to ascertain some independent truth. It often happens, from the imperfection of evidence, or the withholding of it, sometimes by the party in whose favour it would tell if presented, that an adjudication has to be made which is not, and is known not to be, the whole truth of the matter: yet if the decision has been in accordance with the available evidence and with the law, justice will have been fairly done."

19. Similarly, in *Satyam Enterprises Ltd v Burton & Anor* [2021] EWCA Civ 287, the Court of Appeal has very recently highlighted the difference between adversarial and inquisitorial systems, as well as the fundamental importance of the parties knowing the issues which need to be addressed in evidence and submissions (see paragraphs 33 to 39).

20. Although particular considerations arise in the Tax Tribunal, the fundamental importance of those considerations remains. In this instance, LMUK is not being asked to address a formulated point, nor one which has formed the basis of HMRC's decision. The Tribunal is inquiring about other possible characterisations which have not been formulated. LMUK cannot address a case which has not been formulated. LMUK will do its best in the circumstances to assist the Tribunal but must reserve its position on the legitimacy of the Tribunal engaging in this form of inquiry (including, for example, where it would necessitate further evidence) pending whatever case is put forward by HMRC.

15. Mr Puzey, in reply, said the following:

15. The Appellant has cautioned the Tribunal against inquiring into "other possible characterisations which have not been formulated" (AS §20), relying upon authority from the Supreme Court and Court of Appeal in the civil jurisdiction. On the point of principle, the Respondents say that the Tribunal is not precluded from considering other possible characterisations that have not been relied upon by the parties provided procedural fairness is observed and there is a proper evidential foundation for any conclusions drawn (*General Motors (UK) Ltd v HMRC* [2016] STC 965 at 67-70). The Tribunal, by its questions, is giving the parties an opportunity to make submissions on alternative possibilities and is entitled to do so.

16. LMUK did not make any application to adduce further evidence.

17. There exists a

venerable principle of tax law to the general effect that there is a public interest in taxpayers paying the correct amount of tax.

This principle was upheld by Lord Walker in the Supreme Court in *Tower MCashback LLP and another v Revenue and Customs Commissioners* [2011] STC 1143 at [15], approving Henderson J's statement to this effect in the High Court (this decision was not cited to us). The *General Motors* appeal is an example of the Tribunal applying that venerable principle.

18. Tax appeals are fundamentally different to civil litigation in that the "pleadings" (being the Appellant's grounds set out in its Notice of Appeal and HMRC's Statement of Case) are only relevant to identify the facts that a taxpayer must establish (given that the burden of proof is usually on the taxpayer). The legislation then provides the framework and context within which the issues that the legislation raises on the facts must be answered, irrespective of whether a particular point of law has been pleaded.

19. This places the Tax Chamber in a very different position from that of the civil courts. Unlike litigation between private parties, such as in the cases cited by Ms Sloane, tax appeals before this chamber are not "a contest purely between one litigant and another", given the wider public interest in taxpayers paying the correct amount of tax.

20. We also note that the Tribunal's procedure rules give much greater flexibility to the conduct of appeals before this Tribunal than the Civil Procedure Rules give to civil litigation before the courts. The theme running through the Tribunal's procedure rules is that it should be flexible, utilise its specialist expertise, not be overly tied down by procedure, and adopt an active approach if this is justified by the overriding objective. In particular, there is flexibility for the Tribunal panel to adopt an inquisitorial role in appropriate circumstances.

21. We agree with Mr Puzey, and find, that we are not precluded from considering possible legal characterisations that have not been put forward by the parties. Indeed, the possibility that the Tribunal may reach a decision on a basis other than one put forward by the parties is

expressly contemplated by the Tribunal's rules, as Rule 34 empowers the Tribunal to make consent orders disposing of proceedings to which the parties have agreed, "but only if it considers it appropriate".

22. Of course, procedural fairness must be observed, and our conclusions must be properly based on the evidence. But, by giving the parties the opportunity to make submissions on the questions we have raised, we have ensured procedural fairness.

23. Alternatively, as the burden of proof falls on LMUK to displace HMRC's assessment, it is always open to us to find that LMUK have not satisfied the burden of proof – without necessarily making any finding as to whether we agreed with HMRC's legal characterisation of the transactions under appeal.

24. We have therefore taken into account in this decision the written submissions made by the parties on the two questions that we put to them.

25. We would make one further observation. In her skeleton argument, Ms Sloane introduced for the first time the argument that the changes being made to the aircraft could be characterised as a "conversion" (as distinct from being a "modification"). Mr Puzey objected to this point being raised, as it had not previously been raised in LMUK's grounds of appeal and HMRC did not have an opportunity to respond to this argument in their Statement of Case. Implicit in his objection is that LMUK should have applied to amend their grounds of appeal. We consider that Mr Puzey's objection is the "other side of the coin" to Ms Sloane's objection to the Tribunal raising issues that had not been canvassed in the pleadings of the parties. Mr Puzey was not "ambushed" by Ms Sloane's submissions on this point and could (and did) address them in the course of his submissions. We therefore find that no procedural unfairness occurred, and that it was appropriate for the Tribunal to consider her submissions on "conversion". For completeness, we state that if LMUK had made an application at the hearing to amend their grounds of appeal to include the possibility of LMUK's supply being a "conversion", we would have agreed to it.

## **BACKGROUND FACTS**

### **Airborne surveillance and control ("ASaC") capability**

26. An ASaC capability is a system which the Royal Navy uses to detect and localise threats on sea and on land, with a particular focus on identifying and warning a maritime task force of any low-flying enemy aircraft or missiles.

27. The Royal Navy's legacy ASaC capability was developed and delivered in a rush in 1982 when its need became apparent during the Falkland War – and Thorn EMI's Searchwater LAST radar system was retro-fitted to Royal Navy Sea King HAS2 helicopters.

28. Thales are the successor to Thorn EMI, who were the manufacturer of the Searchwater ASaC system fitted to the Sea King helicopters in 1982. This system was upgraded and improved over time, and there was a major upgrade to this system in 2000 (under the SKASaC Mk7 programme), which used Thales' Searchwater 2000 radar. The legacy Thales ASaC mission system (which incorporated the Searchwater 2000 radar) was called Cerberus.

29. The Sea King's radar was distinctive because its radar dishes were housed in a protective inflatable radome on a swivel arm. This allowed the radome to be lowered so it was below the aircraft when in flight but raised for take-off and landing.

30. When the existing Sea King helicopters were coming to the end of their operational life, the MoD identified a need to acquire a replacement ASaC capability.

## **Merlin Mk2 and use of “role-fit kits”**

31. LMUK had previously carried out the Merlin Capability Support Programme (“MCSP”) under which they had modified 30 of the Royal Navy’s Merlin Mk1 helicopters to produce the Merlin Mk2. Leonardo MW Limited (“Leonardo”) are the successor to AugustaWestland Limited and are the manufacturer of the Merlin Mk2 airframe.

32. MCSP enables the Merlin Mk2 to operate in ten different roles through its ability to be reconfigured, depending upon the requirements of the Royal Navy at any given time. The roles of the Merlin Mk2 include anti-submarine warfare (“ASW”), anti-surface warfare (“ASuW”), casualty evacuation, maritime counter terrorism, counter-narcotics, troop transport, and cargo carrying. Merlin Mk2 aircraft are configured for their different roles by the addition and removal of role-specific equipment known as “role-fit kits”. Depending on the role the aircraft is taking for a particular mission, the aircraft is configured by installing the relevant role-fit kit on the aircraft. If the aircraft needs to be configured for a different role, the current role-fit kit is uninstalled, and replaced by a different role-fit kit.

33. The need for removable role-fit kits arises because the Merlin Mk2 could not operate if it held all the elements of all the role systems at all times, because (a) it would be far too heavy to take off (all aircraft have a maximum weight at which they can take off), and (b) there would not be sufficient space (e.g. if seats are fitted in the back of the aircraft for troop transport, then there would be no room for cargo transport).

34. In addition, a major design criterion is to minimise the weight of the equipment on an aircraft, in order to maximise the time that the aircraft can remain in the air before needing to be refuelled. Removing equipment that is not necessary for a particular role contributes to the minimisation of the aircraft’s weight.

## **CADMID procurement cycle**

35. All of the MoD’s projects have to go through a CADMID procurement cycle. CADMID stands for Concept, Assessment, Demonstration, Manufacture, In-Service and Disposal. The CADMID acquisition cycle was designed to encourage the MoD to procure off-the-shelf equipment, and the terms used within it, most obviously those of “Demonstration” and “Manufacture” reflect that objective. Although the CADMID cycle has to be adapted for procuring bespoke systems, the same terminology continues to be used for the different phases in the procurement cycle for bespoke systems.

36. At the Concept phase, the MoD are required to identify and define what their needs are, and to identify the lines of inquiry for how those needs might be met. The concept is identified with a Single Statement of User Need (“SSUN”).

37. The MoD prepares a User Requirements Document (“URD”) which is a high-level statement of need that addresses the requirement that the user (in the case of Crowsnest, the Task Group Commander) requires the capability to deliver. It covers the full range of “Defence Lines of Development” (“DLOD”) needs. These are all the components that must come together to deliver an effective military capability – including the equipment, personnel, training, infrastructure, doctrine, organisation, information, and logistics.

38. The System Requirement Document (“SRD”) is developed from the URD and its equipment DLOD. The SRD provides a detailed specification for the system being procured. In the case of the Crowsnest project, the SRD set out the required ASaC capability of the Crowsnest systems.

39. An SRD does not specify how the supplier is to achieve the specified capability – what is important to the MoD is that the system delivers the capability to the standards set out in the



SRD, not the components used by the supplier to achieve that capability. So, for example, the Crowsnest SRD provides that the system:

shall be capable of clear and secure intelligible voice communication at [frequency] of at least [number] nautical miles beyond line-of-sight, subject to environmental conditions.

Neither the SRD nor the URD define which elements of the system should be used to meet this requirement, rather the supplier is able to determine whether this requirement is best met by doing nothing (if the Merlin Mk2 already has this capability), by upgrading existing equipment, or integrating new equipment (whether as part of the permanent airframe or within the role-fit kit).

40. Mr McDermott's evidence encapsulated the approach adopted by the MoD as follows:

In an engineering or systems engineering context, the very first thing you start with is the statement of the user's requirement. The "user", in this case the Royal Navy, has no expertise [...] in the engineering and solution of that space. Many, many years ago MoD used to employ vast numbers of people to write very detailed specifications, spend years doing that, hand them to industry and then industry would deliver exactly what we had asked for, but it was 10 years out of date. So, at least 20 or in fact more than 20 years ago, the MoD moved away from that as a procurement model and adopted a more what is referred to as a "systems engineering" approach, where the user, the URD (the User Requirement Document) is written, which sets out what the user - and in the Navy's case is Task Force Commander, so whoever is running the task group with a carrier and all the ships - what he wants from his capability in order to deliver. In this case it is provide situational awareness of the airborne airspace and to detect and identify potential threats and then to be able to communicate that. The URD is disaggregated down to the SRD for the equipment element of that overall capability.

[...]

As I said the SRD is a composition of the high-level statements in the URD down into system requirements and then industry take that and it becomes our contracting boundary. Industry take that SRD and as they evolve the design, they develop the system specification. Then as they apportion elements of the functionality of the system out to the various subsystems, there are then subsystem specifications and they are used to then contract with whoever is responsible for those particular subsystems, whether it is internally Lockheed Martin or Thales or Leonardo. They, in turn, will no doubt generate sub-subsystem specifications for the individual components within those systems. It is a Russian doll, if you like, of parts that are all come together to then meet that high level URD at the top. So, it is a decomposition to make things simpler to understand.

41. In the Assessment phases, of which there might be many, different lines of inquiry for meeting the SSUN, URD, and SRD are investigated in more detail, with the aim of identifying a single solution to take forwards. As part of the final Assessment phase, the solution that is selected must be presented for "Main Gate approval". Main Gate approval is a necessary step for a programme to move from Assessment to the subsequent stages in the CADMID cycle.

42. Where broadly off-the-shelf solutions can be found, under the Demonstration phase a supplier will demonstrate to the MoD that its existing equipment delivers the solution selected under the Assessment phase, potentially with some customisation, before moving into the Manufacture phase, where the supplier would produce the equipment.

43. Mr Morphett gave a hypothetical example of a programme with a SSUN of “a means of transporting small quantities of troops and/or equipment around a battlefield”. The initial Assessment phase might consider helicopters, walking, quad bikes, etc. before settling on a light 4x4 vehicle. A second Assessment phase might then source quotes from a number of different 4x4 motor vehicle manufacturers. The MoD would then proceed to “Main Gate” with an SRD and prices (probably having selected a preferred supplier). The Demonstration phase would then test-drive the potential vehicle, potentially with demonstrations of any custom modifications (e.g., radios, military lighting, etc.). In the Manufacture phase, the supplier of the chosen option would produce the number of vehicles needed.

44. Mr Morphett’s experience was that for complex programmes the MoD might contract with a single supplier for both the Demonstration and Manufacture phases of a project under a single contract. That supplier would take on the role of prime contractor and would have overall responsibility for owning a problem from start to finish, particularly in the case of projects which require the design and development of new systems, equipment, or products. In these cases, it is inefficient and impractical to require the Demonstration phase to be completed successfully before the Manufacturing phase begins. It may take many years for a supplier to design a solution (be it equipment, a system, software, etc.) and build and test one prototype for testing in the Demonstration phase. The risk is that by the time satisfactory testing of the prototype has been completed and the Manufacturing phase starts, parts might no longer be available, and the design needs to be revised, which would then require retesting. So instead, the MoD and industry take a risk and provide for manufacturing to begin while development is still underway.

45. In such cases, the design and development work essentially replaces the Demonstration phase, although the MoD continue to apply the Demonstration label to that work. Furthermore, although the term Manufacture could imply the production of goods to be supplied, that is not always the case, it might simply refer, for example, to the alteration of components or software in existing MoD equipment.

### **Crowsnest CADMID Procurement Cycle**

46. The objective of the Crowsnest project is to provide the Royal Navy with a successor ASaC capability to their legacy systems. Within the Concept phase of the CADMID procurement cycle, the MoD identified the SSUN as follows:

A Surveillance and Battle Management capability, within a Joint/coalition networked environment, to enhance the delivery of effects from, and protection of, Carrier Strike and Littoral Manoeuvre; able to deploy world-wide and operate from sea or land.

47. As part of the Assessment phases of the CADMID procurement cycle, the MoD engaged various potential suppliers (including LMUK and Thales) to investigate a number of different ways of achieving the SSUN. At the earliest stages, potential solutions that were considered included options such as balloons, unmanned aircraft, and fixed wing aircraft, as well as helicopters.

48. During Assessment Phase 2 (“AP2”) LMUK worked on a potential solution which would have involved building and delivering new Merlin aircraft that would be dedicated solely to the ASaC role.

49. In addition to the solution of new dedicated Merlin helicopters, LMUK also undertook some preliminary work on the feasibility of utilising the existing fleet of Merlin Mk2 for ASaC capability, as LMUK had already designed the Merlin Mk2 under MCSP to be re-configurable.

50. Mr Morphett's evidence was that if there had been a way of modifying the Merlin Mk2 to deliver the ASaC capability without adding weight or bulk, there would have been no need to utilise role-fit kits. But Mr Morphett's team were not aware of any way of modifying the Merlin Mk2 to deliver a further (ASaC) capability without adding weight and bulk to the aircraft, so they knew that their design would need to allow for as much of that weight and the bulk of the equipment to be removed (through the use of role-fit kits) when the Merlin Mk2 was not being deployed in an ASaC role.

### **Assessment Phase 3 ("AP3")**

51. The MoD liked the idea of using role-fit kits on the existing Merlin Mk2 to deliver the Crowsnest capability, not least because this would mean that they would not have to pay for new aircraft. If the MoD had opted for a solution which required the introduction of new aircraft, that would have also required the introduction of support infrastructure for the new aircraft (both ashore and afloat) which would have had knock-on implications for aircraft carrier design, personnel numbers, logistics, infrastructure, and training – all of which would have added to the overall costs.

52. At some point Thales became aware of the possibility of role-fitting the existing Merlin Mk2 and asked the MoD for an opportunity to bid into such a programme. The MoD scoped AP3 on the assumption that the Crowsnest capability would be developed utilising the existing Merlin Mk2, with sub-systems of that capability being "role-fittable".

53. Only LMUK and Thales were taken forward into AP3.

54. During the previous Assessment phases, the MoD had carried out various scenario modelling exercises to determine (i) how many of the Crowsnest modified Merlin Mk2 might be available at any one time (because, for example, some would be out of action whilst undergoing maintenance), and (ii) in what combination of roles the Task Group Commander would need those available aircraft to operate (e.g. in scenario A, there might be 20 Merlin Mk2 available for use and the Task Group Commander might need eight in an ASW role, eight in an ASaC role, and four in an ASuW role). These modelling exercises showed that there was a need for a maximum of ten aircraft to be used in the ASaC role for any given scenario. Therefore, the MoD were able to minimise costs by specifying, both during AP3 and in drafting the contract between LMUK and the MoD dated 16 November 2016 ("the Prime Contract"), that they would only need ten of whatever elements of the ASaC system design ended up in the role-fit kits. However, the entire fleet of Merlin Mk2 would need to be adapted to be able to accept the role-fit kits. This can be seen from the URD as follows:

#### **1.2 Procurement Context**

[...]

1.2.3 The core programme assertions for Crowsnest are as follows:

- a. Ten role-fit kits will be procured.
- b. All thirty Merlin Mk2 aircraft will be modified to be 'fit to receive' the Crowsnest role-fit equipment. The Mk2 will expand its multi-role capabilities, adding ASaC.
- c. The programme will comprise an AP3 running from Q1 2013 to Main Gate in Q1 2016.
- d. The AP3 and subsequent Design and Manufacture (D&M) projects are to be run by Lockheed Martin UKIS as the Prime Contractor and Design Organisation (DO) for the Merlin Mk2.

e. An AP3 competition will be run at the Crowsnest Mission System (CMS) level between competing solutions being offered by two potential MSS's [Mission System Suppliers]: Thales UK and Lockheed Martin (the latter as a separate team from the LM(P) team).

f. Each MSS will conduct an initial radar source selection to down-select its preferred radar solution.

g. Each MSS will conduct de-risking Technology Demonstration Programmes (TDP) during AP3 to develop their solutions to a satisfactory Technology Readiness Level/System Readiness Level maturity in order to enable achievement of Main Gate.

[...]

## **1.7 Assumptions and Dependencies**

1.7.1 Derived from the Crowsnest Concept of Employment (CONEMP) document (Ref. A), the following assumptions have been made in the development of this URD;

a. ISD [In Service Date] is defined as [redacted figure] Crowsnest role kits and [redacted figure] factory trained crews with associated maintainers ready to commence Operational Conversion Unit (OCU) training.

b. IOC [Initial Operational Capability] is defined as ISD plus a deployable element of [redacted figure] additional role kits, [redacted figure] frontline crews and associated logistic support/manpower, plus an Operational Evaluation Unit (OEU) of [redacted figure] role kit and [redacted figure] crews.

c. FOC [Full Operational Capability] is defined as ISD plus [redacted figure] deployable role kits, [redacted figure] frontline crews and associated logistics support/manpower, plus an OEU of [redacted figure] role kit and [redacted figure] crews.

d. Subject to confirmation of the Future Merlin Force structure, the combined OCU will have between [redacted figure] and [redacted figure] aircraft, from a total forward fleet of [redacted figure]. All Merlin Mk2 airframes will be capable of receiving the Crowsnest role equipment. Mission system support will be required for [redacted figure] Crowsnest flying lines.

e. The Force Structure will provide [redacted figure] Crowsnest Force Elements at Readiness (FE@R) embarked to support the RFTG [Response Force Task Group], and the combined OEU will include Crowsnest qualified personnel.

55. In his evidence Mr Morphett gave as an analogy for role-fit kits, Francisco Scaramanga's car in the James Bond film "The Man with the Golden Gun". As this is a 1974 film, the analogy might perhaps need some explanation for "younger" readers (sadly, the Tribunal panel are old enough to have remembered the film from when it was first released). A detachable module, comprising wings and a jet engine, was attached to the roof of the villain's car, transforming it into a light aeroplane. The dashboard rotates from the standard "car" version, replacing the "car" face (speedometers, fuel gauges, etc.) with second face with altimeters and aircraft cockpit instruments. Mr Morphett's evidence was that the role-fit kit would be analogous to the wings and jet engine, which could be attached and removed from the body of a car as required. Those wings are useless on a stand-alone basis: they cannot fly in and of themselves, nor are they able to be used to make any vehicle other than Scaramanga's car (which has been

specially adapted to be able to take them) fly. It is not the wings and jet engine that create the capacity for flight, but the overall system, of which both (a) the wing and jet engine module, and (b) the specially adapted car, are part. The permanent elements of the overall flight system are evident not only from the capacity to permit the wings and engine to be integrated, but also from the sub-systems such as the dashboard, which is permanently installed in the car body, but its aeroplane face is neither visible nor used when not required. Similarly, the modification of the Merlin Mk2 is designed as an overall system, where the role-fit kits can be removed when not in use, but both the role-fit kits and the permanent modifications to the baseline aircraft each perform sub-sets of the tasks which, together form the Crowsnest capability.

56. LMUK are the appointed Coordinating Design Organisation for the Merlin Mk2 for Military Aviation Authority (“MAA”) regulatory purposes. As such, they have responsible for maintaining the certification and airworthiness of the aircraft design. Because of their previous work on the Merlin Mk2, they were also best placed to understand how the new ASaC capability could be integrated into the Merlin Mk2 without adversely affecting its existing roles. In consequence, the MoD had no practical option but to appoint LMUK as the prime contractor to the MoD, irrespective of the ASaC solution eventually chosen. Any approach other than having LMUK as the prime contractor would have constituted an unacceptable airworthiness risk by trying to construct a programme involving the re-design of the Merlin Mk2 while having anyone other than LMUK holding overall responsibility for the programme. In any event, quite apart from the regulatory constraints, LMUK would have been the MoD’s first choice of prime contractor because their knowledge of the Merlin Mk2 meant they were best placed to oversee all the various sub-contractor workstreams.

