



CORPORATION TAX – Research and Development (R&D) – Tax relief – qualifying expenditure – BIS Guidelines – whether the Appellant qualified for relief – appeal allowed in part

**FIRST-TIER TRIBUNAL
TAX CHAMBER**

Appeal number: TC/2018/01111

BETWEEN

HADEE ENGINEERING CO LTD

Appellants

-and-

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

Respondents

**TRIBUNAL: JUDGE JENNIFER DEAN
MRS ANN CHRISTIAN**

Sitting in public at Manchester on 25 – 26 November 2019

Mr M. Firth, Counsel for the Appellant

Mr M. Priestley, Officer of HM Revenue and Customs, for the Respondents

DECISION

INTRODUCTION

1. The Appellant appeals against two closure notices issued by the Respondents (“HMRC”) on 10 January 2018 whereby the Appellant’s tax returns for the accounting periods ended 30 April 2009 and 30 April 2010 (“CT returns”) were amended so as to assess the Appellant to additional Corporation Tax of £51,065.56 and £33,968.76 respectively by refusing the Appellant’s claims for Research and Development Relief (“R&D”) made under s1044 Corporation Tax Act 2009 (“CTA 2009”).

Background

2. The following is a summary of the key interactions and events. Mr Peter Lowe is the Managing Director of the Appellant, an engineering company, which was founded in 1969. The Appellant’s original CT returns for 2009 and 2010 were submitted on 12 January 2010 and 4 April 2011 respectively. They did not contain any claims for R&D.

3. On 20 April 2011 the Appellant submitted amended returns for 2009 and 2010 claiming enhanced R&D CT deductions of £182,377 and £121,317 respectively. On 26 April 2011 the Appellant filed a Research and Development Report (“the MSC Report”) which had been prepared by MSC Business Innovation (Development) Limited (“MSC”) in support of the R&D claims.

4. The claims were made under the Small and Medium sized Enterprise (“SME”) Scheme claiming addition enhanced expenditure of 75%. There following projects were contained within the MSC Report:

- (1) Marine Gear Welding;
- (2) Double Deck Loader;
- (3) Hollow Ingot Manipulator;
- (4) Trombone Walkway Gantry;
- (5) 5,000 Tonne Manipulator Track;
- (6) Tilting Wash Down System;
- (7) Animal Centrifuge;
- (8) General R&D.

5. The Report also included schedules setting out:

- (1) Itemised staff costs and man-day calculations (Schedules 1 – 5);
- (2) Calculated utility costs (Schedule 6);
- (3) Detailed sub-contractor costs (Schedule 7);
- (4) Itemised consumable costs (Schedule 8);
- (5) A summary of calculations per year (Schedule 9).

6. The Report stated that the Appellant invests:

“in research and development to build its own portfolio of original products and technologies...The company is constantly investigating the potential for new concepts and ideas that emerge, primarily from its established customer base within the world of heavy engineering.”

7. On 6 February 2012 HMRC issued Notices of Enquiry under paragraph 24 schedule 19 Finance Act 1998 in relation to the two relevant periods. HMRC also requested further documents and information in support of the Appellant's claims, including a request for information from MSC.

8. On 20 March 2012 MSC advised HMRC that the Appellant was in possession of all relevant working papers and audit trail.

9. Throughout the enquiries HMRC made both informal and formal requests for information. A third party notice under Schedule 36 Finance Act 2008 was also made to one of the Appellant's customers, Sheffield Forgemasters as a result of which HMRC received a number of sales invoices, subcontractor invoices and a number of Sheffield Forgemaster's purchase invoice slips and requisition summaries.

10. HMRC maintain that the Appellant did not provide the full documentation requested. However, the following responses were received:

(1) On 9 July 2012 the Appellant stated that MSC would provide the information and documents requested in relation to the claim;

(2) On 17 August 2012 the Appellant gave partial responses with reference to the schedules in the MSC Report;

(3) On 16 October 2012 narrative responses were provided including details of the calculation of Mr Lowe's staff costs which stated that the 2008-2009 figure included a "bonus that was paid in this year [but] was accrued in the 2008 accounts";

(4) On 16 May 2013 the Appellant met HMRC and referred them to MSC;

(5) 10 October 2013 the Appellant met with HMRC and again referred them to MSC.