57. LMUK were required by the MoD to “firewall” the team developing the ASaC system (“LMUK MSS”) from the team responsible for the overall Merlin Mk2 programme (“LMUK Prime”). LMUK Prime were engaged by the MoD under AP3 to undertake further investigation of both Thales’ and LMUK MSS’s ASaC solutions.

58. Under AP3, LMUK Prime considered the existing sub-systems already installed on the Merlin Mk2 and identified (a) those which were already capable of meeting the Crowsnest specification, (b) those which could meet the specification with changes, and (c) the extent to which new sub-systems would need to be procured. These requirements were called the “Crowsnest Mission System” (“CMS”). While the full set of CMS requirements were determined by LMUK Prime under AP3, LMUK had already identified during AP2 that there would be some CMS requirements that would fall into category (c), including (but not limited to) the radar sub-system.

59. Mr Morphett was questioned about these three categories, and he explained that for the purposes of his witness statement he had simplified the analysis that had been recorded in an electronic system specification document. This was a database of all the technical design information, which traced from the customer requirements through to lower-level design specifications (including information provided by LMUK’s suppliers). Mr Morphett described this as a very large document, and if printed would be “hundreds if not thousands” of pages long.

60. Once the CMS requirements had been fully specified, LMUK Prime were required under their AP3 contract with the MoD to run a competition between LMUK MSS and Thales for the supply of those elements of the CMS that needed to be provided by new sub-systems, or by changes to existing sub-systems. The terms of the competition did not mandate the form the solution should take. Rather, they defined the loose boundaries of the requirements that had to be met, what could not be altered on the Merlin Mk2, and what might be able to be modified in meeting them.

61. Mr Morphett's evidence in his witness statement was that

the terms of the competition did not require the solution to take the form of role-fit kits, but the bidders were scored on price and understood that any elements of their solution designed to be role-fit would only need to be provided in ten sets, rather than thirty. So, maximising the role-fit kit elements would enable them to reduce their price proposals.

62. The two competing solutions were very different.

63. Thales' solution relied on their ability to salvage and reuse some equipment from the retiring Sea King fleet (most notably, the radar dishes), so as part of preparing their competition proposal, the MoD agreed to make their old Sea King equipment available to Thales as "government furnished equipment" ("GFE") should Thales' CMS solution be selected. However, the MoD took no responsibility for the condition and usability of that equipment. There were 23 Sea Kings, and Thales considered that there would be enough refurbishable radar equipment from the 23 Sea King fleet to be able to make ten sets for Crowsnest. In contrast, LMUK MSS's solution for the AP3 competition used four ELTA radars (two on each side of the aircraft - LMUK MSS had initially intended to use two Northrop Grumman radars (one on each side) but they "changed horses" and went with ELTA for AP3).

64. LMUK MSS's solution relied more heavily on being able to use the Merlin Mk2's existing computer systems than did Thales'. Originally Thales envisaged that a separate computer would be included in the role-fit kit, but Thales subsequently decided that the existing computer systems in the Merlin Mk2 could be used for some of the ASaC capability.

65. Although the MoD were involved in the scoring and the selection committees for the competition, the ultimate decision as to which system to take to Main Gate approval was LMUK Prime's. In February 2015, LMUK Prime chose the Thales solution, mainly because of its lower cost.

66. Separately from running the CMS competition, LMUK Prime's work under AP3 included (a) work relating to the radio systems required to enable the Merlin Mk2, whilst engaged in its ASaC role, to communicate with other aircraft and their base (including how the communications systems would be integrated into the aircraft's systems and the CMS, and where they would be installed into the airframe), (b) conducting a training needs analysis, and (c) determining the changes required to the permanent Merlin Mk2 systems (which was necessarily collaborative with the design work undertaken by Thales and LMUK MSS).

67. As part of the Assessment phases of the procurement cycle the SRD was periodically revised, and final revisions were made as part of AP3. "Issue 5" of the SRD became the "contractual SRD" which formed Annex B of the MoD's eventual contract with LMUK for the provision of the Crowsnest systems. Mr McDermott's evidence was that the SRD was drafted to ensure that, however the ASaC capability would be designed, LMUK delivered it as a fully operational and supported system, rather than simply a set of separate sub-systems. It was a challenge to be precise about something yet to be designed, and his evidence was that Annex A to the Prime Contract should be interpreted in that context.

### **Regulatory Requirements**

68. The MAA are responsible for safety and airworthiness of military aircraft, including the Royal Navy's fleet of Merlin Mk2 helicopters. The MAA's regulatory framework addresses all aspects of airworthiness, from design through to management of aircraft in service, including modifications. Regulatory Articles ("RAs") published by the MAA require contractors to be assessed as competent in order to perform certain activities – such as the design of aviation systems.

69. LMUK had been appointed as the “Coordinating Design Organisation” for the Merlin Mk2, and as such, have regulatory responsibility to maintain the certification and airworthiness of the Merlin Mk2 design, including any changes to its design.

70. The MAA require that all changes to aircraft coming within its regulatory scope must be subject to the Military Air Systems Certification Process (“MASCP”) and certified for safety and airworthiness. The nature of the certification process depends on whether the change is classified as being major or minor. RA 5820 (“Changes in Type Design”) summarises these as follows:

1. A change that has no appreciable effect on the mass, balance, structural strength, operational characteristics affecting the Airworthiness of the Air System should be classified as a Minor Change.
2. All other changes should be classified as a Major Change.

71. Major changes are subject to a full MASCP concluding with the MAA either “up-issuing” the Military Type Certificate for the aircraft or issuing an “Approved Design Change Certificate”. Mr Morphett’s evidence was that this was an onerous process, as the aircraft essentially goes through the same testing and proving process as if it were “brand new” and designed and built from scratch.

72. Minor changes go through a tailored MASCP concluding with the designated design organisation (LMUK for Merlin Mk2) issuing a statement of type design assurance.

73. LMUK agreed with the MAA that the Crowsnest project could be divided into three strands for regulatory approval purposes. These are (i) the fixed fitting work carried out on the base airframe by Leonardo, including re-wiring and other mechanical changes; (ii) software changes to the Merlin Mk2’s on-board computers; and (iii) the fully integrated new ASaC configuration of the aircraft. The MAA agreed that the fixed fittings and on-board software changes could be classified as a minor change and so have a less onerous proving process to demonstrate their safety. However, the ASaC system, as a fully integrated configuration of the Merlin Mk2, was classified as a major change. As such, LMUK need to prove the safety of every element of that system as if it were a new aircraft.

74. Because some of the components of the CMS have been salvaged from the legacy Sea King system, they were never approved to modern airworthiness regulatory requirements. Mr Morphett’s evidence was that this does not mean that these components are unsafe or unairworthy, but rather that their safety and airworthiness have to be “bridged” to current standards.

### **Crowsnest Contracts**

75. On 20 October 2015, LMUK Prime wrote to the MoD with a firm price proposal for the Crowsnest Demonstration and Manufacture Phases. Their letter sets out the scope of work and deliverables. These are stated in paragraph 2.1 to include:

- A. Procurement, Integration and Test of the Crowsnest enhancements into the Merlin Mk2 product baseline.
- B. Delivery of ten (10) role-fit equipment sets, and associated ground support systems.
- C. Modification of thirty (30) Merlin Mk2 aircraft with Crowsnest permanent and ‘fit to receive’ modifications.
- D. Upgrade of the Merlin Training System (MTS) to incorporate the Crowsnest mission capability for Pilots, Observers and Maintainers training.
- E. Provision of IP spares for the above. – Excluded from this proposal

F. Support the Merlin Project Team (MPT) to achieve Release-To-Service (RTS) programme milestones.

G. In-Service Support of the modifications up to the point of handover to IMOS. Excluded from this proposal

H. Provide data to facilitate the transition of Crowsnest into the Integrated Merlin Operational Support (IMOS) programme.

I. Provision of a through-life system/software modification capability.-  
Excluded from this proposal

76. The letter sets out the key sub-contractors to LMUK for the provision of the “D&M programme” as being:

- (1) Thales, for the supply of the CMS (including the role-fit kits) and factory-based training;
- (2) Leonardo, for the modification of the Merlin Mk2 airframes (including installation of a radio communication upgrade);
- (3) CAE Inc, for upgrading the existing Merlin Mk2 training system; and
- (4) Thales (under a separate subcontract with a separate division), for various other software updates.

77. Following correspondence and negotiations, LMUK entered into the Prime Contract, described as a contract for the “Demonstration and Manufacture (D&M) of a Merlin Crowsnest Capability”. The contract price is £269,441,473 (excluding any VAT).

78. A few days later, on 30 November 2016, LMUK entered into a subcontract with Thales for the supply of the CMS (“the Thales Subcontract”). The total contract price on the face of the subcontract (including spares) is £117,892,489 (ex VAT). Also included in the hearing bundle with the Thales subcontract is a “Project Description Sheet”, which is a Thales internal project governance document that describes their understanding of the Crowsnest project. This document states that the “Full D and M contract value including spares” is £124 million. The discrepancy between these two prices has not been explained to us. VAT was charged by Thales on the contract price, and it is not disputed that the consideration is subject to VAT at the standard rate.

79. LMUK also entered into subcontracts with Leonardo (under their previous name, AugustaWestland Limited – “the Leonardo Subcontract”) for modifications to the airframes of the Merlin Mk2, and with CAE Inc in relation to the training systems. Leonardo have not levied VAT on the price charged to LMUK on the basis that the consideration is zero rated under item 2, Group 8, Schedule 8, VAT Act. The zero-rating of Leonardo’s supplies to LMUK is not in dispute.

80. In addition to their subcontract with LMUK, Leonardo entered into a separate sub-subcontract with Thales for the provision of various components and services relating in particular to the attachment of the CMS to the airframe of the Merlin Mk2. Leonardo have not levied VAT on the price on the basis that the consideration is zero rated under item 2, Group 8, Schedule 8, VAT Act. The zero-rating of Leonardo’s supplies to Thales is not in dispute.

81. There is also a separate subcontract between Thales and LMUK relating to various software updates that are not material to this decision and are not discussed further.

### **LMUK’s Prime Contract**

82. The overall solution of an integrated ASaC system on a Merlin Mk2 had never been done before. Even though some of the elements that Thales decided to reuse as part of their design



may have been recovered from the old Sea King solution, the integrated Crowsnest capability that is being provided to the MoD was new. So, it would not be possible to demonstrate to the MoD a Merlin Mk2 fitted with a prototype Crowsnest role-fit kit at the start of the Prime Contract in accordance with the Demonstration phase of the CADMID procurement cycle. Rather, it was something that would need to be designed and developed based on the concept finalised in AP3.

83. The Prime Contract therefore provides for an initial production of a small number of Merlin Mk2 to deliver the Crowsnest capability, which would then be tested (and potentially modified if any tests are failed) before being subject to the acceptance processes normally associated with the CADMID Demonstration phase. Once the test Merlin Mk2s had passed acceptance, the production phase would commence with the rolling out of Crowsnest to the remainder of the fleet and the supply of the remaining role-fittable sub-systems (the Prime Contract provides that rate at which Crowsnest is rolled-out becomes faster over the life of the contract – presumably on the basis that in the later stages of the roll-out, the suppliers have become more experienced and faster at the processes).

84. The Prime Contract also encompasses ground support systems, training capability, spares, manuals and handbooks.

85. The Prime Contract does not specify how LMUK should adapt the Merlin Mk2 in order to achieve the Crowsnest capability, because that is not important to the MoD. Rather it specifies that the adapted Merlin Mk2 must deliver the Crowsnest capability to the standards described in the SRD.

86. Clause 3 of the Prime Contract requires LMUK to undertake the work specified in the Statement of Requirements in Annex A (“SOR”) and provide the deliverables set out in the Schedule of Deliverables in Annex E (“SOD”).

87. The SOR defines the Crowsnest programme as follows:

Serial	Object Type	Description	
1	Information		<p>The Crowsnest programme is to provide an Air Surveillance and Control (ASaC) role capability for the Royal Navy. The capability is to be delivered and integrated as a role fit Mission System to the existing Merlin Mk2 helicopter fleet.</p> <p>Key strategic MOD documents driving the requirements for the capability are:</p> <ul style="list-style-type: none"> <li>a) Crowsnest User Requirements Document (URD).</li> <li>b) Crowsnest Key User Requirements (KUR).</li> </ul>
2	Information		<p>The Crowsnest Mission System is required to conduct simultaneous Air, Land and Sea surveillance, and control aircraft via voice and digital means, as detailed in Annex B</p>

			(Systems Requirement Document) (SRD)).
[...]			
6	Requirement	Capability	The Crowsnest programme shall be delivered in accordance with Annex B (System Requirement Document (SRD)).

88. The Notes to paragraph 1 of the SOR state that the KUR are set out in Annex A to the URD.

89. The SOR goes on to specify the elements being supplied as follows:

Capability	Heading		
12	Requirement	Crowsnest Mission System	The Contractor shall supply in accordance with Annex E (Schedule of Deliverables): a) 10 (Ten) Crowsnest Role Fit Kits. b) 10 (Ten) Mission Planning Replay and Analysis Systems (MPRAS), plus 1 (one) training MPRAS. c) 30 (Thirty) Secure Loading Devices (SLDs).
13	Requirement	Merlin Mk2 Crowsnest Modification	The Contractor shall modify 30 (thirty) Merlin Mk2 aircraft with permanent system modifications and Fixed Fittings ready to receive a Crowsnest Mission System Role Fit Kit.
14	Requirement	Merlin Mk2 Spares	The Contractor shall ensure that all Merlin Mk2 spares affected by the Crowsnest Programme are modified to the required build standard.

90. Subsequent line items in the SOR deal with:

- (a) training (items 15-18);
- (b) flight trials, testing and acceptance (items 19-32);
- (c) safety and engineering (items 33-37); and
- (d) management and reporting (items 38 onwards)

91. The SRD had been amended during the course of the Assessment Phases. The final version (Issue 5) was issued on 11 November 2016 and formed Annex B of the Prime Contract. The introduction to the SRD includes the following as an overview of the project:

**Crowsnest Project Overview**

Crowsnest is the UK MoD equipment programme for the procurement of the system to replace and enhance the capability originally provided by the Sea King Mk7 airborne surveillance and control (SKASaC) platform. Crowsnest is delivered as role-fit mission system equipment integrated into the Merlin Mk2 and is designed to support both current and future fleet capabilities including the Queen Elizabeth Class aircraft carriers and Type 26 service combatant.

Lockheed Martin UK Ltd - Integrated Systems (LMUK IS) as the Crowsnest Prime Contractor and Merlin Mk2 Design Authority is responsible for the Crowsnest role-fit capability as a fully integrated upgrade to Merlin Mk2 system. Crowsnest includes:

- Incorporation of the Crowsnest enhancements into the Merlin MK2 product baseline
- Delivery of role-fit equipment sets
- Delivery of ground support systems
- Delivery of Aircraft Servicing and Support equipment (ASSE)
- Merlin Training System (MTS) update to incorporate the Crowsnest mission capability
- Delivery of spares provisioning data
- Delivery of technical publications
- Support to achieve Release-To-Service (RTS) programme milestones.

92. This Project Overview is repeated in the Thales Subcontract, and the evidence of both Mr Morphett and Mr McDermott was that this overview is common to all the contractual documents produced by LMUK relating to the project. Mr McDermott said

I think, firstly, that project overview appears in every single document that Lockheed Martin produce. It is part of the standard template boilerplate, if you like, for all of their documentation. Again, its intent is just to situate the reader. It is difficult to talk about equipment and modification, in terms of -- I say 'difficult'. Any modification will require some form of change. This particular programme, Crowsnest, is installing a new capability through a role-fit change. The use of the words 'role-fit' are purely there to again situate the reader that this is not a permanent fit to the Merlin Mk2 because that would then, effectively, put us back to the position of the Sea King Mk7 where you had an aircraft that was only fit for one role and no longer a multi-role platform. That again just emphasised that it is a role-fit to the Merlin Mk2 not a permanent fit.

Mr Morphett said that it was “just to make sure that we all are focussed on the same objectives in the programme”.

93. In the final version of the SRD, Paragraph 1.2 - System Overview, specifies that the ASaC capability is to be provided through the use of role-fit kits as follows:

### **1.2 System Overview**

The ASaC capability will be met by the fitting of ASaC role equipment to the Merlin Mk2. This will necessitate the fleet wide modification of the Merlin Mk2 as qualified under the Merlin Capability Sustainment Programme (MCSP) to be capable of receiving ASaC role equipment.

While configured to operate in the ASaC role, the Merlin Mk2 will not be required to perform the Anti Submarine Warfare (ASW), Anti Surface unit Warfare (ASuW) or Land mission capabilities previously defined under MCSP. Therefore the ASaC role fit modification of a Merlin Mk2 will involve both the addition of new ASaC specific equipment and removal of any equipment (such as Acoustic systems components) not required to support the ASaC capability.

94. Paragraph 1.5.1 – System Terminology - sets out various definitions used in the SRD together with a Venn diagram showing how the various definitions interact:

#### **1.5.1 System Terminology**

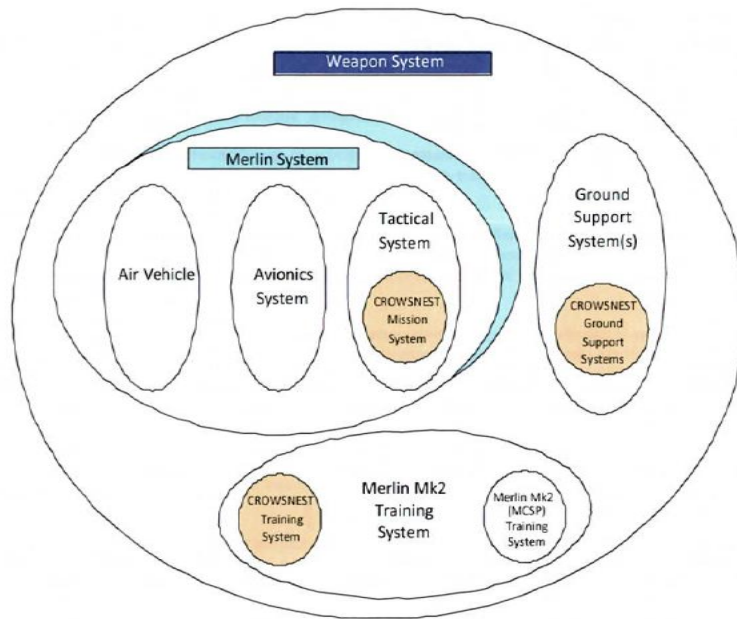
The **Weapon System** is the overall equipment scope, including the airborne component, the associated training system, the ground preparation and replay facilities, aircraft servicing and support equipment, and some formal integration/test facilities.

A **Merlin Mk2 (MCSP)** is the design standard of a single Merlin Mk2 aircraft, as qualified by industry at the end of the MCSP programme.

The **Merlin System** is the airborne component, i.e. the element which flies. It has three major functional segments: the **Air Vehicle** (the helicopter fuselage, rotables and services), the **Avionics System** (aviation, navigation and voice communication), and the **Tactical System** (mission computing and sensors, weapons and tactical data communications). In practice the Avionics and Tactical Systems are closely integrated with functions from both being available throughout the aircraft. In this specification, the CMS should be interpreted as the CMS when installed on a Merlin Mk2 and provided with aircraft services as required and agreed between LP(P) and the MSS during AP3.

The **Crownsnest Mission System (CMS)** is the set of modifications to provide the ASaC capability on Merlin Mk2. The CMS will form part of the Merlin Mk2 Tactical System.

The **Plan Position Indicator (PPI)** is the primary CMS display format used by the CMS operator to achieve tactical awareness and managing the ASaC role.



**Figure 1 - CROWSNEST Context Diagram Showing Weapon System Elements**

95. LMUK’s obligations under the Prime Contract includes delivering the equipment (namely the adapted Merlin Mk2 with associated role-fit kits and initial provisioning spares), and logistics DLODs specified in the URD. These are set out in the “Capability” section of the SOR as follows:

12	Requirement	Crowsnest Mission System	The Contractor shall supply in accordance with Annex E (Schedule of Deliverables): a) 10 (Ten) Crowsnest Role Fit Kits. b) 10 (Ten) Mission Planning Replay and Analysis Systems (MPRAS), plus 1 (one) training MPRAS. c) 30 (Thirty) Secure Loading Devices (SLDs).
13	Requirement	Merlin Mk2 Crowsnest Modification	The Contractor shall modify 30 (thirty) Merlin Mk2 aircraft with permanent system modifications and Fixed Fittings ready to receive a Crowsnest Mission System Role Fit Kit.
14	Requirement	Merlin Mk2 Spares	The Contractor shall ensure that all Merlin Mk2 spares affected by the Crowsnest Programme are modified to the required build standard.

96. Clause 13.1 sets out the process for acceptance of the various deliverables. The criteria for acceptance are set out in paragraph 2 of Annex E as follows:

**Acceptance**

2. The process for acceptance of each item is described in Contract Clause 13.1 (Contract Acceptance). The relevant criteria to be used is stated for

each item, using Table 2 to determine the applicable Contract Clause 13.1 acceptance criteria.

**Annex E – Table 2 – Acceptance Criteria Key**

<b>Contract Clause 13.1 Item</b>	<b>Ref</b>
Design Review Acceptance	A
Merlin Mk2 modified to receive, and fitted with, Crowsnest role-fit mission system Acceptance - Proof of Compliance	B
Merlin Mk2 modified to receive, and fitted with, Crowsnest role-fit mission system Production Acceptance	C
Document Acceptance identified as Contract Deliverables	D
Training System Proof of Compliance	E
Training System Acceptance	F

97. Table 3 in Annex E has 28 line items, stating in each case a description of the deliverable, the quantity and due date, and the acceptance criteria.

98. Of these line items, five deliverables fall under the heading “Modified Merlin Mk2 ‘Fitted for but not with’” and are described as:

Merlin Mk2 aircraft modified with permanent system modifications and fixed fittings ready to receive a Crowsnest Mission System role-fit kit for RN use.

To meet the requirements as specified in Annex B (SRD).

The level of system capability required at each milestone, broken down in a functional context, is defined in the Capability Milestone document (WC 8008744).

These five deliverables relate to the factory modifications to the 30 aircraft in the fleet, which are to be delivered in phases in five stages.

99. Four of the deliverables are within the heading “Crowsnest Mission System Role Fit Kit”. These are described as:

Including three Secure loading Devices (SLD) for each new kit.

To meet the requirements as specified in Annex B (SRD).

The level of system capability required at each milestone, broken down in a functional context, is defined in the Capability Milestone document (WC 8008744).

These four deliverables relate to the supply of the role fit kits, which are to be delivered in four stages.

100. The remaining line items relate to the delivery of documentation, training, training devices and materials, and the MPRAS.

101. The “Training” section of the SOR sets out the training DLODs. This includes the provision of an upgrade to the existing

Merlin Mk2 Training Facility (MTF), to enable the training of the Crowsnest mission capability for pilots and observers in accordance with Annex B (Systems Requirement Document (SRD)).

102. Clause 29 of the Prime Contract deals with the provision of the legacy Sea King ASaC equipment to Thales (Annex W, which lists the legacy equipment, was not included in the bundles). Clause 29.1.1 provides (amongst other things) that title in the Sea King ASaC equipment remains with the MoD at all times.

103. In order to manage their obligations under the Prime Contract, LMUK “disaggregated” the SRD into a series of systems, sub-systems, and sub-sub-system requirements. This is standard systems engineering practice, allowing the complex to be decomposed into lower level, more easily understood requirements - forming a system of systems. Mr Morphett’s evidence was that this process could be viewed as being like an onion, with the layers of the total programme being peeled back to reveal the design, development, and testing of the different systems, work performed on the airframe, work carried out on the computing systems, integration of new equipment, updating manuals, and delivery of training systems.

104. Mr Morphett categorised the work carried out under the Prime Contract as falling into five stages (although these stages are not necessarily separate or sequential):

- (a) design and development of the changes required to the Merlin Mk2 to fulfil Crowsnest capability, which includes both the design of the sub-systems required to deliver an ASaC capability as well as the re-design, to the extent necessary, of any other sub-systems to ensure that the aircraft’s pre-existing roles are not compromised by the installation of the ASaC capability;
- (b) integrate the Crowsnest capability and test against performance requirements;
- (c) obtain full MAA certification and re-certification of the Merlin Mk2 with Crowsnest capability;
- (d) install, test, and re-certify each of the Merlin Mk2 aircraft in the fleet (in practice, because of the delays to the programme, this stage has had to be modified); and
- (e) modify wider Merlin Mk2 infrastructure (much of this work is carried out alongside the design, development, testing and integration of the primary aircraft modification). “Infrastructure” refers to everything that the Merlin Mk2 needs to perform its roles, but which are not installed on the airframe, including the updated operating and maintenance publications, training facilities to ensure that the crew can properly operate the aircraft and its new capabilities, and ground support.

105. The data link communication sub-system was procured by the MoD and provided to LMUK as GFE for LMUK to incorporate into its overall design.

106. Teams within LMUK are responsible for the re-design and changes to a number of the sub-systems which utilise elements of the Merlin Mk2’s permanent systems. An example of the sub-systems being redesigned directly by an LMUK team is the upgrading of the Merlin Mk2’s on-board computers to perform some of the tasks of the ASaC capability. These upgrades are required to enable data from the airframe and its various permanent sensors to feed into the CMS; to provide the controls of the CMS; to display CMS information around the aircraft; and to ensure that the critical safety and security aspects of the capability’s functionality are properly aligned to the base Merlin Mk2 (e.g. safety alerts generated by all systems, existing and new, must be presented to the crew in exactly the same way).

107. On 11 February 2019, LMUK gave a presentation to HMRC about the status of the Crowsnest project, and the slide deck from that presentation was included in the bundle. The slides state that the first Merlin Mk2 entered the factory in November 2017 for a 57-week

conversion programme which was scheduled to have been completed by December 2018. The programme envisaged that the conversion time would reduce to 13 weeks by the time the production run finished. The slides state that the cost per aircraft of fixed fittings only was £1m. Actually, as at February 2019 (when the presentation was given), that first aircraft was still in the factory. And the reality is that work under the Prime Contract is, according to Mr McDermott “woefully undelivered against the planned schedule” and is currently about two-and-a-half years behind schedule. Mr McDermott’s evidence was that following an internal audit undertaken by Thales France, it became clear to the MoD in January 2019 that Thales had

completely lost control of the engineering design solution and its whole development programme

and their report exposed a

whole raft of issues of both programme management and engineering management.

108. Whilst it is no part of our remit to determine how and why these delays occurred, we find that there must have been a lack of communication between the various teams working on the Crowsnest project – not least communications between the teams at Thales on the one hand, and those at LMUK on the other.

109. As at the date of the hearing, the Crowsnest capability is not role-fittable – as it cannot be readily installed and removed by Royal Navy personnel in a naval environment. Rather, the Crowsnest equipment can only be installed and removed in a factory setting. For the purposes of HMS Queen Elizabeth’s first operational deployment in 2021, three Merlin Mk2 have been equipped with “factory fitted” Crowsnest capability and form part of the carrier strike group.

110. There is considerable inter-dependence between the various sub-systems, and problems and delays arising with one set of sub-systems have knock-on effects to the other sub-systems. So, to take one example, delays in the development of Thales’ software has an impact on LMUK’s re-design of the Merlin Mk2’s on-board computers (as it is not possible to integrate the CMS’s interaction with the on-board computers until the CMS software is fully defined). This also has an impact on CAE Inc’s training system, as the training system cannot be updated while the design of the CMS has not been finalised.

**The Thales Subcontract**

111. LMUK entered into the Thales Subcontract with Thales. The copy of the contract included in the hearing bundle is unsigned but is dated 30 November 2016 in the signature block for the LMUK signatory. It is not disputed that it is an accurate copy of the contract as signed and in force.

112. The Thales Subcontract requires Thales to provide the deliverables set out in Annex A. Annex A is titled “Schedule of Deliverables (SoD)”. As mentioned above, the first section of the Schedule of Deliverables is the Crowsnest Project Overview, which is drafted in substantially the same terms as the Project Overview included in the SRD.

113. The ex-VAT price payable by LMUK is stated in the contract as follows:

Item No.	Description	Price £ (Ex-VAT)
001	Work provided under ITP Reference 8020917	£28,000,000
002	Provide the services and documentation in accordance with the Statement of Work at Annex A to this Contract. Scope of supply to cover ALL remaining	£81,879,446



SoW/SoD elements not covered by SOR Item 002 in accordance with the Delivery Schedule at Annex F

003 IP Spares in accordance with Annex H

£8,013,043

114. The total ex-VAT price is therefore £117,892,489.

115. On 9 September 2019, with the agreement of LMUK, HMRC issued a third-party information notice to Thales pursuant to paragraph 2, Schedule 36, Finance Act 2008. As HMRC rely on Thales' answers to the questions in their notice, we set out below HMRC's questions and Thales' answers in full:

**Response to information notice request to provide information or documents, dated 9 September 2019**

**Thales Subcontract from Lockheed Martin for the Demonstration and Manufacture of the Crowsnest Mission System**

*A description of work carried out by Thales UK Ltd.*

Thales is required to design and supply a Crowsnest Mission System (CMS) that is to be used (as role kit (i.e. removable)) on Merlin Mk2 helicopters. Thales is obliged to follow a design process (including Preliminary and Critical Design reviews (PDR and CDR)) to establish a design baseline that ensures the contracted specification for the Mission System can be achieved. The design baseline also enables Thales to establish the bill of material for the production role kit.

The main supply under the subcontract is ten production role kits. However, Thales is also contracted to supply training devices, technical publications and initial spares. Where possible, Thales will reuse/refurbish Government furnished equipment (GFE) from the Sea King radar and incorporate it in the Crowsnest Mission System role kits.

*A breakdown/schedule of the supplies made by Thales UK Ltd and the related costings.*

- 10 role kits
- 1 Functional System Integration Rig (FSIR)
- 6 Mission Planning Replay and Analysis Systems (MPRAS)
- Aircraft Servicing and Support Equipment (ASSE)
- Regulatory documentation associated with the above (e.g. Form 100As)
- Project management documentation
- Technical publications
- Computer-Based Training
- ASaC Mission Trainer
- Crowsnest Mission System Training (CMST)
- Spares (initial provisioning).

A series of software releases are to be developed by Thales and these will be installed in the CMS role kits to incrementally add functional capability.

Hardware represents approximately 55% of the total value of the contract and software development 25%.

*We are aware that some Government funded equipment (GFE) was provided by the Ministry of Defence (MOD) for the Crowsnest project. Has the GFE been incorporated into the costings figures for your contract with Lockheed Martin UK?*

Yes, Thales requires the supply of certain Government-furnished equipment (GFE), including the right of Thales to re-use equipment from the Sea King radars no longer required by MOD. It was agreed (as is the norm) that MoD would provide the GFE free of charge.

*Was the price you charged dependent on the amount of GFE you incorporated?*

Yes, Thales had hoped to re-use hardware from the Sea King radars that were to become available due to the retirement from service of that aircraft and the contract price reflected this (i.e. a lower price due to re-use of components/LRUs rather than purchase of new ones). Any re-use would still attract a refurbishment/upgrade cost, which Thales provisioned for. Equipment that cannot be refurbished is to be replaced by new at Thales' risk. Of all the equipment that will be delivered under the contract around a third is refurbished GFE Sea King equipment.

*What work was carried out by Thales UK Ltd on the GFE?*

There are two categories of GFE being provided to Thales. The first is the Sea King radar equipment that is being made available to Thales, free of charge, by the UK MOD for re-use in the Crowsnest Missions System role kits. This GFE has been surveyed to determine the amount of refurbishment work required. The equipment to be re-used will then be refurbished/ upgraded with the objective of restoring it to 'as new' condition. Where necessary equipment will also repainted to match the Merlin Mk2 colour scheme. Thales will replace any unsalvageable equipment with new equipment.

The second category of GFE is required to enable Thales to demonstrate to LM that the Mission System works. Examples include: cryptos, secure data loaders and terminals. No work is carried out on this GFE. It is on loan to support development and is returned to MOD at the end of the non-recurring development phase.

*You have previously confirmed to HMRC that the supply made by yourselves to Lockheed Martin UK was a standard rated supply. Did you consider this supply to be one of goods or services?*

The supplies made by Thales were treated as standard rated from the outset of the contract due to the fact that the nature of the equipment was of a "roll on roll off nature". As such, the helicopters are able to, and will, fly without it. Consequently, this equipment did not meet the zero rating requirements for either aircraft parts and equipment or services thereto, as it was not "to be installed or incorporated in" a qualifying aircraft.

As detailed above, the contract involves supplies of both goods and services. However, we considered this to be predominantly a supply of goods involving significant associated services of refurbishment/upgrade work, design and software. The approximate value split within the contract is 55% equipment (incorporating both new and refurbished GFE parts) and 45% associated services.

116. Thales state that the approximate value of the equipment/services split is 55%/45%. As the contract price is approx. £118m, on the basis of this split, the proportion of the price corresponding to equipment would be approximately £65m.

### **The Leonardo Subcontract**

117. LMUK entered into the Leonardo Subcontract. The copy included in the bundle is unsigned and undated, but it is not disputed that it is an accurate copy of the contract as signed and in force. Clauses 8 and 9 summarise Leonardo’s obligation:

#### **8. PRIME CONTRACT**

8.1 This Contract is let in support of LOCKHEED MARTIN’s Prime Contract with the MOD Merlin PT Crowsnest Demonstration and Manufacture (D&M) with the Prime Contract Number MERC/00071 governing the Crowsnest D&M Programme, hereinafter referred to as the “Prime Contract” and the “Programme” respectively.

#### **9. PRICES AND SCHEDULE OF REQUIREMENTS**

Item No.	Description	Price £ (Ex-VAT)
1	Delivery of D&M Crowsnest Capability including modification of 30 Merlin Mk2 aircraft in accordance with the terms of this Contract, the Specification reference 8012983, the Statement of Work reference 8012954 and all annexes and appendices herein that define the scope and obligations of the SELLER	£40,797,264

118. In addition, Leonardo were engaged by Thales under a separate sub-subcontract to undertake other work.

### **Merlin University**

119. The “Merlin Mk2 Training Facility” is located at Royal Navy Air Station Culdrose and is known colloquially as the “Merlin University”. It includes small training devices, mechanical training devices, an engine change training unit (for people to practice taking engines on and off the Merlin Mk2 airframe, and to practice maintaining engines), and flight simulators. The flight simulators have to be modified for Crowsnest because there are additional controls in the cockpit, and because the aircraft handles slightly differently when operating in its Crowsnest role because of the weight of the role-fit kit, and the radar dishes and radome on the side of the aircraft.

120. Additionally, there are rear crew training devices. These are for the mission crew on the aircraft to learn how to operate the aircraft and to rehearse missions and operate together as a multi-helicopter force. LMUK, Thales, and CAE are modifying one of the rear crew training devices so that it represents a Crowsnest equipped Merlin Mk2, so that Crowsnest crews can train on that. Mr Morphett’s evidence was that the training rig is a hybrid of an existing system provided by CAE and a rig provided by Thales. The Thales rig had some origins in a Sea King training rig but redesigned and reintegrated for Crowsnest.

121. Mr Morphett’s evidence was that the Merlin Mk2 was a complex aircraft that was not intuitive to operate or maintain. In consequence there had to be a comprehensive programme for the training of aircrew and maintainers. LMUK has provided a training system since the origins of the Merlin Mk1 and as part of the Crowsnest project had modified the training equipment and provided training materials and worked with the Royal Navy so that they can train their crews.

## **Role-fit Kit**

122. Although the Prime Contract specifies that the Crowsnest capability has to be role-fittable, nowhere in any of the documents governing the contractual relationship between the MoD and LMUK is it specified which elements of the Crowsnest capability are to be provided by the use of role-fit kits. The evidence of both Mr McDermott and Mr Morphett was that this is because the MoD does not seek to dictate to LMUK how the Merlin Mk2 are to be modified to achieve the specified capability. What is important to the MoD is that LMUK delivers the Crowsnest capability to the standards specified in the SRD, not how they deliver that capability.

123. Indeed, as at the date the contractual documents were finalised, the detailed design of the Crowsnest capability had not been completed and, according to Mr McDermott, that was the essence of the contract –

As there was no final design, it was also not known which elements of the design would ultimately be removeable, therefore we used the generic term ‘Crowsnest Role-fit Kits’ to describe, without specifying, those elements.

124. As regards the role-fit kits, Mr Morphett said:

[...] it is true that a large part (although not all) of Thales’ CMS solution is implemented via the design and development of new role-fit equipment

Deciding which elements of the capability are to be role-fittable is part of the design process undertaken by LMUK (together with their sub-contractors) under the Prime Contract.

125. It was a requirement of the Prime Contract that the role-fit kits are interchangeable between all the Merlin Mk2 aircraft in the Royal Navy’s fleet. Mr Morphett’s evidence was that they were designed to be interchangeable, and that LMUK hated having “fleets within fleets” or having a particular kit going on a particular aircraft. Apart from one small component discussed below, there is no specific kit for any specific aircraft. His evidence was that every Merlin Mk2 will have the Crowsnest role-fit kit installed at least once during its lifetime – but it will be up to the Task Force Commander to determine which of the Merlin Mk2 under his command are to be utilised in an ASaC role. However, Mr Morphett’s evidence was that:

We certainly do need to keep track of which aircraft have had Crowsnest because it is a substantial load on the aircraft and much like carrying something else heavy, like torpedoes, the aircraft design does not assume it is carrying that heavy weight for its entire life. We will probably find that we need to give advice to the [Force Commander] to say that, "Aircraft A1 has probably had about as much as it can cope with now. You may need to move it on to another aircraft."

126. Mr McDermott’s evidence was that the Merlin Mk2 aircraft undergo a maintenance schedule, with some maintenance occurring before and after every flight, and also at regular intervals, with major servicing occurring every two and four years. This meant that at any one time, a number of the Merlin Mk2 would be in “deep maintenance”, as the maintenance schedule rotated through the fleet. One consequence is that it seems unlikely to us that all of the ten role-fit kits will be utilised at any one time – but Mr McDermott’s evidence is that the number of aircraft fitted with Crowsnest will depend on training needs, tasking, and operational requirements, but that no more than ten Merlin Mk2 would ever be undertaking an ASaC role at any one time.

127. Included in the hearing bundle were various schematic illustrations of the Merlin Mk2 prepared by LMUK showing the components comprising the intended role-fit elements supplied by Thales. Mr Morphett gave evidence on the extent to which this equipment was new-build or was refurbished equipment from the Sea Kings.

128. Internal to the aircraft are various role-fit racks of equipment and role-fit mission consoles.

129. Mr Morphett's evidence was that the frames on which the equipment is located were new, as these needed to be redesigned to fit the interior of the Merlin Mk2.

130. Mr Morphett's evidence was that the mission consoles are also new. These are based on designs used for other Merlin Mk2 role-fits kits for other capabilities, but with a different layout appropriate for Crowsnest capability. Leonardo have manufactured the new consoles under a sub-subcontract with Thales.

131. The equipment located in the frames and consoles is a mixture of refurbished components from the Sea Kings and new components. Many of the components installed into the mission consoles are equipment that is already installed on the Merlin Mk2, but which needs to be transferred to the Crowsnest consoles when the mission role of a Merlin Mk2 is changed. So, for example, display panels have to be removed from the mission consoles being taken out of the aircraft, and transferred into the Crowsnest consoles. Some components installed in the consoles are new. A few are refurbished. There were a few components which Mr Morphett did not know if they were new or refurbished.

132. In addition, Mr Morphett referred to one or two components where there was a debate as to whether they should be permanently installed or be role-fittable.

133. Mr Morphett made reference to Thales original plan to permanently install a computer on each Merlin Mk2 which would be dedicated to Crowsnest, but it has since been determined that it would be more sensible for them to utilise a LMUK computer that is already installed on each aircraft.

134. External to the aircraft are the Radar Head Assembly ("RHA") and the Radar Deployment Mechanism ("RDM"). The RHA includes the radar dishes, which Mr Morphett believes are refurbished from the Sea Kings. He did not know whether the inflatable radomes (which cover the dishes) were refurbished or made new (but considered that it was more likely that they would be refurbished). The RDM is the articulated bracket which is used to attach the RHA to the Merlin Mk2 airframe, and which allows the RHA to be raised for take-off and landing. The RDM is manufactured by Leonardo under sub-subcontract to Thales.

135. Mr Morphett said that there was one element of the role-fit kits that had to be custom-made for each individual Merlin Mk2 aircraft. Individual adaptors have had to be made for each aircraft for fitting the RDA. This is to allow for distortions in the dimensions of each Merlin Mk2 which have arisen as a result of the flexing of the airframe during its operational history.

136. There are an evolving set of cables, connectors, and wave guides which connect the RHA on the outside of the aircraft to the equipment within the aircraft. There is a current debate about the extent to which these components should be role-fittable, as (a) they have proved to be complicated to remove and install; but (b) they deteriorate if they remain installed on the airframe when they are not connected to Crowsnest role-fit kit (for example, when the aircraft is being used in a non-Crowsnest role).

137. The data communication equipment (which is GFE, but not salvaged from the Sea Kings), is installed elsewhere in the interior of the aircraft – and there is a debate whether this should be permanently installed or be role-fittable. There are also some other minor components (for example a cockpit control to alert the pilot whether the RHA is up or down), and Mr Morphett did not know whether this was role-fittable.

138. Also included in the bundle were copies of various presentations prepared by Thales. Mr Morphett's evidence was that he had not seen these presentations prior to receiving the bundle. The illustrations of the CMS in the Thales presentation were similar to those in the LMUK presentation. However, there were a few items in the Thales presentation that were not in the LMUK presentation. These included the "training solution and development rig", the "mission replay and analysis system", and the ILS.

139. The training solutions rig is an element of the rear crew training devices installed at the Merlin University.

140. Mr Morphett described the mission replay and analysis system as a "ground support" computer system (akin to a laptop) on which were held a large volume of data, such as maps, communication settings, and other data. Data relevant to the particular mission is copied from the mission replay and analysis system onto a hand-held device which is taken onto the Merlin Mk2 and connected to the Crowsnest systems on the aircraft.

141. The ILS is a package of equipment and manuals, including spares, support equipment (such as a trolley device to carry the RHA to the side of the aircraft and assist in mounting it), and storage and packing boxes.

142. During cross-examination Mr Morphett acknowledged that his evidence was based on Thales intentions at the time of the original competition, as he has had no direct involvement in the Crowsnest project since 2015. However, he said that he continues to work with the MoD in relation to the Merlin Mk2 generally (including future programmes) and remains in close contact with LMUK's Crowsnest teams. In consequence, although he had no direct knowledge of the extent to which the role-fit kits being provided by Thales used new-build or reconditioned Sea King components, he believed that he would become aware of any major changes to Thales' original intentions. So, for example, he believed that Thales were reusing the radar dishes, because it would be difficult to manufacture these units new, and he believes that he would have heard if a decision had been taken to make new radar dishes.