11. MSC provided limited working papers in addition to its Report and schedules; they maintained that they did not hold any primary records to substantiate the claims.

12. In January 2015 Sheffield Forgemasters provided HMRC with email correspondence with the Appellant, further invoices and requisition slips. However, they were unable to provide the full underlying documentation sought by HMRC.

13. On 3 July 2017 the Appellant applied to the Tribunal for closure notices on the basis that there were no further documents or information to produce in support of the claim. The Tribunal granted the application on 15 December 2017.

ISSUES

14. The issues in this appeal can be summarised as follows:

(1) Whether, and if so the extent to which the expenditure itemised within the R&D claims was incurred and allowable as a CT deduction in the relevant periods;

(2) Whether, and if so the extent to which the activities on which the Appellant's claims rely qualify as R&D under the relevant legislation and the BIS Guidelines;

(3) Whether, and if so the extent to which the 2009 claim satisfied Condition C of s1052 CTA and Condition B of s 1053 CTA 2009 in relation to intellectual property rights;

(4) Whether, and if so the extent to which the claims satisfy Condition D of s1052 CTA and Condition C of s 1053 CTA 2009 in relation to activities contracted out to the Appellant by another person;

(5) Whether, and if so the extent to which the claims satisfy Condition E of s1052 CTA and Condition D of s 1053 CTA 2009 in relation to subsidised expenditure.

RELEVANT LAW

15. Paragraph 21 of Schedule 18 to the Finance Act 1998 (“FA 1998”) provides that a company which may be required to deliver a tax return for any period must keep such records as may be needed to enable it to deliver a correct and complete return and preserve those records until the sixth anniversary of the end of the period for which the company may be required to deliver a company tax return. Paragraph 24 of Schedule 18 to the FA 1998 provides that an Officer of HMRC may enquire into an amended tax return if they give notice of an intention to do so by specified dates. Paragraph 32(1) of Schedule 18 to the FA 1998 provides that an enquiry into a company is completed when a closure notice is issued and paragraph 34 concerns the amendment of a return after an enquiry.

16. The provisions governing R&D relief are contained in the Corporation Tax Act 2009. They were considered (in their previous form under sch 20 Finance Act 2000) by the High Court in *Gripple Ltd v RCC* [2010] STC 2283 where Henderson J stated (at [12]):

“... the provisions form a detailed and meticulously drafted code, with a series of defined terms and composite expressions, and a large number of carefully delineated conditions, all of which have to be satisfied if the relief is to be available.”

17. For present purposes much of the legislative detail may be summarised, as there is no dispute as to the applicable law.

18. The Corporation Tax Act 2010 came into force on 1 April 2010; section 1138 provides for “research and development”.

19. The CTA 2009 provides relevantly as follows:

“1039(1) This Part provides for corporation tax relief for expenditure on research and development...”

1041 In this Part “research and development” has the meaning given by [section 1138 of CTA 2010]” (Previously 837A of ICTA).

20. Section 1042 sets out the meaning of “relevant research and development” and s1044 provides that a company is entitled to relief if specified conditions are met. There was no dispute that the Appellant met the conditions set out therein.

21. Sections 1052 and 1053 provide as follows:

1052 Qualifying expenditure on in-house direct R&D

(1) A company’s “qualifying expenditure on in-house direct research and development” means expenditure incurred by it in relation to which each of conditions A to E is met.

(2) Condition A is that the expenditure is—

(a) incurred on staffing costs (see section 1123),

(b) incurred on software or consumable items (see section 1125),

(c) qualifying expenditure on externally provided workers (see section 1127), or

(d) incurred on relevant payments to the subjects of a clinical trial (see section 1140).

(3) Condition B is that the expenditure is attributable to relevant research and development undertaken by the company itself.

(4) Condition C is that any intellectual property created as a result of the research and development to which the expenditure is attributable is, or will be, vested in the company (whether alone or with other persons).

(5) Condition D is that the expenditure is not incurred by the company in carrying on activities which are contracted out to the company by any person.

(6) Condition E is that the expenditure is not subsidised (see section 1138).”

1053 Qualifying expenditure on contracted out R&D

(1) A company’s “qualifying expenditure on contracted out research and development” means expenditure—

(a) which is incurred by it in making the qualifying element of a sub- contractor payment (see sections 1134 to 1136), and

(b) in relation to which each of conditions A to D is met.

(2) Condition A is that the expenditure is attributable to relevant research and development undertaken on behalf of the company.

(3) Condition B is that any intellectual property created as a result of the research and development to which the expenditure is attributable is, or will be, vested in the company (whether alone or with other persons).

(4) Condition C is that the expenditure is not incurred by the company in carrying on activities which are contracted out to the company by any person.

(5) Condition D is that the expenditure is not subsidised (see section 1138).

22. Sections 1123 and 1124 relate to staffing costs and attributable expenditure:

“1124 Staffing costs: attributable expenditure

(1) This section applies for the purposes of this Part to identify when staffing costs are attributable to relevant research and development.

(2) The costs which are so attributable are those paid to, or in respect of, directors or employees who are directly and actively engaged in relevant research and development.

(3) Subsection (4) applies if a director or employee is partly engaged directly and actively in relevant research and development.

(4) The appropriate proportion of the staffing costs relating to the director or employee is treated as attributable to relevant research and development.”

23. S1138 provides under the heading “Subsidised expenditure”

(1) For the purposes of this Part a company’s expenditure is treated as subsidised—

...

(c) to the extent that it is otherwise met directly or indirectly by a person other than the company.

24. The Department for Business, Innovation and Skills issued Guidelines on the Meaning of Research and Development for Tax purposes on 5 March 2004 and which were updated on 6 December 2010. The BIS Guidelines have the force of law by virtue of s1006 ITA 2007, s837 ICTA 1988 and s1138 CTA 2010 and the pertinent parts provide as follows:

“These Guidelines are issued by the Secretary of State for Trade and Industry for the purposes of Section 837A Income and Corporation Taxes Act 1988. They replace the previous Guidelines issued on 28 July 2000.

1. Research and development (‘R&D’) is defined for tax purposes in Section 837A Income and Corporation Taxes Act 1988. This says the definition of R&D for tax purposes follows generally accepted accounting practice. SSAP 13 Accounting for research and development is the Statement of Standard Accounting Practice which defines R&D. The accountancy definition is then modified for tax purposes by these Guidelines, which are given legal force by Parliamentary Regulations. These Guidelines explain what is meant by R&D for a variety of tax purposes, but the rules of particular tax schemes may restrict the qualifying expenditure.
2. ...
3. R&D for tax purposes takes place when a **project** seeks to achieve an **advance in science or technology**.
4. The activities which **directly contribute** to achieving this advance in science or technology through the resolution of **scientific or technological uncertainty** are R&D.
5. ...
6. An advance in science or technology means an advance in **overall knowledge or capability** in a field of **science or technology** (not a company’s own state of knowledge or capability alone). This includes the adaptation of knowledge or capability from another field of science or technology in order to make such an advance where this adaptation was not readily deducible.
7. An advance in science or technology may have tangible consequences (such as a new or more efficient cleaning product, or a process which generates less waste) or more intangible outcomes (new knowledge or cost improvements, for example).
8. A process, material, device, product, service or source of knowledge does not become an advance in science or technology simply because science or technology is used in its creation. Work which uses science or technology but which does not advance scientific or technological capability as a whole is not an advance in science or technology.
9. A project which seeks to, for example,
 - (a) extend overall knowledge or capability in a field of science or technology; or
 - (b) create a process, material, device, product or service which incorporates or represents an increase in overall knowledge or capability in a field of science or technology; or

(c) make an **appreciable improvement** to an existing process, material, device, product or service through scientific or technological changes; or

(d) use science or technology to duplicate the effect of an existing process, material, device, product or service in a new or appreciably improved way (e.g. a product which has exactly the same performance characteristics as existing models, but is built in a fundamentally different manner)

will therefore be R&D.