143. His evidence was that, as at the date of the hearing, Thales and LMUK had not completely resolved which elements of the CMS can be delivered as role-fittable equipment, and how to ensure that such elements can be safely removed from and re-attached to the Merlin Mk2 outside of a factory setting in a short period of time. Mr Morphett's evidence was that:

The role-fit element has yet to mature effectively.

144. He was asked how long it would take before this would be finally decided:

A. I do not have an intimate knowledge of the plan for that. The focus of the last 18 months or so has been getting the [aircraft] to sea on the Queen Elizabeth. The focus will now move to completing the rest of the programme [...], including the role-fit.

Q. You do not know how long that is going to take?

A. I do not know.

Q. You cannot provide a list now of what the role-fit kit includes?

A. I cannot provide you with a final list, no. I would imagine there is a list of what is expected to be and what is not expected to be and a grey area in the middle. At the moment the aircraft deployed are not role-fit aircraft, so there is not an established list of what is role-fit.

Q. Yes. You told us yesterday that they are "factory fit" you referred to them as?

A. Correct.

145. Also remaining to be resolved, according to Mr Morphett, is the extent to which components from the legacy Sea King ASaC systems can be refurbished and reused. All of the legacy Sea King equipment has been made available to Thales, and they have complete discretion as to which components they wish to use, salvage, recondition or build new. Whilst some components have been identified as suitable for refurbishment and reuse, there are “grey areas” which remain unresolved. Mr Morphett’s evidence was that as he had been “off the programme” for five years, he did not have a detailed list of “what the outstanding discussion items still are.” No list of the refurbishable components or of the “grey areas” has been provided by LMUK to HMRC, and no such list was included in the hearing bundle.

146. Mr McDermott’s evidence was that although a significant proportion of the role-fit equipment may have been salvaged from the Sea Kings, the Thales software was all new, and he described the software as being the heart of the system that makes it function.

147. Mr McDermott’s evidence was that the CMS is being designed specifically for the Merlin Mk2 aircraft, and the role-fit kits can only be used with Merlin Mk2 aircraft. When the Merlin Mk2 aircraft reach the end of their operational life, it is likely that the role-fit kits will have to be scrapped.

148. In a presentation made to HMRC in January 2017, LMUK provided an allocation of their price between different elements of the project stating:

Only 19% of the costs (£47M in total) relates to the [Airborne Early Warning] equipment. Part of this equipment, primarily elements of the radar, will be donor parts provided as Government Funded Equipment (GFE), modified or requalified to meet the Crowsnest requirements. The bulk of the costs (70%) relate to the design, integration and development work and the subsequent modification works to the 30 aircraft. The remaining 11% can be attributed to the upgrade of the training system.

In cross-examination, Mr Morphett said that the 19% figure represented the tangible goods that were being provided to the MoD under the Prime Contract. As LMUK did not have any insight into Thales’ underlying costs, they estimated the proportion of the costs of the overall programme that represented the physical goods (in other words the role-fit kits) being provided by Thales. Mr Morphett was questioned about the basis on which this estimate was calculated, as the price payable to Thales under the Thales Subcontract - £124m according to Thales internal Project Description Sheet – was not 19% of the total contract price payable by the MoD. Mr Morphett was unable to answer this question. During the course of cross-examination, Mr Morphett stated that LMUK maintained a database which mapped the system specifications to the MoD’s requirements. The slides used for the presentation made by LMUK to HMRC in February 2019 states that:

Crowsnest update of Merlin Mk2 System Specification now has 2298 requirements

- 498 (22%) are allocated to Crowsnest mission system (including role-fit elements)
- 78% allocated to overall integrated aircraft or existing Merlin Mk2 systems retained or modified

However, Mr Morphett’s evidence was that it is difficult compare the changes made to new and existing equipment in any meaningful way, because “there are any number of different ways you can do that [...] by weight, by number of items ...”

149. Ms Sloane told the Tribunal that during the course of correspondence between HMRC and LMUK it became clear that it was very difficult to come up with a reliable figure and

breakdown of the costs attributable to the physical deliverables (namely the role-fit kits). Mr Morphett explained that LMUK had sought to compare the modifications of existing equipment to new equipment:

In an effort to try to quantify the extent of modification, we had discussions with HMRC about how to quantify that sort of thing. You can count the drawings or count the parts, but there are parts within parts with within parts. You can look at the proportion of weight change on the aircraft. There are a number of different ways of cutting it but none of them are particularly meaningful.

In consequence LMUK therefore do not rely on cost information or price as a measure to determine the characterisation of the supply they are making to the MoD.

150. It is important to note that the Crowsnest capability extends beyond just the role-fit kit. The Thales design includes and requires changes to permanently installed equipment on the Merlin Mk2 (such as alterations to the software used on the permanently installed computers). The handling of the aircraft changes in consequence of the changes to its aerodynamics with the weight of the role-fit kit and the radar dishes on one side of the aircraft, and this requires changes to be made to the aircraft's avionics systems. Some of the problems encountered in delivering the Crowsnest capability arise because of the complexities of integrating the CMS with the pre-existing Merlin Mk2 systems. Mr Morphett gave as an example the interaction between the Thales software and the pre-existing Merlin Mk2 computers:

We still have a number of software development issues outstanding, predominantly on the [Thales] mission system side. That has impacted some of the rest of the aircraft software development, for example, our own Lockheed Martin software we have on board where we have an interface agreed with [Thales] as to what the two computers in this case will do. If [Thales] struggle with their side and they request to change that interface, that is something impacts on us on the Lockheed Martin side, and we have to change our software.

## **THE LAW**

### **Statutory provisions**

151. As stated above, Item 2, Group 8, Schedule 8, VAT Act provides for the zero-rating of:

The supply, repair or maintenance of a qualifying aircraft or the modification or conversion of any such aircraft provided that when so modified or converted it will remain a qualifying aircraft.

152. Note (A1)(b) provides that:

a "qualifying aircraft" is any aircraft which —

(i) is used by an airline operating for reward chiefly on international routes,  
or

(ii) is used by a State institution and meets the condition in Note (B1).

The conditions in Note (B1) are that the aircraft:

(a) is of a weight of not less than 8,000 kilograms, and

(b) is neither designed nor adapted for use for recreation or pleasure.

153. Items 2A and 2B provide for the zero-rating of the supply of certain parts and equipment installed in or incorporated in qualifying ships or aircraft. This is subject to Note (2A):

Items 2A and 2B do not include the supply of parts and equipment to a Government department [...] unless—



(a) they are installed or incorporated in the course of a supply which is treated as being made in the course or furtherance of a business carried on by the department; or

(b) the parts and equipment are to be installed or incorporated in ships or aircraft used for the purpose of providing rescue or assistance at sea.

154. Article 371 of Council Directive 2006/112/EC (the Principal VAT Directive or “PVD”), provides that:

Member States which, at 1 January 1978, exempted the transactions listed in Annex X, Part B, may continue to exempt those transactions, in accordance with the conditions applying in the Member State concerned on that date.

155. Item 2, Group 8, Schedule 8, VAT Act gives effect to the following paragraph of Annex X, Part B:

(11) the supply, modification, repair, maintenance, chartering and hiring of aircraft used by State institutions, including equipment incorporated or used in such aircraft;

156. Note (C1) of Group 8, Schedule 8, VAT Act provides that “State institution” has the same meaning in Group 8 as it has as in Part B of Annex X.

157. A Merlin Mk2 has a mass of 14.6 tonnes and is neither designed nor adapted for recreation or pleasure. The Merlin Mk2 are used by a State institution. There is no dispute that the Merlin Mk2 are qualifying aircraft, nor that they remain qualifying aircraft when fitted with the CMS.

## **Case law**

### ***Zero-rating***

158. Annex X, Part B of the PVD is a list of transactions covered by derogations from the general rule that VAT is levied on supplies made for consideration by a taxable person. In consequence Annex X, Part B (and any domestic legislation giving effect to Annex X, Part B) must be interpreted strictly (see *Sweden v Stockholm Lindopark AB* Case (C-150/99) [2001] 2 CMLR 16 at [25] and also *HMRC v News Corp UK and Ireland Ltd* [2021] EWCA Civ 91).

### ***Composite supplies***

159. Both LMUK and HMRC agree that the supply made by LMUK to the MoD is a complex single (composite) supply, as do we, and we so find. We therefore need to determine the predominant element of the single complex supply, as that will determine the character of the single supply for the purposes of VAT.

160. As the parties place emphasis on different aspects of the jurisprudence of the CJEU, we set out below extracts from the decisions of the CJEU and of the opinions of the Advocates General relating to complex single supplies.

161. A leading case addressing composite or multiple supplies is the decision of the ECJ (as was) in *Levob Verzekeringen BV and OV Bank NV v Staatssecretaris van Financiën*. (C-41-04) ECLI:EU:C:2005:649 [2006] STC 766, which concerned the customisation of pre-existing software to meet the particular requirements of the customer. The price of the pre-existing software was US\$713,000, and the price of the modifications was in the range of US\$793,000 to US\$970,000. The services of customisation, installation, and training occurred between 1997 and 1999.

162. Advocate General Kokott describes in her opinion that the customer wanted an “all-in service”, which extended far beyond the supply of the standard, pre-existing, software:

83. In the present case, the main focus, having regard to all the circumstances, is also the service elements. It is crucial, first of all, that the standard software cannot be used as such by Levob. Levob's main concern was therefore not to acquire standard insurance software, but software customised specially to meet its requirements.

84. Secondly, it must be stated that customisation and installation were very expensive processes, lasting more than a year. Work began with the joint evaluation of requirements for customisation and ended with testing of the whole program. Installation and staff training are only ancillary supplies. However, the fact that they also form part of the contractual supplies shows that FDP was intended to supply a comprehensive 'all-in service' which went far beyond providing the base program.

85. Lastly, the service elements, that is the customisation of the software, its installation and the training services, also account for a larger proportion of the total price in value terms than the supply of the standard software.

163. The decision of the ECJ is consistent with the AGO that the predominant feature of the supply was the customisation of the basic software:

19 According to the Court's case-law, where a transaction comprises a bundle of features and acts, regard must be had to all the circumstances in which the transaction in question takes place in order to determine, firstly, if there were two or more distinct supplies or one single supply and, secondly, whether, in the latter case, that single supply is to be regarded as a supply of services (see, to that effect, Case C-231/94 *Faaborg-Gelting Linien* [1996] ECR I-2395, paragraphs 12 to 14, and *CPP*, paragraphs 28 and 29).

20 Taking into account, firstly, that it follows from Article 2(1) of the Sixth Directive that every transaction must normally be regarded as distinct and independent and, secondly, that a transaction which comprises a single supply from an economic point of view should not be artificially split, so as not to distort the functioning of the VAT system, the essential features of the transaction must in the first place be ascertained in order to determine whether the taxable person is making to the customer, being a typical consumer, several distinct principal supplies or a single supply (see, by analogy, *CPP*, paragraph 29).

21 In that regard, the Court has held that there is a single supply in particular in cases where one or more elements are to be regarded as constituting the principal supply, whilst one or more elements are to be regarded, by contrast, as ancillary supplies which share the tax treatment of the principal supply (*CPP*, cited above, paragraph 30, and Case C-34/99 *Primback* [2001] ECR I-3833, paragraph 45).

22 The same is true where two or more elements or acts supplied by the taxable person to the customer, being a typical consumer, are so closely linked that they form, objectively, a single, indivisible economic supply, which it would be artificial to split.

23 In the context of the cooperation required by Article 234 EC, it is indeed for the national courts to determine whether such is the situation in a particular case and to make all definitive findings of fact in that regard. Nevertheless, it is for the Court to provide the national courts with all the guidance as to the interpretation of Community law which may be of assistance in adjudicating on the case pending before them.

24 With regard to the dispute in the main proceedings, it is apparent, as held by the *Gerechthof te Amsterdam* whose decision was the subject of the

appeal in cassation pending before the referring court, that the economic purpose of a transaction such as that which took place between FDP and Levob is the supply, by a taxable person to a consumer, of functional software specifically customised to that consumer's requirements. In that regard, and as the Netherlands Government has correctly pointed out, it is not possible, without entering the realms of the artificial, to take the view that such a consumer has purchased, from the same supplier, first, pre-existing software which, as it stood, was nevertheless of no use for the purposes of its economic activity, and only subsequently the customisation, which alone made that software useful to it.

25 The fact, highlighted in the question, that separate prices were contractually stipulated for the supply of the basic software, on the one hand, and for its customisation, on the other, is not of itself decisive. Such a fact cannot affect the objective close link which has just been shown with regard to that supply and that customisation nor the fact that they form part of a single economic transaction (see, to that effect, *CPP*, paragraph 31).

26 It follows that Article 2 of the Sixth Directive must be interpreted as meaning that such supply and such subsequent customisation of software are, in principle, to be regarded as forming a single supply for VAT purposes.

27 Secondly, with regard to the question whether such a single complex supply is to be classified as a supply of services, it is vital to identify the predominant elements of that supply (see, inter alia, *Faaborg-Gelting Linien*, paragraph 14).

28 Apart from the importance of the customisation of the basic software to make it useful for the professional activities of the purchaser, the extent, duration and cost of that customisation are also relevant elements in that regard.

29 On the basis of these different criteria, the *Gerechtshof te Amsterdam* correctly concluded that there was a single supply of services within the meaning of Article 6(1) of the Sixth Directive, since those criteria in fact lead to the conclusion that, far from being minor or ancillary, such customisation predominates because of its decisive importance in enabling the purchaser to use the software customised to its specific requirements which it is purchasing.

30 Having regard to all these elements, the answer to Question 1(a) and (b) must be that:

- Article 2(1) of the Sixth Directive must be interpreted as meaning that where two or more elements or acts supplied by a taxable person to a customer, being a typical consumer, are so closely linked that they form objectively, from an economic point of view, a whole transaction, which it would be artificial to split, all those elements or acts constitute a single supply for purposes of the application of VAT;
- this is true of a transaction by which a taxable person supplies to a consumer standard software previously developed, put on the market and recorded on a carrier and subsequently customises that software to that purchaser's specific requirements, even where separate prices are paid;
- Article 6(1) of the Sixth Directive must be interpreted as meaning that such a single supply is to be classified as a 'supply of services' where it is apparent that the customisation in question is neither minor nor ancillary but, on the contrary, predominates; such is the case in particular where in the

light of factors such as its extent, cost or duration the customisation is of decisive importance in enabling the purchaser to use the customised software.

164. In *Aktiebolaget NN v Skatteverket* (C-111/05) ECLI:EU:C:2007:195 [2008] STC 3203 the ECJ considered the supply of an undersea fibre-optic cable, and its laying across the Baltic Sea between two EU member states. The ECJ held that there was a single complex supply. In considering whether there was a supply of goods or of services, the ECJ held that the cost of materials and work was an indication of the predominant element of the supply but was not of itself a decisive factor. In the circumstances of that appeal, the factor that was determinative in deciding that the predominant element was a supply of goods was that the cable had been transferred to the customer, and that the cable had not been altered or adapted in any way to meet its specific requirements.

165. In his Opinion, Advocate General Leger reviews the jurisprudence of the ECJ in both *Levob* and *Faaborg-Getling Linien A/S v Finanzamt Flensburg* (C-231/94) ECLI:EU:C:1996:184 [1996] STC 774. (*Faaborg-Getling Linien* concerned the supply of meals in a restaurant on a ferry plying between Denmark and Germany. One of the issues in the appeal was the place of supply, and this turned on whether the supply was one of goods or services, and the Court held that there was a single complex supply in which the supply of services largely predominated):

50. It is important to point out, first of all, that the transaction in question does fall within the scope of art 5(1) of the Sixth Directive. That provision defines 'supply of goods' as the transfer of the right to dispose of tangible property as owner. According to the case law, the term must be construed broadly, as covering any transfer of tangible property by one party which empowers the other party actually to dispose of it as if he were the owner of the property.<sup>8</sup> It is undeniable that an undersea fibre-optic cable constitutes tangible property and that, after it has been installed by NN and after operational tests have been carried out, it will be transferred to the client, which will allow him to dispose of it as if he were its owner.

51. Furthermore, it is apparent from art 8(1)(a) of the Sixth Directive that tangible property may be installed, whether or not operational tests are carried out, without the transaction necessarily losing its classification as a 'supply of goods'. I think it is also possible to infer from that provision that tangible property may be installed in the ground in such a way as to be incorporated into it without for that reason necessarily having to be classified as 'works of construction' within the meaning of art 5(5) of the Sixth Directive. Indeed, art 8(1)(a) of the directive does not distinguish between the methods of installation.

[...]

53: It is also apparent from an examination of the Sixth Directive that it does not provide many criteria for drawing the boundary between complex transactions which are to be considered as 'supply of goods' and those which come under the heading of 'supply of services'. Nevertheless, we may be guided by the fact that 'supply of services' is ancillary to 'supply of goods'.

54. Indeed, as we have seen, the term 'supply of services' covers any transaction which is not a supply of goods within the meaning of art 5 of the Sixth Directive. It may therefore be inferred that, if a complex transaction is likely to be given one or other of those classifications, because there are as many factors in favour of one as of the other, it is 'supply of goods' which must be used.

55. In the absence of fuller information in the Sixth Directive, it is in the case law that we find the method for determining how a complex transaction should be classified. According to settled case law, in order to determine whether such transactions constitute supplies of goods or supplies of services, regard must be had to all the circumstances in which the transaction in question takes place in order to identify its characteristic features.

56. The Court of Justice proposed this method of analysis in the judgment in *Faaborg-Gelting Linien* [1996] STC 774, [1996] ECR I-2395 regarding a transaction consisting in the supply of food for immediate consumption in a restaurant. It held (at para 14) that that transaction should be regarded as a supply of services because the provision of food is only one component and the services largely predominate. It inferred that classification from a description of the transaction in question. Accordingly, it stated that that transaction is characterised by the cooking of the food, its physical service in a recipient, the placing at the customer's disposal of an infrastructure, including a dining room with appurtenances, furniture and crockery, and, finally, the serving at table by the staff who may *inter alia* advise the customer and explain the food and drink on the menu to him (see paras 13 and 14).

57. This method of analysis was also applied in the judgment in *Levob Verzekeringen* [2006] STC 766, [2005] ECR I-9433, which I consider especially relevant to the present case, because it too concerns the classification of a transaction including both a single supply of goods and the supply of services inseparable from that supply. It relates to the supply of software which had to be specially adapted to the consumer's needs. The court held (at para 28) that the transaction constitutes a supply of services not merely from a description of the overall transaction, as in the judgment in *Faaborg-Gelting Linien*, but in the light of the following criteria: the importance of the customisation of the basic software to make it useful to the purchaser, and the extent, duration and cost of that customisation.

58. According to the statement of facts in that case, the services, that is to say, the customisation of the software, its installation and the staff training, were spread over more than a year; they began with an assessment of the customisation required and ended with an operational test, and they represented a much higher proportion of the overall cost of the transaction than the basic software.

59. I believe that two conclusions relevant to the present case may be drawn from this case law. The first is that, for the overall transaction to be classified as a supply of services, it is not enough that the services provided in connection with the transaction are necessary or simply useful to the purchaser of the goods. Those services have to be of a predominant nature. Thus, in the judgment in *Levob Verzekeringen* [2006] STC 766, [2005] ECR I-9433, the Court of Justice inferred the predominant nature of the work to customise the software not only from its importance in making it useful for the purchaser, but also from its extent, duration and cost.

60. The classification of the transaction in question therefore requires a comparative assessment of the respective importance, in that transaction, of the supply of goods and the supply of services. The transaction can be classified as a supply of services only if the services predominate (*Faaborg-Gelting Linien* [1996] STC 774, [1996] ECR I-2395, para 14).

61. The second conclusion is that the criteria taken into account in order to make that assessment must be objective. That is a logical requirement

because the purpose of the Sixth Directive is to base the common VAT system on a uniform definition of taxable transactions. The condition that those criteria should be objective is also justified, because the classification of a complex transaction must be predictable to traders. That requirement of legal certainty must be observed all the more strictly in the case of rules liable to entail financial consequences, in order that those concerned may know precisely the extent of the obligations which they impose on them.

166. The decision of the Court followed the approach set out in the Advocate General's opinion and held that there was a single complex supply, and that the fact that the supply of the cable was accompanied by its installation did not preclude the transaction being classified as a supply of goods. In considering whether there was a supply of goods or of services, the Court held that, whilst the cost of materials and work was an objective factor that could be taken into account for the purposes of identifying the predominant element of the supply, it was not of itself a decisive factor. In the circumstances of that appeal, the factor that was determinative in deciding that the predominant element was a supply of goods was that the cable had been transferred to the customer, and that the cable had not been altered or adapted in any way to meet its specific requirements:

29. It follows from the decision for reference that the laying of the cable at issue in the main proceedings requires the implementation of complex technical procedures and the use of specialised equipment and specific knowledge, and appears not only inseparable from delivery of the goods in such a wide-ranging transaction but also vital to the later use and exploitation of those goods. It follows that the laying of that cable is not merely an element ancillary to its supply.

30. Nevertheless, it remains to be determined whether, in the light of the elements which distinguish the supply at issue in the main proceedings, it is the supply of the cable or the laying thereof which must dominate with regard to classification of the transaction as either a supply of goods or a supply of services.

[...]

32. According to the case law of the court, it follows from the wording of that provision that the notion of supply of goods does not refer to the transfer of ownership in accordance with the procedures prescribed by the applicable national law but covers any transfer of tangible property by one party which empowers the other party actually to dispose of it as if he were the owner of the property.

[...]