10. Even if the advance in science or technology sought by a project is not achieved or not fully realised, R&D still takes place.

11. If a particular advance in science or technology has already been made or attempted but details are not readily available (for example, if it is a trade secret), work to achieve such an advance can still be an advance in science or technology.

12. However, the routine analysis, copying or adaptation of an existing product, process, service or material, will not be an advance in science or technology.

13. Scientific or technological uncertainty exists when knowledge of whether something is scientifically possible or technologically feasible, or how to achieve it in practice, is not readily available or deducible by a competent professional working in the field. This includes **system uncertainty**. Scientific or technological uncertainty will often arise from turning something that has already been established as scientifically feasible into a cost-effective, reliable and reproducible process, material, device, product or service.

14. Uncertainties that can readily be resolved by a competent professional working in the field are not scientific or technological uncertainties. Similarly, improvements, optimisations and fine-tuning which do not materially affect the underlying science or technology do not constitute work to resolve scientific or technological uncertainty.”

25. At section 19 of the BIS, “project” is defined as follows:

“A project consists of a number of activities conducted to a method or plan in order to achieve an advance in science or technology. It is important to get the boundaries of the project correct. It should encompass all the activities which collectively serve to resolve the scientific or technological uncertainty associated with achieving the advance, so it could include a number of different sub-projects. A project may itself be part of a larger commercial project, but that does not make the parts of the commercial project that do not address scientific or technological uncertainty into R&D.”

26. At section 20 “overall knowledge or capability” is set out as:

“Overall knowledge or capability in a field of science or technology means the knowledge or capability in the field which is publicly available or is readily deducible from the publicly available knowledge or capability by a competent professional working in the field. Work which seeks an advance relative to this overall knowledge or capability is R&D.”

27. Sections 23 – 25 address “appreciable improvement”:

“23. Appreciable improvement means to change or adapt the scientific or technological characteristics of something to the point where it is ‘better’ than the original. The improvement should be more than a minor or routine upgrading, and

should represent something that would generally be acknowledged by a competent professional working in the field as a genuine and non-trivial improvement. Improvements arising from the adaptation of knowledge or capability from another field of science or technology are appreciable improvements if they would generally be acknowledged by a competent professional working in the field as a genuine and non-trivial improvement.

24. Improvements which arise from taking existing science or technology and deploying it in a new context (e.g. a different trade) with only minor or routine changes are not appreciable improvements. A process, material, device, product or service will not be appreciably improved if it simply brings a company into line with overall knowledge or capability in science or technology, even though it may be completely new to the company or the company's trade.

25. The question of what scale of advance would constitute an appreciable improvement will differ between fields of science and technology and will depend on what a competent professional working in the field would regard as a genuine and non-trivial improvement."

28. Other sections relied on by the parties and which it may be helpful to set out here are:

"Start and end of R&D

33. R&D begins when work to resolve the scientific or technological uncertainty starts, and ends when that uncertainty is resolved or work to resolve it ceases. This means that work to identify the requirements for the process, material, device, product or service, where no scientific or technological questions are at issue, is not R&D.

34. R&D ends when knowledge is codified in a form usable by a competent professional working in the field, or when a prototype or pilot plant with all the functional characteristics of the final process, material, device, product or service is produced.

35. Although the R&D for a process, material, device, product or service may have ended, new problems which involve scientific or technological uncertainty may emerge after it has been turned over to production or put into use. The resolution of these problems may require new R&D to be carried out. But there is a distinction to be drawn between such problems and routine fault fixing.

Examples/Illustrations

The R&D process

A1. A company conducts extensive market research to learn what technical and design characteristics a new DVD player should have in order to be an appealing product. This work is not R&D (paragraph 37). However, it does identify a potential project to create a DVD player incorporating a number of technological improvements which the company's R&D staff (who are competent professionals) regard as genuine and nontrivial. This project would be seeking to develop an appreciably improved DVD player (paragraphs 23-25) and would therefore be seeking to achieve an advance in science or technology (paragraph 9(c)).

A4. Several copies of this prototype are made (not R&D; paragraphs 4-5 and 26-28) and distributed to a group of consumers to test their reactions (not R&D; paragraph 28(a)). Some of these consumers report concerns about the noise level of the DVD

player in operation. Additional work is done to resolve this problem. If this involves a routine adjustment of the existing prototype (i.e. no scientific or technological uncertainty) then it will not be R&D (paragraph 14); if it involves more substantial changes (i.e. there is scientific or technological uncertainty to resolve) then it will be R&D.

Testing as part of R&D

G1. Scientific or technological testing and analysis which directly contributes to the resolution of scientific or technological uncertainty is R&D (paragraph 26). So for example if testing work is carried out as part of the development of a pilot plant, this would be R&D, but once the design of the ‘final’ pilot plant had been finalised and tested, any further testing would not be R&D (paragraph 39). However, if flaws in the design became apparent later on, then work to remedy them would be R&D if they could not readily be resolved by a competent professional working in the field (in other words, if there was scientific or technological uncertainty around how to fix the problem; paragraph 14).

Project, prototype and end of R&D

J1. A company develops new spark plugs for use in an existing petrol engine. The scientific or technological uncertainty associated with this work is resolved once prototype plugs have been fully tested in the engine. The activities directly contributing to this work, including the construction of prototypes and their testing in the engine, would be R&D.

J2. The same company decides to design a new engine to incorporate the new spark plugs, involving a new combustion chamber design, lighter materials and other improvements such that the overall engine is appreciably improved (it uses less petrol to achieve slightly greater power output performance, and generates less pollution than current models). The activities directly contributing to this work, including the design of the separate components (not all of which need be different from those used in previous models) and their integration into a new engine, are R&D. The uncertainty associated with this work is resolved, and R&D is complete. once a functionally final prototype has been tested.”

29. There was no dispute that the enquiries were valid. The burden of proof therefore rests with the Appellant to demonstrate that HMRC’s amendments were incorrect.

EVIDENCE

30. On behalf of the Appellant Mr Peter Lowe, managing director of the company, gave evidence. He explained that he had founded the company in 1969 and has been the director since that time. Mr Lowe explained that the Appellant had previously submitted research and development claims to HMRC without any challenge to those claims. Mr Lowe considered that HMRC Officer Mr Reilly’s lack of understanding of engineering caused significant difficulties in resolving HMRC’s enquiries.

31. Mr Lowe explained that he runs the company and its projects in a very “hands on” capacity and has full knowledge of the matters which form the subject of this appeal.

32. Mr Lowe explained that the Appellant’s R&D claim was formulated and submitted to HMRC by MSC which has declined to assist with HMRC’s queries. According to Mr Lowe, the Director of MSC said that they had never dealt with HMRC’s fraud investigators before and did not wish to be embroiled in such a process. Mr Lowe took the view, and invited the Tribunal to infer, that the Appellant’s insistence that HMRC approach MSC is not the sign of someone who believes their claims are incorrect, but rather the sign of someone who believes

their claims are accurately and precisely calculated and is attempting to assist HMRC. Mr Lowe explained that he worked very closely with MSC in providing the information used to formulate the claims; he met with the director and two of their analysts who worked on the claims and all three struck Mr Lowe as “thoroughly competent R&D professionals”.

33. Mr Lowe exhibited a print out of MSC’s “Our History” taken from its website. It stated that MSC have been engaged in R&D led companies for over 25 years, it has a team of specialists with expertise in numerous areas and MSC operate to the leading industry standards. Mr Lowe found the organisation impressive and had confidence that MSC would understand the complexity of the engineering business and innovative projects undertaken from which they would properly identify the R&D and produce a competent and compliant claim to HMRC.

34. Mr Lowe provided the following information relating to the projects which comprised the claim:

The marine gears project

35. The Appellant was approached by David Brown Gear Systems Ltd to attempt to manufacture the main gear drive for the Astute Class of British nuclear submarine for which the customer was invoiced £10,695. The Appellant was given an approved procedure to manufacture the gear, which it followed. However, having used the approved process, it was found that the gear had cracks in the heat affected zones adjacent to the weld.