37. In that regard, although it is true that the relationship between the price of the goods and that of the services is an objective piece of information constituting an indication which may be taken into account for the purposes of classifying the main transaction, none the less, as the Commission of the European Communities argues in its observations, the cost of materials and work must not, of itself, be a decisive factor.

38. It is therefore necessary also to consider the importance of the supply of services in the light of the supply of the cable in order to classify the transaction envisaged.

39. In that regard, even if it is essential that the cable be installed in order to be usable and even if, by reason in particular of the distance and difficulty of the terrain, the installation of the cable in the ground is, as is apparent from para 29 of this judgment, a very complex operation requiring extensive

equipment, it still does not follow that the supply of services predominates over the supply of the goods. It follows from the description of the clauses of the contract set out in the decision for reference that the work to be carried out by the supplier is limited to installation of the cable at issue in the main proceedings and neither its purpose nor its effect is to alter the nature of that cable or to adapt it to the specific requirements of the client (see, by analogy, *Levob Verzekeringen* [2006] STC 766, [2005] ECR I-9433, paras 28 and 29).

40. Having regard to all those elements, the answer to the first question must be that a transaction for the supply and installation of a fibre-optic cable linking two member states and sited in part outside Community territory must be considered a supply of goods within the meaning of art 5(1) of the Sixth Directive where it is apparent that, after functionality tests carried out by the supplier, the cable will be transferred to the client who will dispose of it as owner, that the price of the cable itself clearly represents the greater part of the total cost of that transaction, and that the supplier's services are limited to the laying of the cable without altering its nature and without adapting it to the specific requirements of the client.

167. In *Mesto Zamberk v Finanční reditelství v Hradci Králové* (C-18/12) ECLI:EU:C:2013:95, [2014] STC 1703 the CJEU held that the assessment of the predominant element of a single complex supply (in this case admission to a municipal aquatic park housing a range of facilities) must be undertaken on an objective basis from the perspective of a typical customer, and must take account not only of the quantitative, but also the qualitative, importance of the elements:

30. It follows from the case law of the court that the predominant element must be determined from the point of view of the typical consumer (see, to that effect, in particular, *Levob Verzekeringen and OV Bank*, para 22, and *Everything Everywhere Ltd (formerly T-Mobile (UK) Ltd) v Revenue and Customs Comrs* (Case C-276/09) [2011] STC 316, [2010] ECR I-12359, para 26) and having regard, in an overall assessment, to the qualitative and not merely quantitative importance of the elements falling within the exemption provided for under art 132(1)(m) of the VAT Directive in relation to those not falling within that exemption (see, to that effect, *Bog*, para 62).

[...]

33. As for the question whether, in the context of such a single complex supply, the predominant element is the opportunity to engage in sporting activities falling within art 132(1)(m) of the VAT Directive or, rather, pure rest and amusement, it is necessary to make that determination, as has been pointed out at para 30 of the present judgment, from the point of view of the typical consumer, who must be determined on the basis of a group of objective factors. In the course of that overall assessment, it is necessary to take account, in particular, of the design of the aquatic park at issue resulting from its objective characteristics, namely the different types of facilities offered, their fitting out, their number and their size compared to the park as a whole.

34. As regards, in particular, aquatic areas, it is necessary for the national court to take into account, *inter alia*, whether they lend themselves to swimming of a sporting nature, in that they are, for example, divided into lanes, equipped with starting blocks and of an appropriate depth and size, or whether they are, on the contrary, arranged so that they lend themselves essentially to recreational use.

35. On the other hand, the fact that the intention of some visitors does not relate to the predominant element of the supply at issue determined in this way cannot call that determination into question.

36. An approach consisting in taking account of the intention of each visitor taken individually as to the use of the facilities which are made available would be contrary to the objectives of the VAT system of ensuring legal certainty and a correct and straightforward application of the exemptions provided for in art 132 of the VAT Directive. In that regard, it should be pointed out that, to facilitate the measures necessary for the application of VAT, regard must be had, save in exceptional cases, to the objective character of the transaction in question (see, to that effect, *BLP Group plc v Customs and Excise Comrs* (Case C-4/94) [1995] STC 424, [1995] ECR I-983, para 24; *Customs and Excise Comrs v Mirror Group plc*; *Customs and Excise Comrs v Cantor Fitzgerald International* (Case C-108/99) [2001] STC 1453, [2001] ECR I-7257, para 33; and *R (on the application of Teleos plc) v Revenue and Customs Comrs* (Case C-409/04) [2008] STC 706, [2007] ECR I-7797, para 39).

168. In assessing the elements of a single complex supply, the CJEU has held that we must make an overall assessment taking into account all the circumstances. See for example *Revenue and Customs Commissioners v Loyalty Management UK Ltd*; *Baxi Group Ltd v Revenue and Customs Commissioners* (Joined Cases C-53/09 and C-55/09) ECLI:EU:C:2010:590 [2010] STC 265:

39. It must also be recalled that consideration of economic realities is a fundamental criterion for the application of the common system of VAT (see, first, as regards the meaning of place of business for the purposes of VAT, *Customs and Excise Comrs v DFDS A/S* (Case C-260/95) [1997] STC 384, [1997] ECR I-1005, para 23, and *Planzer Luxembourg Sarl v Bundeszentralamt für Steuern* (Case C-73/06) [2008] STC 1113, [2007] ECR I-5655, para 43, and, secondly, as regards the identification of the person to whom goods are supplied, by analogy, *Auto Lease Holland BV v Bundesamt für Finanzen* (Case C-185/01) [2005] STC 598, [2003] ECR I-1317, paras 35 and 36).

[...]

60. In that regard, it is clear from the court's case law that, where a transaction comprises a bundle of features and acts, regard must be had to all the circumstances in which the transaction in question takes place in order to determine, firstly, if there were two or more distinct supplies or one single supply and, secondly, whether, in the latter case, that single supply is to be regarded as a supply of goods or services (see, to that effect, *Aktiebolaget NN v Skatteverket* (Case C-111/05) [2008] STC 3203, [2007] ECR I-2697, para 21 and case law cited).

169. In this context, we were referred to the decision of the Upper Tribunal in *Wetheralds Construction Limited* [2018] UKUT 173 (TCC) at [36], which held that this Tribunal had erred by entering into an unduly detailed dissection of all the elements of a supply, rather than conducting an overall assessment from the perspective of the typical consumer.

### ***Supply of goods or services***

170. HMRC submit that the predominant element of the supply made by LMUK to the MoD is that of a supply of goods (namely the equipment comprising the role-fit kits). For VAT purposes a supply of goods means the transfer of the right to dispose of tangible property as owner (Article 14(1) PVD).



171. Article 24 of the PVD defines the supply of services as being:

Any transaction which does not constitute a supply of goods.

172. We invited the parties to make submissions on whether it was possible for there to be a supply of goods, where the tangible property that is the subject of the supply incorporates tangible property owned by the customer. In this context we were referred to the following decisions.

173. The first was *Sai Jewellers v HMRC* (1994) Decision 12679 and (1995) Decision 13567 which concerned customers providing a jeweller with their own gold to be melted down and incorporated into a new ornament. The jeweller charged VAT only on their labour charge and the cost of any additional gold used – it was not charged on the customer’s own gold. The issue before the VAT and Duties Tribunal was whether the customer retained ownership of their gold, or whether there was a barter transaction, in which the customer transferred ownership of their gold to the jeweller in exchange for the new ornament. In the absence of any written agreements between the customers and the jeweller, the Tribunal took an essentially pragmatic approach, and determined that the contracts with customers were to be classified as either exchange or refashioning depending upon the percentage of customers’ gold used in the new ornament. Macpherson of Cluny J upheld the decision of the Tribunal on appeal to the High Court (*Customs and Excise Commissioners v Sai Jewellers* [1996] STC 269). In essence his decision was that the appeal was made on an *Edwards v Bairstow* basis and that the Tribunal’s approach and factual conclusions were fully justified and reasonable given the state of the evidence before it (at 275 d).

174. The second was the decision of the CJEU in *Graphic Procédé v Ministère du Budget, des Comptes publics et de la Fonction publique* (C-99/09) ECLI:EU:C:2010:76, [2010] STC 918. The taxpayer carried on a reprographics business that produced copies of documents for customers such as design offices, museums, publishers, and ministries. The taxpayer produced the copies using its own materials, but title to the original documents was retained by the customers. The issue to be resolved by the Court was whether the taxpayer was making a supply of goods or of services. The Court noted that any intellectual property in the content of the document could not form part of the supply, as it remained the property of the customer:

29. In the main proceedings, the delivery by the reprographer of copies to the customer who ordered them corresponds to the transfer of the right to dispose of them as owner, within the meaning of art 5(1) of the Sixth Directive. That transfer relates, specifically, to the materials, in the present case sheets of paper, on which the reproduction was carried out, materials at the disposal of the reprographer prior to their delivery to the customer. As the reprographer’s customer was never deprived of his right to dispose of the intangible content of the copies created from the original provided by him, the transaction concluded with the reprographer relates exclusively to the materials allowing the delivery of the copies. In fact, the price invoiced by the reprographer for the copies made is determined by taking account not of the intellectual value of the original, but of the technical features of the copies to be made and the number of copies ordered.

30. It seems, therefore, that, in the circumstances of the main proceedings, reprographics activities such as those described in the order for reference are likely to have the characteristics of a supply of goods within the meaning of art 5(1) of the Sixth Directive.

31. It should, however, be noted, as is apparent from para 18 of the present judgment, that the classification as a supply of goods or a supply of services of reprographics activities such as those at issue in the main proceedings

must take account of all the circumstances in which the activities are carried on. In particular, a reprographer's activities may not be limited to the mere reproduction of an original, but may involve various additional services such as advice and adapting, modifying and altering the original according to the customer's wishes, for the purposes of producing copies which are to a greater or lesser extent different from the original document initially provided by that customer.

32. In those circumstances, and having regard to the unique nature of the complex reprographics transaction as noted in para 25 of the present judgment, it is for the referring court to determine, on the basis of the importance of those services for the customer, the degree to which the original document provided by the customer was processed, the time necessary for the performance of those services and the proportion of the total cost that they represent, whether those services are liable to be regarded as transactions which, far from being only minor or ancillary, are predominant in relation to the supply of the reproduced documents, such that they constitute, over and above that mere reproduction, an aim in themselves for the recipient of those services.

33. Consequently, the answer to the question referred is that art 5(1) of the Sixth Directive must be interpreted as meaning that reprographics activities have the characteristics of a supply of goods to the extent that they are limited to mere reproduction of documents on materials, where the right to dispose of them has been transferred from the reprographer to the customer who ordered the copies of the original. Such activities must be classified however as a 'supply of services', within the meaning of art 6(1) of the Sixth Directive, where it is clear that they involve additional services liable, having regard to the importance of those services for the recipient, the time necessary to perform them, the processing required by the original documents and the proportion of the total cost that those services represent, to be predominant in relation to the supply of goods, such that they constitute an aim in themselves for the recipient thereof.

### **Other authorities**

175. “Modification” and (in the case of the VAT Act only) “conversion” are not defined in either the VAT Act or the PVD. Under general principles of interpretation these terms must carry their ordinary or common meaning (see: *HMRC v Fenwood Developments Ltd* [2006] STC 644 and *Pennine Care NHS Trust v Revenue and Customs* [2016] UKFTT 222 (TC)).

176. In her skeleton argument Ms Sloane provided definitions of “modify” and “convert” from the Collins Dictionary:

65. The dictionary definitions of “modification” and “conversion” show that they are wide in scope. By way of example, the Collins dictionary definition of “modify” is “If you modify something, you change it slightly, usually in order to improve it” and an example given of the term in its everyday meaning is: “The plane was a modified version of the C-130”

66. The Collins dictionary definition of “convert” includes “alter it in order to use it for a different purpose”

177. As Ms Sloane did not provide copies of these extracts from the Collins Dictionary in the bundles, we therefore compared the definitions provided by Ms Sloane with the definitions of these words in the Oxford English Dictionary (being an authoritative English dictionary to which we had ready access). For “modify”, the most relevant definition in the Oxford English Dictionary is the following:

6.a. transitive. To make partial or minor changes to; to alter (an object) in respect of some of its qualities, now typically so as to improve it; to cause to vary without radical transformation. (Now the principal general sense.)

178. For “convert” the most relevant definition is the following:

11.transitive. To turn or change into something of different form or properties; to transform:

a. something material.

[...]

g. intransitive. To be able to be changed to (now usually into) a different form, so as to perform a different function; to be convertible.

179. In her skeleton argument, Ms Sloane gave citations from various technical publications to illustrate that in the aircraft industry the term “modification” means “precisely the sort of work and deliverables which LMUK are supplying under the [Prime] Contract”, and that this is confirmed by the need for recertification by the MAA. She referred us to the websites of the Civil Aviation Authorities of the UK and of New Zealand, and to a research paper on aircraft modification projects published by academics at Cranfield University. She also referred us to BAE System’s website in support of her submission that it is commonplace in the aircraft industry for “conversion” to mean modification for a new role. Her submission is that neither “conversion” nor “modification” are a term of art. We have not placed (nor have needed to place) any weight on her technical citations for the following reasons. First, the BAE Systems webpage that she cites is drafted in such broad terms that it is difficult to discern exactly what the company means by “conversion” – but it does not appear to carry (at least in the context of this website), some special technical meaning. In contrast, the other citations referring to “modification” are highly technical in nature, and we would need appropriate expert evidence for these papers to be explained to us and placed in context, and for us to be able to understand whether they are representative of broadly held opinions within the aircraft industry – or are “outliers”. But finally, and more importantly, the settled case law is that undefined words used in legislation bear their ordinary or common meaning, and there is no evidence before us, nor any submissions made, to suggest that the terms “modification” and “conversion” are being used in the PVD or in the VAT Act in some technical aircraft jargon sense. So, there is no reason why we need even to consider whether these terms should be construed as having a special technical meaning (as distinct from their ordinary and natural meaning).

### **HMRC Public Notices and other guidance**

180. HMRC Public Notice 744C says the following about modification or conversion of ships and aircraft:

#### **6.3 What’s meant by modification or conversion**

This includes, for example:

rebuilding or lengthening structural alterations

181. HMRC’s VAT Transport manual at VTRANS120200 goes into greater detail:

#### **Modifications and conversions of ships and aircraft**

Modifications and conversions of qualifying ships and aircraft are zero-rated under Group 8, items 1 and 2 provided, after modification or conversion, the ship or aircraft remains a qualifying ship or aircraft.

This includes, for example:

- rebuilding or lengthening

- updating or improvement of serviceable equipment
- structural alterations.

It is important to note that this provision requires the ship or aircraft to be qualifying before the modification work is started. This means that the modification or conversion of a non-qualifying ship or aircraft, is not zero-rated even if the modification or conversion results in a qualifying one. However, after conversion the craft will then be treated in the same way as any other qualifying craft for future supplies.

**Example:**

The conversion of a trawler (gross tonnage of 20.72 tons) to a vessel designed for commercial scientific research would be zero-rated under Group 8, item 1.

However, the services of modifying a 14 ton ship to be a 16 ton ship would not be zero-rated as the modification is not of a qualifying ship.

**Cascaded modifications**

Where a contract to supply modification services across a fleet of ships or aircraft is being undertaken it is permissible for parts being modified to be removed from one craft, be modified, and then installed in a sister-craft whose parts are similarly destined for another sister-craft after modification

182. At VTRANS120500, the VAT Transport manual discusses the decision of the VAT and Duties Tribunal in *Cholerton v HMRC* (1995) VAT Decision 13387 which held that the design work integral to the making of modifications to a qualifying ship fell within the scope of zero-rating. The manual states the following:

The Tribunal held that such services [design work for the modification of a qualifying ship] were integral to the modification of a ship because of the on-going nature of the survey work, the fact that areas not subject to modification were surveyed, that the results of the survey were kept on board as part of the ship's papers following completion of the modification, and that they were essential for the safety of the ship, its passengers and cargo and continued seaworthiness.

We originally accepted this decision on its facts. However, we now consider that the Tribunal failed to take into account that Cholerton was contracted to supply only design services and therefore made no supply of modification services to which the design services could be integral. With effect from 1 July 1999, design services supplied in the UK are integral to the supply, modification or conversion of a qualifying ship, and therefore zero-rated, only where a supplier specifically contracts with a customer to design and supply, modify or convert a qualifying ship. In other circumstances, design services are standard rated. Business Brief 5/99 refers - see VTRANS120600. Services of designing non-qualifying ships have always been standard rated.

At VTRANS120600 the manual states that HMRC will only treat design services as integral to a zero-rated supply of modification or conversion where the customer has contracted with the supplier for both the design and modification/conversion of a qualifying ship.

183. VTRANS111000 addresses the supply of parts and equipment in the course of modification or conversion of a qualifying ship or aircraft as follows:

**Supplies in the course of repair, maintenance, modification or conversion of a qualifying ship or aircraft and supplies of parts and equipment.**

HMRC has become aware that the law relating to supplies in the course of modification and conversion of ships and aircraft has been widely misinterpreted where such supplies have been made to Government departments, including those of overseas Governments or States.

Items 1 and 2 of Group 8 to Schedule 8 VAT Act 1994 provide zero-rating for the repair, maintenance, modification or conversion of a qualifying ship or aircraft. Item 2A allows zero-rating of supplies of certain parts and equipment, but Note 2A excludes from zero-rating supplies of such parts and equipment to Government departments, except in certain limited circumstances set out in that Note. Although the misinterpretation has occurred in relation to modifications, the law applies equally to repairs and maintenance provided to a Government department.

This means that for such supplies made to persons other than Government departments the VAT treatment of the supply of goods and the supply of services is the same, ie zero-rated. However, for supplies made to a Government department the VAT treatment of the supply of goods and the supply of services is different and, therefore, it is necessary to distinguish between them. Nothing in this guidance affects tax reliefs for overseas Governments or States which are provided for elsewhere in VAT law or other legal provisions.

The VAT treatment of such supplies to Government departments will depend on the precise details of the supply. Detailed guidance on this is in Section 16 of *VAT Supply and consideration*.

If the contract is for a single supply, suppliers should determine whether it is a supply of goods (standard-rated) or services (zero-rated). If the contract is for multiple supplies, suppliers need to determine the VAT treatment for each of those separate supplies.

For example:

- if a part or piece of equipment is to be removed and disposed of and replaced by a new part, although there may be an associated amount of service, that is a supply of goods and it is standard-rated
- if an unserviceable part or piece of equipment is replaced by a reconditioned part or piece of equipment, this is a service and it is zero-rated
- if there is extensive and wide-ranging work to the whole ship or aircraft and, although there may be an associated supply of goods, the overall supply is likely to be of services and is zero-rated.

There will be more complex contracts where it will be more difficult to determine the VAT liability of the supplies. Where in doubt suppliers should contact the VAT: general enquiries or their Client Relationship Manager with the full details of the supplies involved, together with the contractual detail. HMRC are also happy to provide VAT advice to the Ministry of Defence and suppliers at the pre-contract stage.

## SUBMISSIONS

### LMUK

184. Ms Sloane submits that the supply made by LMUK is of the Crowsnest system, comprising various elements (or sub-systems). These elements are interdependent and not distinct, and for HMRC to treat the role-fit kit as distinct, separate, and the most important element, is, she says, to misunderstand the nature of the supply being made. There is both a legal misconception about the importance of all elements being permanently fitted or changed in the aircraft, and secondly, a misunderstanding about the elements of the system in the role-fit kit. Treating the role-fit kit as distinct, separate, and the most important element, she says is wrong.

185. The issue before the Tribunal is, she submits, to determine (following the ECJ in *Levob*) what is of decisive importance to the customer in the supply. Ms Sloane distinguishes the references of the European Court to “typical customer” in *Mesto* to the references to “customer” in *Levob* and *Aktiebolaget*. In the case of *Mesto*, the leisure centre was used by very many individual customers, and the question before the Court was whether the character of the supply depends on individual subjective views as to why they use the leisure centre. However, in both *Levob* and *Aktiebolaget*, the Court does not refer to the “typical customer”, rather the Court says that you must “focus on all the circumstances” and then it looks at the “transaction specific circumstances”. Ms Sloane agrees with Mr Puzey that this is an objective analysis, but she submits that it must be specific to the facts of this particular case. She submits that this Appeal is not like *Mesto* where one is focusing on a typical customer, as there can be no such thing in the case of a supply of an ASaC facility. For this reason, LMUK have not adduced expert evidence as to the requirements of a typical customer or of the content of a comparator contract, as this is not a relevant consideration.

186. Ms Sloane submits that what is of “decisive importance” in the supply by LMUK to the MoD and the “economic purpose” of that supply can be determined by reference to the following factors:

- (1) The new capability is for the existing fleet of Merlin Mk2 aircraft. This can be seen from the SSUN and the terms of the Prime Contract. All Merlin Mk2 aircraft are being modified so that they are all capable of undertaking the ASaC role. Ms Sloane submits that the problems encountered in delivering the Crowsnest capability arise because it is delivered as a bespoke upgrade that needs to be integrated into the existing fleet.
- (2) The need for role-fit kits arises because of weight restrictions and is not an objective in itself. Ms Sloane notes that there is nothing in any of the documents governing the contract between LMUK and the MoD which specifies which elements of the Crowsnest capability are to be role-fittable and removable. She notes also that the removable elements are capable of being used only with Merlin Mk2 aircraft and will probably have to be scrapped once the Merlin Mk2 reach the end of their operational life.
- (3) The Prime Contract does not specify which elements of the role-fit kits are to be GFE or new equipment. The contract merely provides that the MoD will make the Sea King GFE available for salvage at LMUK’s risk. Mr Morphett’s evidence was that he anticipates that around one-third of the equipment supplied by Thales to LMUK will be refurbished GFE.
- (4) It is not possible to dissect the different sub-systems that make up the Crowsnest capability and assess their relative predominance. She submits that the capability is provided by an integrated system – of which the role-fit kit is one element. Ms Sloane submits that there is a distinction between the “mission system” and the “role-fit kits”.