36. The Appellant attempted several alternative methods to rectify the cracks without success. No R&D was claimed on the first stage as the Appellant was manufacturing to an approved process provided by the customer. The project subject to the Appellant’s R&D claim was speculative and at the Appellant’s own risk to develop a new process that eradicated the flaws.

37. The approved process involved heating the gears to 350 degrees and then maintaining the temperature for two weeks in order to complete the full production process. If the temperature dropped at any time the gears would weaken and crack. As a result, the project required round the clock working; Mr Lowe worked the night shift and the manager worked the day shift to ensure the approved procedure was followed. The task took about 1 week to 10 days working around the clock. Once manufactured the gears were stress tested while at 350 degrees; this testing process showed that cracks were appearing on the gears because three dissimilar metals were being welded together.

38. Mr Lowe explained that the advance in science and technology was to develop a new welding process for dissimilar alloys that created a more accurate and robust gear with a longer operating life span; this approach had not been taken before. Mr Lowe considered that this amounted to an “appreciable improvement to an existing process, material, device, product or service through scientific or technological changes.” The technological uncertainties that arose were the development of a process of welding dissimilar alloys at high temperatures, how to avoid the weld cracking and getting the cooling optimised, the optimisation of the weld current, material and speed and how to avoid carbon being pulled in from the parent metal. Mr Lowe explained that this was an immense technical challenge which had been tried before by others without success.

39. The Appellant approached and worked with the Welding Institute, the leading institution, to investigate the problem. Mr Lowe explained that the reason for working closely with the Welding Institution was that the failure of the process “required exploration of entirely untried approaches to welding”. Mr Lowe stated that the Welding Institute had not encountered the issues faced previously nor could they provide the Appellant with a solution;

the process initially developed with them did not resolve the issues. In oral evidence Mr Lowe stated that the Welding Institute's view was that the project involved technology which was not proven; Mr Lowe took the view that it had been attempted before and therefore must be possible. The Welding Institute advised that there may be grants available and they had a scheme whereby one of their welders would assist. The Appellant did not obtain a grant but the Welding Institute provided a welder on a free secondment.

40. The Appellant undertook trials on scrap gear wheels from the customer, trying new and previously untried welding procedures. Eventually after ten separate trials the Appellant discovered a procedure that overcame the problems encountered and which showed that the approved procedure initially followed was flawed. Once the new method was established further testing was undertaken to provide validation; this was sub-contracted. The breakdown of costs includes meetings with the client and the Welding Institute, trials and testing which Mr Lowe considered iterative work. The £11,000 payment for "fabrication and welding" was correctly excluded from the claim as it was paid for by the client for the initial supply of the gears as part of normal business and was separate to the R&D project. Mr Lowe stated that:

"This was following our project discussions with MSC and tells me that MSC considered subsidised expenditure and excluded it from the claim. I expect that they adopted the same methodology throughout the entire claim they formulated across all of the projects."

41. In cross-examination Mr Lowe accepted that the only invoice in support of the claim was a document which showed that the Appellant had carried out welding for which it was paid. A document entitled "Breakdown of costs associated with weld procedure for the welding of dissimilar metals" produced by the Appellant listed 42 activities. Items 1 – 22 related to the set procedure which Mr Lowe believed had not been claimed but which we were satisfied had wrongly formed part of the R&D claim.

42. There were no documents in the evidence such as contracts or correspondence between the Appellant and customer or test reports. Mr Lowe explained that the knowledge was secret but that he could have produced evidence. He had offered the procedure to the customer to buy but they refused as they did not believe their procedure was flawed.

43. Mr Lowe stated that the Appellant developed, at its own expense, a new and innovative solution to the welding problems encountered. He explained that if the problem was solved and the project sold this would open doors to the Appellant as 7 were required and the Appellant did not want to miss the opportunity of further work from the customer.

44. In his witness statement Mr Lowe stated that as a result of the solution developed by the Appellant, the Welding Institute now have this knowledge available to them. The fact that the Welding Institute, as leading industry experts, did not have the solution shows that the project advanced or at least appreciably improved a process. In oral evidence Mr Lowe stated that the process used was known by the Appellant's quality manager who re-wrote it, the assistant from the Welding Institute and the two welders from the Appellant who worked on it with Mr Lowe. The process was not patented by the Appellant as it was considered that there was no need:

"we carry our knowledge amongst us as engineers. The knowledge did not and cannot pass to anyone else – it was our research and we now know how to deal with this scenario again if we need to. As far as we know, no one else does."

The double deck loaders project

45. Mr Lowe explained that the purpose of the project was to achieve a better solution than that in existence and to advance that knowledge.

46. The Appellant was approached to see if it could design and build double-deck loaders to fit onto the back of 40 foot lorry trailers which would help free up space in lorries when transporting food to grocery stores. The commercial advantage to hauliers was that the capacity of the lorry trailer would be doubled. The customer wanted the Appellant to design and build the lift which it would then sell and maintain.

47. Mr Lowe explained that there were already two tiered double deck loaders available but which were prohibitively expensive to operators. In addition, the heavy hydraulic systems of the existing products affected the weight payload of the lorry meaning they were very expensive operating systems due to them reducing the laden capacity of the lorry.

48. The customer, Transdek, gave the Appellant outline parameters of the technological challenge. The Appellant then developed the system at its own risk; the Appellant would only be paid if it could deliver a working solution and sell that solution. At the time the Appellant was approached there were only two standard options when buying a lorry in the marketplace; one was a fixed double decker lorry which cost about £120,000 and the other was a fixed single lorry costing about £50,000. The attraction of a moveable double deck system was the flexibility and optimum space usage that would become available against the standard lorry options.

49. A number of visits to Tesco depots and distribution centres around the country were carried out to understand the challenge and, in particular, the access and height issues. The Appellant also undertook exercises around the weighting of the possible solution and explored solutions and a comparison to maximum payloads. Mr Lowe explained:

“We had to undertake a complete re-think of both the design of loaders and the way in which they were used, to avoid simply replicating the prohibitively expensive and unviable solution that already existed.”

50. Mr Lowe explained that there were also health and safety considerations in creating a design which prevented the upper floor dropping to the lower floor particularly with the risk that an operative or driver might be there.

51. Mr Lowe’s witness statement described the system developed by the Appellant as one which raised the floor of the lorry to create two floors where food could be placed. This required the Appellant to develop an innovative and new hydraulic system for double deck trailers which replaced the standard 16 cylinder hydraulics unit to 1 cylinder unit to create the space needed rather than losing space to the 16 cylinders. Mr Lowe considered it fairly self-evident that reducing a 16 cylinder lifting system to a 1 cylinder lifting system is at least an appreciable improvement to a product, device or system.

52. The technical challenges and uncertainties included:

- (1) How to replace 16 cylinders with 1 master cylinder;
- (2) How to achieve a design and configuration of the system for such a confined space;
- (3) How to make any design sympathetic to general height and width restrictions;
- (4) How to reduce the complexity of the design and mechanics to ensure its viability;
- (5) How to create a solution which is safe and within H&S guidelines.

53. The Appellant’s research and development focused on developing a system using hydraulics and rollers which might safely raise the floor. At the time there were no other systems like this available on the market and the Appellant created a solution from scratch. During the research and development, the Appellant had to change the configuration of the

hydraulics as the use of them in the prototype classed the system as a “lift”. This meant that additional safety standards came into play and the Appellant had to incorporate a “catch” mechanism into the system to prevent the floor from falling in case of a system failure. As Mr Lowe described “in short, if a member of staff was under the floor in the event of collapse, the consequences could prove fatal. The research into these areas was highly innovative as a result.”

54. The move from a 16 cylinder system to a 1 cylinder system was a necessary challenge due to the weight and space constraints; lorries have to operate to an operating weight, including goods in transit. Mr Lowe stated that it was not readily deducible how this could be done and the system did not work in the initial stages of development.