The SRD defines the “Crownsnest Mission System” as “the set of modifications to provide the ASaC capability on Merlin Mk2”. The kits are just one element, being the removable element, of that overall system. She referred to Mr Morphett’s evidence that it was not possible to determine the proportion of the Crownsnest capability that was constituted by the role-fit kit, given the complexities of the different underlying elements. Annex E to the Prime Contract (Schedule of Deliverables) specifies that LMUK will deliver “the required system capability” and “the required aircraft, documents, services and other articles” listed in a table with 28 items.

(5) An attempt to dissect the different elements by value indicates that only a minority of the elements are represented by the role-fit kit. The role-fit kits are comprised within the CMS being supplied by Thales. The price payable to LMUK by the MoD is £269,441,473. The Thales Subcontract price is £117,892,489. Thales estimate that of this, 55% relates to equipment. In consequence only a small minority of the consideration payable by the MoD can relate to the role-fit elements.

(6) This is a long-term contract. The first Merlin Mk2 entered the factory for planned 57 weeks of work in November 2017, but the actual work has taken much longer. The original programme anticipated that ultimately each aircraft would require 13 weeks work in the factory – equating to at least 390 weeks (7.5 years) in aggregate for the entire fleet of 30 aircraft. However, that time frame has been extended because of the problems with the development of the ASaC systems.

187. Ms Sloane submits that what is of decisive importance to the customer (the MoD) in this case is obtaining a new capability for their existing fleet of thirty Merlin Mk2 – they are modifying those aircraft to give them a new capability. She submits that each and every aircraft in the fleet is permanently modified to provide that additional capability. At the end of the programme, all will be capable of that new role, which is a permanent change to their capabilities. The force commander can select any one of the Merlin Mk2 and can add the removable elements which are not on board. Any one of the thirty Merlin Mk2 will be able to perform the ASaC role.

188. The fact that the MAA have classified the provision of the Crownsnest capability as being a major modification for regulatory purposes is evidence, submits Ms Sloane, demonstrating that the MAA consider that the Merlin Mk2 are being modified.

189. Ms Sloane submits that the fact that the new ASaC capability is provided in part by removable kit is irrelevant to the VAT analysis. This is because the only reason for removability is the weight restriction - there is no independent purpose for it being removable. Further, the MoD does not care which elements are removable and which are permanent, and there is no provision in any of the contractual documents of what is to be included in the role-fit kit. What the customer is interested in is not the removable role-fit kit sitting in a hanger, it is when it is integrated in the aircraft as part of the total ASaC system working together and performing its function on the aircraft.

190. The fact that the capability is provided using removable role-fit kit is, submits Ms Sloane, a necessary consequence of the decision that this capability was going to be provided by modifying the existing fleet of Merlin Mk2s. As soon as that decision was taken, the effect of weight restrictions meant that role-fit kits had to be used. So, submits Ms Sloane, the use of role-fit kits was an inevitable consequence.

191. The Tribunal needs to determine whether the provision of the additional ASaC capability falls within the natural and ordinary meaning of "modification" or "conversion". Ms Sloane submits that there is no “bright line” that separates the meaning of these two words. She says

that any conversion would itself also be a modification. Modification is synonymous with change. Conversion includes using something for a different purpose, which could include conversion of an aircraft from a single role to multi-role. Further, says Ms Sloane, there is nothing in the dictionary definition to suggest that a modification means that all elements of the modification must be permanent, moreover she says, this does not make sense when tested against analogies, and referred us to the various technical publications to which we have previously referred, which she says, demonstrates that these are not terms of art in the aircraft industry, and should not be given a more restrictive meaning because they reference aircraft.

192. Ms Sloane submits that the concept of “modification or conversion” is not limited to the physical work on each aircraft. It is an apt description of the overall supply, which is an upgrade to the aircraft’s capability. Conversion of an aircraft can include services which go beyond the strictly physical work on the aircraft itself (such as supply of design services, testing services, materials, re-certification etc). It would be an error of law to approach the classification of the supply by weighing up, say, the design services against the physical work on each aircraft in the factory. The concept of “modification or conversion” aptly describes the over-arching supply, not just one of its constituent elements.

193. Even if “modification or conversion” were interpreted as being limited to services consisting of the physical act of modifying or converting the airframe of an aircraft, the test for zero-rating is not whether the supply is limited to modification services without anything else. Modification services can benefit from zero-rating even if they are accompanied by other services or goods which, if provided on their own, would not benefit from zero-rating. She referred us to the sections in HMRC’s manuals at VTRANS111000 and VTRANS120500 which discussed the provision of equipment and of design services provided in conjunction with modification services.

194. VTRANS111000 states that HMRC consider that extensive and wide-ranging work to an aircraft is likely to be a zero-rated supply of modification services, notwithstanding that there may be an associated supply of goods. Ms Sloane submits that even though the supply of the goods in the role-fit kits may be a very important element of the overall supply being made to the MoD, the modification and conversion services predominate. She referred us to the original projections that it would take 57 weeks to convert the first aircraft, and eventually 13 weeks per aircraft. Over 30 aircraft, the total originally projected work would take seven and a half years (if the work was undertaken successively). This does not, says Ms Sloane, include the preceding design work. Ms Sloane referred us to the *Levob* case, where the software itself was the product, and yet it was held that the customisation was the predominant element because of its decisive importance. In the circumstances of this appeal, what is of decisive importance, submits Ms Sloane, is when the aircraft is flying in the air it has the new ASaC capability.

195. Ms Sloane also referred us to the *Cholerton* case and to HMRC’s manuals at VTRANS120500 in support of her submission that design services can form an ancillary and subsidiary element of conversion and modification services. Similarly, the fact that the Prime Contract included a training element does not prevent it from being a zero-rated supply of modification services. We were referred to the Advocate General’s Opinion in *Levob* at paragraph 64 which discussed the fact that training services were being supplied and that these were ancillary to the principal supply.

196. Ms Sloane noted that as regards the equipment provided by Thales under their sub-contract, Thales estimated that approximately 55% of their costs represented equipment, and 45% represented services, and that the approximate value of the equipment element would be £65m. She contrasted this with the circumstances in *Aktiebolaget* where the cost of the goods accounted for 80%-85% of the value of the contract. She also referred us to the split in the



consideration, which is set out expressly in the Advocate General's opinion in *Levob*. Whilst Ms Sloane submits that the Tribunal should not place any weight on the values of the various elements of LMUK's supply (and she also questions the reliability of Thales' estimate), she submits that the value attributable to the equipment in this appeal is significantly less than the value attributable to goods in both *Aktiebolaget* and *Levob*, where the goods were the predominant part of the value.

197. Ms Sloane referred us to the contractual documents, which she asserted were entirely consistent with her submissions. She referred us in particular to the SRD and the Crowsnest Project Overview which describes the supply by LMUK as being "a fully integrated upgrade to the Merlin Mk2 system" and as including as the first bullet point, "incorporation of the Crowsnest enhancements into the Merlin Mk2 product baseline". Ms Sloane submits that "one cannot simply pluck out any reference to role-fit kit and focus on that". Similarly, she submits that it would be wrong to identify the predominant elements by reference to the relative predominance of sub-systems, particularly in the light of Mr Morphett's evidence that there was no meaningful way in which this could be done. Ms Sloane submits that it would be an error of law to focus on the different tangible and intangible elements that are being supplied to the MoD. This is because the MoD do not require, and are not interested in, this breakdown. They are not interested in the way in which LMUK choose to subcontract their obligations. What the MoD have agreed to purchase is a complete ASaC system as a modification to the existing Merlin Mk2 fleet.

198. Ms Sloane submits that HMRC's submission that the predominant element of the supply is the goods comprised in the role-fit kits suffers from two "plain errors of law"

(1) First, as decided by the ECJ in *Levob* and *Aktiebolaget*, the supply of services is predominant where goods are adapted to the specific requirements of the customer and the customisation is of decisive importance to the customer. Ms Sloane submits that the design of the "role fit kits" is specially tailored to the specific requirements of MOD and that they function as one element of a complex system. The role-fit kits are not just an "off the shelf" product that is adapted for the MoD's needs.

(2) Secondly, HMRC are artificially and simplistically dissecting the supply into its constituent elements, rather than adopting an overall assessment by reference to the perspective of the customer (see *Wetheralds*). In this case the customer, the MoD, has not stipulated the mechanisms by which the ASaC capability is to be delivered; its objective and interest is not in the elements that make up the single complex supply, but the overall supply of a modified fleet with an ASaC capability.

199. In response to our request for additional written submissions, Ms Sloane submits that in circumstances where the provision of equipment includes tangible property belonging to the customer, the supply cannot be a supply of goods (at least as regards the tangible property that belonged to the customer). Instead, the supplier necessarily only supplies (a) services (being the work done to the customer's goods), and (b) potentially goods – but limited to any additional materials provided by the supplier (see *Sai Jewellers* and *Graphic Procédé*). In the circumstances of this appeal, it is not disputed that LMUK are making a single, complex supply to the MoD which incorporates both goods and services. In order for that overall supply to be a supply of goods, the predominant element of all the elements of that complex supply from LMUK to the MoD (including all the design and modification services) would have to be the transfer of title from LMUK to the MoD in the new (not MoD owned GFE) tangible property incorporated into the role-fit kits. She submits that there is no evidential or rational basis for such a conclusion.

200. Ms Sloane argues that the fact that LMUK's supply includes design services and training services do not preclude the single complex supply being a zero-rated supply of modification or conversion services. She referred us to *Levob* in which training was an element of the supply but was held to be ancillary to the principal element. And HMRC accept (in line with, although somewhat more restrictively expressed, *Cholerton*) that where a supplier contracts with a customer to design and supply modify or convert a qualifying ship, that is zero-rated – and the same logic would apply to qualifying aircraft.

201. Ms Sloane submits that the Prime Contract is not for the provision of undefined “other services”. The contract is for modification or conversion services. Ms Sloane submits that the predominant element of the supply is the supply of modification services to the aircraft. She submits that HMRC have (rightly) never identified any other service as predominant. The Prime Contract is for modification or conversion services. Whilst the contract includes other integral and associated services, such as design and training, these are not predominant. She submits that the concept of “modification or conversion” is not limited to the physical work on each aircraft, rather it describes the overall supply, which is an upgrade to the aircrafts' capability. The scope of “conversion or modification” services is not limited, either in ordinary language or the legislation, to just the physical work on the aircraft as a conversion of an aircraft will encompass a variety of services which go beyond the strictly physical work on the aircraft itself (supply of design services, testing services, materials, re-certification etc).

202. Ms Sloane submits that the SOR included in the Prime Contract shows that the supply comprises:

- (a) services relating to modifying the capability of the aircraft (items 12-14);
- (b) training services (items 15-18);
- (c) services relating to flight trials, testing and acceptance (items 19-32); and
- (d) services relating to safety and engineering (items 33-37).

203. The training, trials, and safety services cannot be, she submits, the predominant element of the supply - each of these services are ancillary to the predominant modification services in the sense explained by Lord Walker in *College of Estate Management* [2005] STC 1597, that they are “subservient, subordinate and ministering to” the modification services, rather than being capable of representing the predominant element from the perspective of MoD in entering the contract. And she submits, the fact that the Prime Contract extends beyond just the provision of modification and conversion services does not prevent its predominant element being such services and being zero rated in consequence.

204. Ms Sloane submits that the objections raised by HMRC to the reliance by LMUK on “conversion” in the legislation (in addition to “modification”) are misplaced, notwithstanding that reference to the possibility of the supply being one of “conversion” (rather than “modification”) was first raised by LMUK in her skeleton argument and was not mentioned in LMUK's Notice of Appeal. Ms Sloane's answer to Mr Puzey's objection is that there is no bright line between the terms – depending on the nature of the work undertaken to an aircraft, it could be both a conversion and a modification. Ms Sloane submits that “modification” is synonymous with change, whereas “conversion” means using something for a different purpose. Ms Sloane submits that Mr Puzey is wrong in saying that the work undertaken by LMUK cannot be a “conversion”, because in order for there to be a conversion, the thing can no longer be what it used to be. Ms Sloane submits that it is possible, for example, for an aircraft to be converted from a multi-role to a single-role, and that change would be within the ordinary and natural meaning of “conversion”. In the circumstances of this appeal, all the

Merlin Mk2 aircraft are being modified, or converted. They are being given a capability that they did not have before.

## HMRC

205. Mr Puzey agreed with Ms Sloane that LMUK have made a single overarching supply to the MoD. This is an example of the circumstances described in *Levob* "where two or more elements or acts supplied by the taxable person, to the customer, being a typical customer, are so closely linked that they form, objectively, a single, indivisible economic supply, which it would be artificial to split."

206. Mr Puzey also agreed that a new capability has been added to the fleet of Merlin Mk2s, but that does not, he submits, provide an answer to the question of the character of that supply. He submits that it is the role-fit kits that are the predominant element that characterises the supplies made by LMUK to the MoD, and that accordingly the supplies should be characterised as being the supply of goods.

207. Ms Sloane characterises LMUK's supplies as being "the modification of the Merlin Mk2 fleet to add a new capability". Mr Puzey argues that LMUK's case is drawn expansively on the basis that the supply of "modification" services include: the design and development work on the role-fit kits; training publications; training equipment; software; mission replay and analysis systems; as well as the detachable radar dishes; the removable consoles and the role-fit equipment racks. LMUK, he submits, are seeking to contrast their asserted supply of customised services to the MoD against the supply of off-the-shelf goods (such as the undersea fibre-optic cable supplied in the *Aktiebolaget* case). Mr Puzey submits that LMUK are assuming the answer without properly examining the question. The question is whether LMUK are supplying modification services to a qualifying aircraft. And, in the case of a complex multistrand supply, the analysis is not simply a case of services versus goods. He submits that LMUK must prove that the predominant element of the supply is that of modification services to each of the 30 Merlin Mk2 aircraft, which involves identifying what modifications have been made to each of those aircraft. That, he says does not, and cannot, include other elements of the supplies which, whilst they are services, are not modification services, such as designing and delivering a training programme, or organising the re-certification of the aircraft by the MAA, or supplying technical publications. Those are, he says, not modification services.

208. Mr Puzey referred us to the opinion of the Advocate General in *Aktiebolaget* at [59] to [61]. He submits that the supply of a new ASaC capability for the Merlin Mk2 can have as its predominant element a supply of goods, just as in *Aktiebolaget* where the supply of the fibre-optic cable provided the capability of transmitting and receiving telecommunications. The customer did not want the cable for the cable's own sake, it was for the capability of transmitting and receiving telecommunications. But the Court considered that the predominant element of the supply was the cable itself, which was a supply of goods. And the determination of the predominant element is not dependent on the view of the actual customer, but rather a "typical customer". Although the decision of the CJEU did not place the same emphasis on "price" as the Advocate General did in his opinion, it did not discount price altogether, but it did take other matters into account.

209. Further, the zero-rating provided by item 2 of Group 8 of Schedule 8 does not apply to a service of providing a capability to a fleet of aircraft. It applies to modifications to a qualifying aircraft or to more than one qualifying aircraft. The modifications must be to the aircraft. HMRC have always acknowledged that modifications have been undertaken to the Merlin Mk2 aircraft themselves, specifically to the airframe, the avionics, the wiring, and the permanent computers. He does not disagree that Table 2 and Table 3 in Schedule E to the Prime Contract provides that the deliverables include modifications to the aircraft. Much of that is

encompassed in the work undertaken by Leonardo. But, even accepting that modifications are being made to the aircraft (and he notes that Table 3 in Annex E separates out the modifications to the 30 aircraft in the fleet from the other deliverables), Mr Puzey submits that the predominant element of the supply is of the role-fit equipment. The reality is that those sets of equipment are qualitatively and quantitatively the key aspects of this supply. The modifications to each of the Merlin Mk2s enable the aircraft to work with the role-fit equipment.

210. Mr Puzey submits that it is not possible to lump in the ten role-fit kits to the modifications and say, "It is all one thing, it is all under the umbrella of modification", because that does not address the question which of these 30 aircraft do those ten kits modify? He submits that LMUK cannot get away with the portmanteau phrase "modifications to an existing fleet of aircraft", as if the fleet were, for tax purposes, a single homogenous entity. The zero rating is applied to the modification of a particular aircraft or more than one particular aircraft. The ten role-fit kits do not modify any particular aircraft. They do not modify every one of the 30 Merlin Mk2 aircraft in the fleet. Those role-fit kits are, he says, the key element and the predominant element of this supply.

211. Mr Puzey says that Ms Sloane seeks to avoid the issue that none of the kits can be said to modify any particular aircraft, by framing the kits as a subsystem of the modifications to the fleet. That does not, he says, begin to address what the law means when it refers to the modification of a qualifying aircraft. Taking that approach avoids having to compare the permanent modifications to each of the 30 aircraft to that which is supplied with the ten sets of role-fit equipment.

212. Mr Puzey notes that LMUK have not supplied a list of modifications being made to each of the 30 aircraft in the fleet, nor is there a list of the GFE that is actually going to be refurbished. He submits that this is the consequence of the broad brush that is being wielded by LMUK. Mr McDermott's evidence is that the software that runs the Crowsnest system is new. However, submits Mr Puzey, the supply of software is as much a supply of equipment as the frames which house the computers. This is not a *Levob* situation where off-the-shelf software was purchased and then customized. This is new software designed for this system and supplied by Thales. If it were treated as a stand-alone supply, it would, says Mr Puzey, be standard rated.

213. Mr Puzey referred to the regulatory requirement for the aircraft to be recertified by the MAA. That is relied upon by LMUK as evidence that major modifications have been undertaken to the aircraft. Mr Puzey notes that the fixed fitting modifications undertaken by Leonardo to the airframe, which include rewiring and other mechanical changes, were classified by the MAA as minor, as were the software changes to the onboard computers. However, it is the ASaC system (namely the role-fit kits), once fitted to the aircraft, which is classified as a complex modification that required full recertification. Mr Puzey says that this is not surprising as the kit includes a large detachable radar dishes fitted to one side of the aircraft and the mission control racks and consoles within the aircraft itself. If anything, submits Mr Puzey, the classification of the ASaC system (when viewed in its entirety) as being a major regulatory change assists HMRC's case, as it is the role-fit kits that form the predominant element of the entire system.

214. Mr Puzey submits that LMUK's reliance upon the recertification process demonstrates their failure to appreciate the fact that the role-fit kits are not modifications to any particular aircraft; but are transferable kits which may never actually be fitted to certain of these aircraft - they are not for any particular aircraft. He submits that it would expand the remit of the zero-rating impermissibly to interpret modifications to a qualifying aircraft as including the critical equipment that may never actually be used on that aircraft. He contrasts the facts in this Appeal

with those in *Aktiebolaget, Levob* and *Wetheralds* – as it is clear from the objective evidence contained in the contractual and other documents that the Crowsnest project is essentially a supply of equipment. He submits that the theme running through the contractual documentation is that of the supply of a role-fit ASaC system to the MoD. The supply was of the system, and the “guts” of that system is in the ten role-fit kits. Mr Puzey acknowledges that the supply includes modification to the Merlin Mk2s, but LMUK has to show that the modifications were the predominant element.

215. Mr Puzey referred us to paragraph 1.7.1 of the URD, which, he submits, demonstrates that the focus of the contract was on the supply of the ASaC system equipment, and the role-fit kits in particular. Mr McDermott described the URD as being important in understanding the overall needs of the MoD with the Crowsnest project, but that it did not give a complete picture of the MoD’s objectives. Mr Puzey submits that these two statements are, to some extent, inconsistent. In any event, he notes, that the URD is referenced in paragraph 1 of the SOR as being (with the KUR) a key strategic document.

216. The emphasis on the supply being one of equipment is, submits Mr Puzey, supported by the list of deliverables set out in LMUK’s firm price proposal dated 20 October 2015.

217. He referred us to paragraph 1.2 (System Overview) of the SRD, which, he said, illustrated that the modifications to the individual aircraft were made to facilitate the fitting of the role-fit equipment. This paragraph, he says, also sets out the need for the equipment to be transferable between different members of the Merlin Mk2 fleet. Mr Puzey also referred us to the definitions in paragraph 1.5.1 (System Terminology) and to the use of the term “modifications” in the definition of the CMS. Mr Puzey submits that the word “modifications” must be read in the context of the definition of the Merlin System, which provides that the CMS has to be interpreted as the CMS when installed on a Merlin Mk2. It does not, he submits, address the issue in this appeal, which is the status of the role-fit equipment when it is not installed on a Merlin Mk2, or when it is removed and installed on another aircraft. How does the role-fit kit modify the first aircraft in that situation? He submits that LMUK are using the reference to “modifications” in these definitions without considering how an aircraft can be modified by something that is not installed upon it or integrated with it. He submits that a similar error arises in relation to the reference by LMUK to “modified” in the table in paragraph 2 of Annex E - there is no issue that the Merlin Mk2 has been modified so that it is fit to receive role-fit kit. The question is, he says, whether those modifications to the aircraft are the predominant element.

218. We were also referred to paragraphs 12 to 14 of the SOR as further evidence that the predominant element of the supply is equipment. Ms Sloane in her skeleton (and the witnesses in their witness statement) say that HMRC is taking these three paragraphs out of context, given that there are (they say) 43 requirements listed in the SOR. Mr Puzey’s response is that the reasons these three paragraphs are highlighted by HMRC is that these define the “capability” being purchased by the MoD, and it is LMUK who are submitting that the Tribunal needs to have regard to the overall capability being supplied. Mr Puzey acknowledges that many other things are being supplied under the Prime Contract (such as training, certification, trials, testing, and reports). But, he submits, none of these are modifications to the aircraft, and do not form the capability being purchased by the MoD. None of these other items can be brought within the meaning of “modification services”.

219. Mr Puzey also referred us to the Thales and the Leonardo Subcontracts. He told us that HMRC have not challenged the fact that that Leonardo made a zero-rated supply of modification services under the Leonardo subcontract. In contrast Thales charged VAT at the standard rate on their supply to LMUK, which LMUK have not challenged. He submits that

this demonstrates that Thales consider that the predominant element of their supply to LMUK was one of equipment, and not modification services. He notes that Thales response to the Schedule 36 Notice describes the “main supply” under their subcontract as being the “ten production role kits”, and that they regard hardware as representing approximately 55% of the total value of the contract, and software development representing 25%.

220. He submits that it is not possible to compare the work done under the Leonardo Subcontract with the work done under the Thales Subcontract, because LMUK have not provided the necessary analysis. However, he notes that the consideration payable to Thales by LMUK is £120m, and the consideration payable by LMUK to Leonardo is £40m. Whilst he notes Ms Sloane’s point that it is not helpful to look at pricing, he submits that pricing is, according to the authorities, one of the metrics that can be used in analysing the predominant element of a supply. Mr Puzey submits that a significant cost input for LMUK was their payment of £120 million to Thales for what are essentially the role-fit kits. The value of that equipment supply is significantly larger than the modification services supplied by Leonardo to LMUK. Mr Puzey submits that what is being supplied onward from Thales (via LMUK) to the MoD is essentially equipment.

221. Mr Puzey takes issue with LMUK that design services should be regarded as a distinct element of a zero-rated modification. If Thales had designed some equipment, which included software, then the creation of the software and its installation into the equipment would not be a modification of that equipment, rather it is an input into the supply of equipment. Mr Puzey draws a distinction between design services undertaken by Thales and LMUK, and design services being undertaken by Leonardo. In the case of Leonardo, their design services are an element of the modifications they are supplying to the airframe of every Merlin Mk2.

222. Mr Puzey accepted that some modification services have been supplied. But, he submits, it is undeniable that tangible property has also been supplied in the form of new equipment in the role-fit kits. So pursuant to Article 14 of the PVD the right to dispose of taxable property as owner has been transferred. In this case both services and goods have been supplied as distinct elements of a single overarching supply. The issue for the Tribunal is to determine which is the predominant element of the supply.

223. Mr Puzey takes issue with Ms Sloane that HMRC have artificially dissected LMUK’s supply and failed to see it for what it is. Mr Puzey submits that the comparison with *Wetheralds* does not work in this case, because LMUK are not just agreeing to provide modifications on 30 aircraft as a supply of services, they are also supplying the role-fit kits which are a separate and distinct element. The role-fit kits are not being applied to each aircraft individually but to the fleet as a whole and are goods. To bundle up what is being supplied and label it “a supply of a capability” submits Mr Puzey does not address how each qualifying aircraft has been modified. *Wetheralds* concerned supplies of goods that, taken together, comprised a roof; the FTT in that case wrongly picked out the insulation as the predominant feature. LMUK are not supplying a helicopter, as the MoD already has the helicopters. They are supplying a complex system, some parts of which are fitted to the aircraft, most of which are not. The role-fit nature of these ten sets of equipment cannot simply be dismissed as being of secondary importance.

224. Mr Puzey submits that we need to consider Mr McDermott’s evidence with some care, as the authorities require the customer’s perspective to be an objective one, and not a subjective assessment from the person liable to pay the VAT. In *Aktiebolaget*, the Advocate General (at para 61) refers to a “typical customer”, not the actual customer. Mr Puzey notes that the MoD are the actual customer for the Crowsnest system, and that LMUK have not drawn any analogies with similar contracts with other customers. Nor, he says, have LMUK provided expert evidence of how these kinds of supplies are usually structured.

225. Mr Puzey referred us to Mr McDermott's evidence relating to the Crowsnest Project Overview included in the introduction to the SRD. Mr Puzey submits that Mr McDermott's evidence distinguishes between something that is permanent and something that is role-fit, and in doing so encapsulates why the supply made by LMUK is one of equipment and is not a supply of modification services.

226. Mr Puzey objects to LMUK raising as an argument that the Merlin Mk2s had been "converted", as this was first made in Ms Sloane's skeleton. As it was not raised as a ground of appeal, it was not addressed by HMRC in their Statement of Case. Mr Puzey submits that LMUK cannot change their case on the basis that "conversion" and "modification" mean the same thing when they do not. The statute refers to "services of modification or conversion", not "modification and conversion". There is no indication in the statute that they are to be treated as "compendious terms". Mr Puzey submits that in the mind of the draftsman they mean different things: if you convert something you change it into something else. It is no longer what it was. If something is modified, it has not lost its original designation or identity. The adding of a potential capability or an actual capability when a role-fit kit is installed on the Merlin Mk2 is not a "conversion". The aircraft has not stopped being something and changed into something else.

227. In response to the Tribunal's questions about the nature of the supplies, he reiterated the point made by the Advocate General in paragraphs 50 to 60 of his opinion in *Aktiebolaget*. The Advocate General's opinion was that "supply of goods" must be interpreted broadly and will cover any transfer of tangible property which empowers the transferee to dispose of it as if it were the owner (at para 50), and that a complex transaction that encompassed both the supply of services and goods should only be classified as a supply of services if the services predominate.

228. Mr Puzey agreed with Ms Sloane that a supply of goods cannot be made to a customer who retains title or property in the goods being supplied to him. However, in this Appeal, the role-fit kits incorporate both property in which the MoD has no pre-existing title, as well as GFE. Mr Puzey submits that the supply of new equipment is the predominant element of the role-fit kits. Thales' evidence is that of all the equipment delivered under their subcontract, around one-third is refurbished GFE. In practice, it is likely, submits Mr Puzey, to be less than one-third because of doubts about the serviceability of GFE that is now 20-30 years old.

229. But if there is any doubt about the exact proportions, Mr Puzey submits that it is for LMUK to prove their case on the balance of probabilities, and they have not adduced any evidence to cast doubt on the answers provided by Thales. They have not attempted to provide the Tribunal with a comparative analysis of GFE as against new equipment, or any analysis of whether that which was originally thought to be capable of re-use from the Sea King fleet is, in fact, so capable.

230. For LMUK to succeed, they must demonstrate that the predominant element of their supply is that of modification services to a qualifying aircraft. It would not be enough to find that the service elements of the supply taken together predominate over the supply of goods. It is the modification of each of the aircraft themselves which must be the predominant element of the supply by LMUK to the MoD. The use of GFE within the role-fit kits does not involve any element of modification services. The simple re-use of equipment, within the predominant and removable element of the ASaC system does not come within the scope of modification services.

231. Mr Puzey submits that the error in the LMUK's approach is to equate the introduction of a new ASaC capability for the "Merlin Mk2 system" with the words of the statute which refer to modification of a qualifying aircraft. The modifications to each helicopter in the fleet are

only one element of the supply of the capability by LMUK and are not the predominant element. The role fit kit, is one tonne of removable equipment, supplied in ten sets. It does not modify any particular aircraft in the fleet, but it enables an aircraft to operate in an ASaC configuration whilst it is so fitted.

## **DISCUSSION**

232. An unusual feature of this appeal is that it is an arm of Government (namely, the MoD) that will end up carrying the economic burden if we find that VAT is payable, as the price charged by LMUK is VAT exclusive. Of course, there will also be a liability for interest which will be borne by LMUK. This is not the first time that an arm of Government has had to reach a settlement with its own tax authorities. We are aware of, for example, the case of *IRC v National Coal Board* (1956) 37 TC 264 (not cited to us), where a dispute on an obscure point of interpretation of a tax statute went all the way to the House of Lords – and the comments of the Court of Appeal on the application made for leave to appeal to the House of Lords, although not applicable nor relevant to this case, are instructive.

233. So why is HMRC pursuing this case, as the principle potential outcome is the transfer of funds from one pocket of the Government to another? Mr Puzey's answer is that HMRC have a statutory responsibility to collect VAT from the person liable to account for it, whoever that person is, and whoever they supply. Furthermore, he says that it is important to know the true extent and meaning of the words "modification of a qualifying aircraft", and whether it encompasses something that is not affixed to or permanently incorporated on or within any particular aircraft, as there is no existing case law on that subject.

## **Evidence**

234. We found both Mr Morphett and Mr McDermott to be conscientious witnesses, seeking to assist the Tribunal as best as they were able. But, for the reasons we give below, we have placed little reliance on their evidence, and have relied primarily on the documentary evidence.

235. The witness statements of both Mr Morphett and Mr McDermott make extensive comments on HMRC's Statement of Case, to the extent that these comments are in substance in the nature of legal submissions, rather than statements of fact. Sadly, this seems to be a feature in many appeals before this Tribunal, with factual witness evidence being confused with opinions and legal submissions. Rather than engage in a somewhat futile and time-consuming exercise of deciding whether or not to admit parts of their witness statements in evidence, we take the view that it is better to admit the witness statements in their entirety but give such weight to the paragraphs commenting on HMRC's Statement of Case as we consider appropriate (which is not much weight, if any at all). This is not a criticism of either witness, as we believe that they were probably asked to include these remarks in their statements by LMUK's advisors. We also note that in response to the Schedule 36 Notice, Thales set out their view that the supply made by them under the Thales Subcontract is standard rated. For the same reasons as those applying to the evidence of Mr Morphett and Mr McDermott, we have not placed weight on Thales' opinion as to the VAT rate attaching to their supply

### ***Mr Morphett***

236. Mr Morphett first became involved with the Crowsnest project in March 2013 as LMUK's Chief Engineer and Senior Systems Engineering Manager for AP2 and AP3. He stepped back from the Crowsnest project in October 2015, a year before the signing of the Prime Contract between the MoD and LMUK, and the subcontract between LMUK and Thales. He no longer has any direct responsibility for LMUK's work under the Prime Contract, although he did have some involvement after October 2015 because he gave presentations to HMRC during their visit to LMUK. He agreed with Mr Puzey during cross-examination that



his present involvement is “peripheral”, and in our view, and we find that, his involvement has been peripheral since October 2015.

237. We agree with Mr Puzey that Mr. Morphett is a somewhat curious choice as a witness for LMUK given that he stepped back from direct responsibility for this contract in October 2015, over a year before the Prime Contract was signed, over a year before the finalisation of the SRD, and over a year before the Thales subcontract was signed.

238. During cross-examination he confirmed that his evidence about the extent of the role-fit kit, and the utilisation of GFE within the kit was on the basis of the Thales proposal in 2015. He could not say what Thales has actually decided that they can reuse. He did say that he expected that he would become aware of any major changes to Thales’ intentions, but we agree with Mr Puzey that this justification is weak given that (a) his involvement in the project is only peripheral (and has been for a considerable period of time), and (b) the history of lack of communication between the Thales and LMUK teams. Indeed, he admitted during cross-examination that as he had been “off the programme” for five years, he did not have a detailed list of “what the outstanding discussion items [of salvageable GFE] still are.”

239. Overall, we place little reliance on Mr Morphett’s evidence (save to the extent that it is otherwise corroborated) – not because of any doubts we might have about Mr Morphett’s honesty or integrity, but because Mr Morphett’s involvement with Crowsnest has been peripheral since October 2015. The history of the project’s delays and lack of communication between project teams means that we are extremely reluctant to place reliance on his second or third hand evidence – especially to the extent that such evidence is based on any communications from Thales to LMUK (or the fact that there have been no such communications).

#### ***Mr McDermott***

240. Mr McDermott’s evidence was helpful in giving an overview of the MoD’s procurement process and the documentary evidence. However, his evidence was of limited value in assisting us in identifying the predominant elements of the supply, not least (but not solely) because he had no knowledge of exactly which elements of LMUK’s supply would take the form of role-fit equipment, nor what proportion of the role-fit equipment would be GFE.

241. But he was able to provide evidence in relation to the background to the Prime Contract, and to situate the URD and the SRD in the procurement and contractual process.

#### ***Thales Schedule 36 Notice***

242. No witness from Thales gave evidence, and therefore the answers given by Thales to HMRC’s Schedule 36 Notice were not tested by cross-examination.

243. Thales’ response to the Schedule 36 Notice is dated 9 September 2019. It was in January 2019 that the MoD received the report of Thales’ internal audit, which showed that they had lost control of the programme. To what extent do Thales’ answers take account of any redesign undertaken by Thales as a consequence of the results of that internal audit report? This is not stated on the face of their responses. Given that seven or eight months had elapsed between the internal audit report and Thales’ responses, we find that it is more likely than not that their answers do reflect any redesign required (or the need for such redesign).

244. Mr Puzey submits that the evidence given by Thales (in their responses to the Schedule 36 Notice) is objective and comes from a party with no interest in the outcome of this Appeal, and we find that there is merit in this submission.

245. Ms Sloane accepted the factual accuracy of the answers given by Thales, and we therefore find that their response is reliable.

246. However, the supplies made by Thales to LMUK are not the same as the supplies made by LMUK to the MoD. But the equipment and software supplied by Thales form part of the onward supplies made by LMUK, and we therefore take account of Thales' answers as an aspect of the overall analysis of the supplies under appeal.

### **Findings of fact**

247. One of the difficulties we face is the absence of reliable detailed evidence as to what it is that LMUK have actually supplied to the MoD, or what it is that they have agreed to supply, other than in the most general of terms.

248. Partly this is because, notwithstanding that six years have elapsed since LMUK and the MoD entered into the Prime Contract, the supply remains in a state of flux. The parties have not yet reached a conclusion as to the detail of exactly how LMUK (and their subcontractors) will meet their obligations under the Prime Contract. Whilst three Merlin Mk2 aircraft have been fitted with an ASaC system and are accompanying HMS Queen Elizabeth on her maiden operational deployment, the ASaC system deployed on these aircraft does not meet LMUK's obligations under the Prime Contract as it is not a "delivered and integrated as a role fit Mission System to the existing Merlin Mk2 helicopter fleet" (line item 1 of the SOR). Mr Morphett's evidence is that HMS Queen Elizabeth:

has three Crowsnest configured Merlin Mk2s on the back [...]. Those aircraft are currently not role-fit. They were essentially an interim build where at the factory we permanently installed those modifications because the development work to work out exactly which bits are role-fit and how we train the customer to role-fit it, and exactly where we break the umbilical, as it were, that work is still on going.

249. But that is only one aspect of the difficulties that we face. The other is evidential. Neither Mr Morphett nor Mr McDermott were able to inform us exactly what elements of the Crowsnest capability are to be role-fittable, and what elements are to be permanently installed on the aircraft, nor were they able to tell us which elements of the role-fit kit were to comprise refurbished GFE, and which elements were to be new. Nor is there any documentary evidence before us which can answer these questions. Part of the reason that neither Mr McDermott nor Mr Morphett could answer these questions is because of the project's continued state of flux. But another reason is because neither are in any position to know. Mr McDermott is a civil servant working for the MoD, and has no, and has never had any, direct involvement in the design of the Crowsnest system, and Mr Morphett's involvement with the project has been peripheral since October 2015.

250. In these circumstances, our ability to make findings of fact as to what it is that is supplied by LMUK to the MoD (or what it is that LMUK intend to supply to the MoD), is severely constrained.

251. In the course of his submissions, Mr Puzey said that the problem that bedevils this Appeal is a lack of a clear breakdown of what is new, what is the GFE, and what is in the role-fit kits. Whilst he appreciated that the Prime Contract has not yet run its course and that things are still being sorted out, he submitted that the legal burden of proof is on LMUK to show that "modification services" are the predominant element of their supply to the MoD, and we agree. Ultimately, if LMUK cannot meet this burden, their appeal fails. It is unusual in the Tax Chamber for points on the burden of proof to make a significant difference to the outcome of an appeal. But in this case, the burden of proof does matter.

252. All that said, we can, and do, make the following findings of fact:

- (a) The Merlin Mk2 aircraft that are the subject of this appeal are both

- (i) “qualifying aircraft” for the purposes of Item 2, Group 8, Schedule 8, VAT Act; and
- (ii) “aircraft used by State institutions” for the purposes of Annex X, Part B of the PVD

and will remain so following the installation of the Crowsnest ASaC capability.

(b) LMUK have agreed to supply to the MoD an ASaC capability together with associated training systems, documentation, initial supply of spare parts, and various other items pursuant to the Prime Contract.

(c) The SRD (which is incorporated in, and forms part of, the Prime Contract) sets out the requirements for the ASaC capabilities. The SRD does not state what it is that is being supplied, rather it sets out the requirements that the system needs to achieve. The SRD divides the overall Crowsnest project into three main elements. The first is the CMS, which forms part of the Tactical System of, and is installed on, the Merlin Mk2 aircraft. The second is the Crowsnest Ground Support System, and the third is the Crowsnest Training System.

(d) The Prime Contract provides that the CMS is to be delivered and integrated as “a role-fit Mission System” to the existing fleet of 30 Merlin Mk2 helicopters. The MoD had decided that they would not purchase aircraft that would be permanently dedicated to an ASaC role. Instead, the ASaC capability would be delivered as an additional role to its existing fleet of Merlin Mk2 using role-fit equipment.

(e) The Merlin Mk2 is a multi-role aircraft and can perform multiple roles through the use of role-fit kits. The Prime Contract requires this multi-role capability to be preserved for each Merlin Mk2 aircraft. The Prime Contract requires that every Merlin Mk2 aircraft must be capable of taking on an ASaC role in addition to all of its existing roles.

(f) In order to deliver the ASaC capability, the Merlin Mk2 needs to be adapted for this new role. The adaptations include (a) the utilisation of existing components permanently installed on the Merlin Mk2 without adaptations, (b) adaptations to existing components permanently installed on the Merlin Mk2, and (c) new components (both tangible equipment and intangible software). Some of the new components are to be permanently installed on the Merlin Mk2, and some are installed only when the Merlin Mk2 is performing the ASaC role (role-fit kits).

(g) The use of role-fit kits on the existing Merlin Mk2 fleet provides a significant cost-saving for the MoD. First, the MoD does not need to acquire additional aircraft. Secondly, there is a consequential saving in avoiding the need for training for, and maintenance of, these additional aircraft. Thirdly, as the MoD have specified that they require only ten Merlin Mk2 to undertake an ASaC role at any one time, only ten role-fit kits are required. This means that additional cost-savings can be achieved by making CMS components role-fittable, as then only ten of such components will be required, rather than 30 (for fitting onto every Merlin Mk2). The MoD were aware of these advantages.

(h) Although it might hypothetically be possible for the ASaC capability to be delivered without using role-fit kits (or for those kits to form a minor part of the overall supply), in practice (as the MoD knew) the use of role-fit kits as a significant part of the ASaC capability is the only way in which it is possible for the capability to be delivered, without compromising the ability of the Merlin Mk2

to perform its other roles. The need to ensure that every Merlin Mk2 can continue to perform its other duties when not in an ASaC configuration, and the need to reduce weight and thereby increase the range of the aircraft and the time they can remain airborne, means that the majority of the equipment required for the ASaC role has to be role-fit.

(i) Because each Merlin Mk2 aircraft in the fleet must be capable of undertaking the ASaC role, the permanently installed elements of the CMS must be installed on every Merlin Mk2 aircraft in the fleet.

(j) In addition to the permanent changes required to be made to the Merlin Mk2 airframes by installing elements of the CMS (or which allow for the role-fit kits to be installed), other permanent changes are required to be made to the aircraft – including, for example, changes to the aircraft’s avionic systems to accommodate changes to the aerodynamics of the aircraft when flying in its ASaC role.

(k) The role-fit kits (other than one element) are not dedicated to any particular Merlin Mk2 aircraft. They have to be capable of being fitted to any Merlin Mk2 aircraft in the fleet. The single exception is an “adaptor” required to fit the RDM (the articulated bracket) to the Merlin Mk2 airframe. Each aircraft in the fleet requires its own individual adaptor to accommodate the individual distortions that have occurred in its airframe over time.

(l) In order to even out wear and tear on airframes, it is desirable that the role-fit kits are rotated through the fleet. The fact that there will always be some Merlin Mk2 aircraft in “deep maintenance” at any one time, means that the role-fit kits will have to be moved between different aircraft in any event.

(m) LMUK entered into a subcontract with Thales for the provision of the CMS.

(n) Some elements of the role-fit kit are salvaged and refurbished from the MoD’s legacy ASaC capability which utilised Sea King helicopters (GFE).

(o) Thales are developing software which will be installed both in the role-fit kit equipment and in LMUK’s computers that are permanently installed on the Merlin Mk2.

(p) There is, today, no comprehensive analysis of the respective contributions of the new role-fit equipment, the GFE, the permanent modifications to the Merlin Mk2 aircraft, and equipment that needs no modification.

(q) The role-fit kits are part of the CMS. In addition to the supply of the CMS itself (including both the role-fit elements and the permanently installed elements), the Prime Contract also provides for the supply of the Crowsnest Ground Support System, the Crowsnest Training System, and of spares. This includes, technical publications, ground support equipment, training, and new and upgraded training equipment.

253. But there are matters on which we are unable to make any factual findings. In particular we are unable to make any quantitative findings as to either:

(a) The extent to which the CMS is to be provided through elements (hardware and software) that are permanently installed in every Merlin Mk2 aircraft in the fleet, and elements (hardware and software) that are comprised in the role-fit kits; or

(b) The extent to which the role-fit kits utilise refurbished GFE.

254. We are unable to make any quantitative assessment of these respective elements, whether in terms of value, number, weight, or importance to the delivery of the CMS.

255. It is implicit in Ms Sloane's submissions that it is not possible to say that any element of the overall Crowsnest capability is of greater importance or predominates, as she submits that the system has to be considered as an integrated whole. Taken to an extreme, Ms Sloane might be taken to say that every bolt that secures equipment to the airframe is important to the integrated system on an "all for the want of a horseshoe nail" basis.

256. The only quantitative evidence we have as to the proportion of the CMS that is comprised in the role-fit kits, is the evidence of Mr McDermott that the external elements have approximately the same weight as two torpedoes (because the external radar dish and assembly is mounted in the position that two torpedoes would occupy if the aircraft was in its ASW role). There is also some evidence in the notes of meetings between LMUK and HMRC that one tonne comes off the aircraft when the role-fit kit is removed (but this would include the internal role-fittable racks and consoles), and one tonne goes on when it is switched to its ASW role (but this too would presumably include internal racks as well as the torpedoes themselves).

257. Thales' responses to the Section 36 Notice states that approximately 55% of the total value of the Thales Subcontract is represented by hardware (incorporating both new and refurbished GFE), and 45% is represented by associated services. Thales describe the "associated services" as being "refurbishment/upgrade work, design and software".

258. Thales also say elsewhere in their responses that 55% of the total value of the contract is represented by hardware, and 25% by software development. Although it is not wholly clear, this appears to imply that the majority of the "associated services" are represented by the development of software.

259. From a VAT perspective we treat Thales' percentage apportionments with a degree of scepticism. This is because, as Mr Puzey submits, and we agree and find that the development of software that is incorporated into equipment is an input into that equipment, rather than a separate supply of services. For similar reasons, we find that the design of equipment, and the refurbishment of equipment is also an input into that equipment. What is eventually supplied for VAT purposes is the equipment, not the separate elements of hardware, software, design, and refurbishment. When buying, for example, a mobile phone, what is supplied (for the purposes of VAT) is tangible moveable property – in other words "goods" - notwithstanding that a considerable proportion of the value in a modern mobile phone is in its software and its design.

260. We also treat with a degree of scepticism Thales' response that around one third of the equipment to be delivered under the subcontract is GFE. Thales do not state the basis on which this apportionment is made – whether it is by quantity, value, weight, or importance to the CMS that they are providing to LMUK. So, we are unable to make any quantitative assessment as to the extent to which the hardware supplied by Thales is new or refurbished GFE.

261. The overall impression that we had from Mr Morphett's evidence as to the elements of the CMS is that a considerable proportion of the active hardware (as distinct from racking or consoles) is represented by the role-fit kits, and a considerable proportion of the active elements of each role-fit kit is to be refurbished GFE. We recognise Mr McDermott's evidence that Thales' software was "all new", and the software is the heart of the system. Mr Morphett's evidence is that Thales are going to utilise LMUK's computers that are already permanently installed in the Merlin Mk2, rather than following their original plan of permanently installing an additional computer. But in their answers to HMRC's questions, Thales say that a series of software updates will be installed in the role-fit kits in order to add functional capability to

them incrementally. We find that the software installed in the role-fit kits will form an input into the role-fit kits, rather than constituting an independent supply of a service.

### **Legal Analysis**

262. The legislation governing zero rating is expressed slightly differently in the PVD from the VAT Act. In the PVD, the relevant requirement is for the supply to be

The [...] modification [...] of aircraft used by State institutions

In the VAT Act it is expressed as

The [...] modification or conversion of [a qualifying aircraft]

263. There must therefore be:

- (1) A “modification” (or in the case of the VAT Act, a “conversion”), and
- (2) The modification (or conversion) must be of “aircraft” or of “a [qualifying] aircraft”.

264. The legal burden of proof rests on LMUK.

265. It is not disputed that the supplies made by LMUK to the MoD amount to a single complex supply, and we agree and so find. A single complex supply is made up of many elements, and its character for VAT purposes is determined by the predominant element.

266. The issue we therefore have to determine is whether the predominant element of the single complex supply being made by LMUK is a supply of modification (or conversion) services to “aircraft” or to “a qualifying aircraft”.

267. LMUK need to prove that predominant element of the supply is characterised as “modification” or “conversion”.

268. But they also need to prove that the Merlin Mk2 aircraft in the Royal Navy’s fleet are being modified or converted, rather than the MoD are being provided with a new ASaC system. It may be that the modification of the aircraft has the consequence of delivering a new ASaC system to the MoD - but from a VAT perspective, what is necessary for zero-rating is modification or conversion of aircraft. We reach this conclusion from the drafting of the legislation which refers to the modification (or conversion) as having to be made to “aircraft”, which, in the circumstances of this appeal, means the Merlin Mk2 aircraft.

269. In this context, we find that the terms of the contractual relationship between LMUK and the MoD are of limited assistance in our analysis of the nature of the supply for VAT purposes. This is because the Prime Contract establishes what it is that the ASaC system the MoD are buying will do – but it does not set out in any detail how that system is to achieve those goals. That is for LMUK (and their subcontractors) to work out as part of their contractual obligations. Whilst the contract tells us that the MoD wants to be supplied with an ASaC capability, it does not drill down into the details. And this means that we cannot learn, from just reading the contract, the VAT nature of the supply that LMUK are making.

270. We would draw an analogy with a contract for a school library to be supplied with access to the complete works of Shakespeare. This could be provided by:

- (a) supplying a book,
- (b) supplying a computer disk or USB memory stick on which those works are stored in electronic format (which would be readable on a computer the school or their students already own), or

- (c) giving electronic equipment owned by the school or its students (such as iPads or Kindles) access via the Internet to an online library from which Shakespeare's works can be downloaded or viewed.

In each case, the school is supplied with access to the complete works of Shakespeare, but the VAT consequences could be very different, depending on the mechanism the supplier uses to meet its contractual obligations.

271. We agree with Mr Puzey that Ms Sloane's submission that the MoD are buying an integrated ASaC system is expressed at too high a level of generality to be useful for the VAT analysis. For VAT purposes we need to analyse exactly what it is that LMUK are doing for the MoD at a more granular level of detail. Whilst the MoD might want an ASaC system, that does not answer the character of the supply being made to the MoD for VAT purposes.

272. By analogy, if in the case of *Aktiebolaget* the supply agreement had stated that what was to be supplied to the customer was a system for transmitting telecommunication messages to and from Sweden, it would still have been the case that what was supplied for VAT purposes was goods (the right to dispose of tangible property as owner).

273. For these reasons, we do not agree with Ms Sloane's submission that what is being supplied for VAT purposes is a set of modifications to provide an ASaC capability to the Merlin Mk2 aircraft, nor that what is of decisive importance is that the Merlin Mk2 can have the ASaC capability when they fly. We need to drill down into the detail and understand the mechanisms by which LMUK will deliver an ASaC system to the MoD. We therefore need to consider the underlying work done and delivered (or to be delivered) to the MoD under the Prime Contract. And we find that this work is not apparent from the face of the contractual documents.

274. All that said, the Prime Contract does place some constraints on LMUK.

275. In particular, it requires LMUK to

- (a) deliver the ASaC system using the Royal Navy's existing fleet of 30 Merlin Mk2 aircraft;
- (b) ensure that every Merlin Mk2 aircraft in the fleet is capable of fulfilling an ASaC role; and
- (c) ensure that the ASaC system does not compromise the ability of the Merlin Mk2 fleet to fulfil all their existing multiple roles.

276. We find that this means that in practice that the ASaC system has to be delivered using role-fit kits, which can be removed from a Merlin Mk2 when the aircraft is being utilised in a different role. And the Prime Contract expressly requires LMUK to utilise role-fit kits.

277. We disagree with Ms Sloane's submission that the need for the role-fit kits arises only, or primarily, because of weight restrictions, and was not an objective in itself.

278. We had evidence and submissions that the MoD would have been happy for the ASaC capability to be installed permanently on the Merlin Mk2 fleet, providing that could be achieved without compromising the aircrafts' ability to fulfil their other roles. However, everyone knew that this was neither achievable nor practical. Not only would it add weight to the aircraft, which would limit its range, but the ASaC equipment would take up space which is needed when the aircraft is being used in other roles (such as troop carrying, ASW, or ASuW).

279. But, importantly, the MoD, LMUK, and Thales all saw advantages in the use of role-fit kits. The MoD would not need to purchase new aircraft for the ASaC role (with savings in the purchase cost of the new aircraft, as well as consequential savings in training and maintenance).

And whilst the MoD did not specify which elements of the CMS were to be role-fittable, they were well aware that only ten role-fit kits would be needed, which meant that only ten of the components within the kit would need to be supplied, as compared with thirty of the components which require permanent installation in each aircraft. The use of role-fit kits would result in a substantial reduction in the cost of the Crowsnest project. It is also advantageous to include as much as possible of the physical equipment dedicated for the ASaC system within the role-fit kit. Not only does this mean that only ten (and not thirty) of those components are required (saving cost), but it also minimises any addition to the “permanent” weight of the Merlin Mk2, and therefore minimises any impact on the aircraft’s range when not being used in an ASaC role.

280. So whilst on one level the MoD did not care which elements of the CMS were role-fittable, at another level, they did very much care – as in practice most of the CMS equipment would need to be removed from the Merlin Mk2 when not being used in an ASaC role, as if it remained in place, it would compromise the ability of the aircraft to perform its other roles – to take just one example, Mr McDermott’s evidence was that the external radar dish and assembly is mounted in the position that two torpedoes occupy when the aircraft is being used in its ASW role – and so we find that the radar dishes will need to be removed when the Merlin Mk2 is being used in its ASW role in order to allow the torpedoes to be mounted.

281. In the course of her submissions, Ms Sloane provided an analogy of an owner of a classic Morris Minor car wanting to be able to enjoy listening to music whilst driving using a high-quality CD system. This requires the installation of the CD player, an amplifier, and high-quality speakers into the car, all without prejudicing its integrity as a classic car. She notes that the driver can only enjoy music when the (removable) CD is inserted into the CD player. She also notes that the CD player (or perhaps its front plate) might be removeable, so that it cannot be stolen when the vehicle is not in use. She submitted that the classic Morris Minor had been permanently modified as a result of the installation of the music system, and it is irrelevant that there is a removeable element.

282. But a better analogy would be of a driver who had a collection of classic cars, and wanted the ability to listen to music in all of them. Brackets for speakers would be permanently installed into each car together with associated wiring. Also installed into each car under the dashboard would another bracket. A box containing the CD player and amplifier could be slid into the dashboard bracket, and the box and the speakers could be taken from one car to another, depending on which car the owner was driving at the time.

283. Taking the analogy further, perhaps our classic car collector is selling one of her cars, and wants the supplier to salvage the CD player, amplifier, and speakers from the car she is selling, and refurbish them (and upgrade the software) so that they can be used in the brackets and with the wiring that are being permanently installed in the rest of her collection.

284. We do not dispute that every car in this classic collection has been modified, just as Mr Puzey does not dispute that every Merlin Mk2 in the Royal Navy’s fleet has been modified. But we agree with Mr Puzey that LMUK cannot get away with the phrase “modifications to an existing fleet”, as if the fleet were a single entity. We agree with him that zero rating is applied to the modification of a particular aircraft or aircrafts. The portable dashboard box and speakers do not modify any or every classic car in the hypothetical collection, any more than the role-fit kits modify any or every one of the Merlin Mk2 aircraft in the Royal Navy’s fleet.

285. In her submissions, Ms Sloane placed considerable emphasis on the Crowsnest project being treated as a “modification” by the MAA (some aspects being a major modification, and others being minor), and that the treatment by the MAA of the Crowsnest project as giving rise to “modifications” supported LMUK’s case. However, we note that MAA RA 5820 refers to



“changes” and not “modifications”. But even if RA 5820 did refer to “modifications” we would have placed no weight on the fact that the provision of the ASaC capability (or of various of its elements) is regarded as either a major or minor change or modification for the purposes of RA 5820. The MAA’s classification is undertaken for the purposes of ensuring the safety of the aircraft and has no bearing on the nature of the supplies being made by LMUK for VAT purposes.

286. We agree with Ms Sloane that a supply of modification or conversion services could include services which go beyond the strictly physical work on the airframe – such as design, testing, and obtaining regulatory approval. But this is because those elements are inputs into the conversion or modification services being supplied, rather than being independent elements in their own right (see *Cholerton*). And in the circumstances of this appeal, we find that much of the software development and design work undertaken by Thales would be an input into their supply of the CMS, rather than being independent elements to be considered separately.

287. We also need to stand back from some of the jargon used by the MoD and LMUK, and the description of the capabilities being delivered by the Merlin Mk2 in terms of systems and sub-systems. Whilst these might be useful and relevant for the purposes of military analysis or project management, they do not describe the nature of the various elements being supplied by LMUK for VAT purposes. Ms Sloane, in the course of her submissions, referred us to the Venn diagram in paragraph 1.5.1 of the SRD, and submitted that the predominant element of LMUK’s supply is a modification to the Merlin System – being the airborne component of the overall weapons system. She described the elements relating to the Ground Support Systems and Training Systems as being ancillary. The Venn diagram is helpful in showing that the purpose of the ground support and training elements are to enable the MoD better to enjoy the Merlin System (and are therefore ancillary elements), but the diagram does not assist in establishing exactly what is the predominant element (other than it relates to the Merlin System), and its VAT nature.

288. When we stand back, we reach the conclusion and find that the predominant element of LMUK’s supply is the supply of the role-fit kits, and that this element is not a modification to or conversion of the Merlin Mk2 aircraft. We reach this finding for the following reasons:

- (1) We need to interpret provisions providing for the zero-rating of supplies restrictively and strictly (*Sweden v Stockholm Lindopark AB* Case (C-150/99) [2001] 2 CMLR 16 at [25] and also *HMRC v News Corp UK and Ireland Ltd* [2021] EWCA Civ 91).
- (2) Zero rating applies to the service of modifying or converting a particular aircraft or aircrafts. A fleet of aircraft cannot be treated for these purposes as if it was a single homogenous entity.
- (3) Modification carries the connotation of permanence. When an object is modified, it is changed. The fitting of a removable item to an object does not, we find, “modify” the object (although we recognise that the object may need to be modified to accept the removeable item). Hitching a caravan to a car does not modify the car, although fitting a tow bar and the associated socket (and its wiring) to the car in order to enable it to tow a caravan would be a modification.
- (4) Conversion carries the connotation of a more radical change to an object than modification (although there may be some kind of continuum, where conversion necessitates modifications being made to an object). Conversion carries the implication that the object performs a different function to that which it had prior to its conversion. As with modification, conversion implies a permanent change. Fitting a tow bar to a car

does not convert the car - even though it gives the car a new capability (the ability to tow a caravan).

(5) We find that the Merlin Mk2 aircraft are not (and are not going to be) “converted” under the Prime Contract. They will continue to be multi-role helicopters. The fact that they are being configured to be able to perform an additional role (being the ASaC role), does not, we find, amount to a “conversion”.

(6) There will be permanent changes made to the Merlin Mk2. Some of these will form part of the CMS itself, others will be made in order to enable the aircraft to operate with the permanent and role-fit elements of the CMS (such as the amendments to the avionics to take account of the fact that the aircraft’s aerodynamics will change when the radar dishes and associated equipment are in place). In addition, the CMS and the permanent systems need to be integrated to work together.

(7) Although LMUK and Thales have not finally determined which elements of the ASaC system are to be permanently installed on the Merlin Mk2, and which are to be role-fittable, the evidence is that the overwhelming majority of the physical equipment (on any measure) is to be role-fittable, and the economic context points towards as much as possible of the physical equipment being role-fittable. Whilst the evidence of Mr Morphett was that Thales would be using LMUK’s permanently installed computers for running ASaC software and that the software is the heart of the ASaC capability, he admitted that his evidence was based on Thales’ intentions in 2015, and we do not know whether this remains the case. Thales, in their answers to HMRC’s questions, state that software development represents about 25% of the total value of the contract. They also state that they are developing software which will be installed in the role-fit kits. We do not know the split in value between the software that will be installed on the role-fit kits, and the software that will be installed in LMUK’s permanently installed computer.

(8) We find that the design services and software development undertaken by Thales, and the refurbishment work undertaken to the GFE, are not separate elements of their supply to LMUK (save to the extent that the software is installed on LMUK’s computer that is permanently installed on the aircraft), rather they are inputs into the supply of the equipment to which they relate – and similarly for their onward supply by LMUK to the MoD.

(9) Because of the lack of detailed quantitative evidence, our conclusions as to the predominant element of LMUK’s supply are necessarily, to some extent, impressionistic. We do not agree with Ms Sloane’s submissions that a minority of the value of the supply relates to the role-fit kits, given that much of Thales’ software development and design work are inputs into the goods comprised within the CMS, rather than separate independent items.

(10) We find that the predominant element of the supply by LMUK is the supply of the role-fit kits. We find that the essential core of the ASaC capability that is being supplied by LMUK is comprised in the role-fit kits - which include the external radar dishes and the equipment installed internally in the role-fit racking and consoles.

(11) We find that the Merlin Mk2 are being modified, but we find that the modifications are an ancillary element of the single complex supply. The essential core and predominant element of the supply is the supply of the ten role-fit kits. We find that the role-fit nature of the ten sets of role-fit kits cannot simply be dismissed as being of secondary importance to the permanent changes being made to each Merlin Mk2. The

MoD wanted to utilise the Royal Navy's existing fleet of Merlin Mk2 aircraft for the ASaC role, and this necessitated the CMS being role-fittable.

(12) We find that the other elements being supplied by (or through) LMUK, such as ground support, documentation, training (and training equipment) and spares are ancillary to the predominant element – being the role-fit kit.

(13) We find that the role-fit kits do not “modify” the Merlin Mk2. Only ten role-fit kits are being supplied, and they are intended to be capable of being installed on any of the Merlin Mk2 aircraft (but for one minor component, which takes account of distortions in individual airframes). The fact that the role-fits kits can (and will) be swapped between any of the aircraft means, we find, that they do not modify any particular aircraft. The supply of the role-fit kits does not therefore fall within the zero-rating provisions.

289. We agree with Ms Sloane that the design of the role-fit kits is specially tailored to the specific requirements of the MoD. LMUK are not supplying an “off the shelf” product which is being adapted for the MoD's needs. And we have some sympathy with Ms Sloane's submission that the supply of services predominates where goods are adapted for the specific requirements of the customer, and the customisation is of decisive importance.

290. We note that Thales consider that approximately one third of the value of their supply to LMUK comprises refurbished GFE, but that proportion does not appear to take account of the installation of software within the GFE, which we find would be treated as an input into the refurbishment of the GFE, rather than as a separate element supplied by Thales to LMUK. We find that it is more likely than not, that the predominant character of the role-fit kits takes the form of refurbished GFE. On balance, we find that it is more likely than not that LMUK are not making a supply of goods but are making a supply of services on the basis that the predominant element within the role-fit kits amounts to the salvage and refurbishment of GFE, and that the supply to the MoD of refurbished equipment that they already own cannot be a supply of goods, rather it is a supply of refurbishment services.

291. We make the following further observations:

(1) The first is the analysis of the supply, and its predominant element, from an objective perspective. One of the issues with a unique product is that there is no typical customer. The only customer for a unique product that is designed to meet the particular requirements of a specific customer is the person for whom it is made. How can you view this sort of supply objectively if there is no one else in the world to whom this would or could be supplied? There can be no “typical customer”. We therefore do not criticise LMUK for the absence of comparative contracts or examples, or the absence of expert evidence. But we have sought to apply an appropriate element of objectivity and rationality to the analysis that we have set out above in considering the nature of the supply by LMUK.

(2) Second, we have commented on the lack of reliable and credible evidence about the nature of the supply being made by LMUK to Thales, and by Thales to LMUK. Ultimately, it is for LMUK to satisfy us, on the balance of probabilities, that the single complex supply being made to the MoD is of modification (or conversion services) within Item 2, Group 8, Schedule 8, VAT Act, or paragraph (11) Annex X, Part B, PVD. That, on any basis, they have failed to do.

#### **CONCLUSION AND DETERMINATION**

292. The appeal is dismissed.

293. The amount of VAT payable will need to be recalculated, as the contract price is exclusive of VAT, but the assessment was calculated on the basis that the contract price was VAT inclusive. If the parties are unable to reach agreement on the calculation of the VAT payable, leave is given for the parties to make application to the Tribunal to determine the amount of VAT payable.

#### **RIGHT TO APPLY FOR PERMISSION TO APPEAL**

294. This document contains full findings of fact and reasons for the decision. Any party dissatisfied with this decision has a right to apply for permission to appeal against it pursuant to Rule 39 of the Tribunal Procedure (First-tier Tribunal) (Tax Chamber) Rules 2009. The application must be received by this Tribunal not later than 56 days after this decision is sent to that party. The parties are referred to “Guidance to accompany a Decision from the First-tier Tribunal (Tax Chamber)” which accompanies and forms part of this decision notice.

#### **COSTS**

295. This appeal has been categorised as complex, and we have the power to award costs in accordance with Rule 10(1)(c) of the Tribunal's procedure rules.

296. As it is possible that this decision may be subject to an application for permission to appeal, we direct that the time limit in Rule 10(4) be extended so that any application for costs may be made to a single judge of the Tribunal:

- (a) if application for permission to appeal against this decision is made and granted, no later than 28 days after the onward appeal has been finally determined, or
- (b) if no such application is made (or is made but refused), no later than 28 days after such permission has been refused or (if earlier) the deadline for applying for permission has expired with no application for permission having been made.

**NICHOLAS ALEKSANDER**  
**TRIBUNAL JUDGE**

**Release date: 07 DECEMBER 2021**

#### **Cases mentioned in skeletons, but not referred to in this decision:**

*Ansar Ali t/a Indian Voojan v HMRC* [2020] UKFTT 70 (TC)

*N Brown Group Plc & Anor v HMRC* [2019] UKFTT 172 (TC)

*Ice Rink Co Ltd v HMRC* [2020] UKFTT 0350 (TC)