55. The Appellant took the view it needed to build a prototype for “in the field” trials. During those trials the Appellant made modifications to the prototype to hone and enhance the project. One prototype was built and all subsequent improvements and advances were incorporated into the units produced later. It was only with the third prototype that the uncertainties were resolved. Mr Lowe explained that the Appellant successfully created a new design that was able to be marketed; approximately 30 units have been produced for commercial sale. In oral evidence Mr Lowe explained that he had the feeling that the customer wanted to develop its own machine; it reneged on the agreement and the Appellant stopped building. The machines left could not be scrapped and so they were burned as scrap which was cost neutral. The prototypes could not be sold as Health and Safety would have prevented this.

56. Due to the size of the project the Appellant calculated that it had used 204 staff days on it. There was also the cost of £47,175 of Mr John Marshall included for design work; Mr Marshall is a highly specialist designer that that the Appellant uses on very high level design work where it does not have the innovative design in-house. By using a specialist designer, it shows that the Appellant is not making something “to order” otherwise the plans would be freely available to any manufacturer. In oral evidence Mr Lowe clarified that Mr Marshall developed the project while his role was limited to supervising it.

57. In oral evidence Mr Lowe had described the product as a shelf in which the key innovations were the manipulator, which had not been referred to before by the Appellant, and locking mechanism. Mr Lowe agreed that the patents exhibited by HMRC showed an earlier version of a lift which was marketed without much success. The Appellant had produced the item for 12 months following which the customer built the product themselves and stopped using the Appellant. He did not try to patent the item as he was not going to sell it, just manufacture the product. Mr Lowe stated that he had copyright on the drawings but that the customer had just changed the model slightly.

58. At the time of making the product Mr Lowe accepted he did not know if it was a major advance in technology. Mr Marshall had been in charge of the prototype. Mr Marshall’s invoice did not specify what his billed time was for, although Mr Lowe said it was the design and prototype which the reason Mr Marshall was required. Mr Lowe stated that although the customer paid for drafts he retained copyright, or rather Mr Marshall had copyright which he assigned to the Appellant. Mr Lowe confirmed that he would have an order or contract for the project but that it was not before the Tribunal.

The hollow ingot project

59. The Appellant had worked with and supplied Sheffield Forgemasters International Ltd (“Sheffield Forgemasters”) since 1969 and consequently there was a strong working relationship between them. Mr Lowe described Sheffield Forgemasters as a unique company

in Britain as there is no one within Western Europe that carries the size, scale or capacity of their operation.

60. The customer explained that they wanted to alter their manufacturing process to manufacture hollow steel ingots (as opposed to the traditional solid ingot) for a large contract they had recently won. The Appellant was given an outline of the design requirements but was left to develop the solution itself.

61. Mr Lowe described the challenge of producing hollow ingots as “immense”. The cast has to be lifted from the mould and turned at 90 degrees at a temperature of 800 degrees. It weighs between 280 and 320 tonnes and has to be placed on a purpose made stillage, covered with a hot box and transported approximately ¼ mile across a major road to a pre-heat furnace. It then needs to be lifted using specialist machinery which the Appellant designed into the pre-heat furnace at 800 degrees ready to pre-heat up to 1100 degrees. Mr Lowe explained that the advantage of finding a solution which avoids cooling was enormous cost savings to the manufacturer as it reduces their need to reheat.

62. Mr Lowe explained:

“To forge an ingot of this magnitude means that, when it comes out of the preheat furnace, it requires some sort of special lifting tool which can move the ingot to the 10,000 tonne press, allows the ingot to be part forged and then returned to the preheat furnace for reheating and repeat, picking up with the special lifting tool, presents it to the manipulator which feeds the 10,000 tonne press and repeats this exercise several times before the forging is completed.”

63. Given the weights and heat involved in the process, chains or ropes cannot be used; all of the equipment has to be specifically designed to be able to operate within the process and at the weights and heat that exist.

64. Mr Lowe explained that the added complexity was that when turning an object 90 degrees with a moving centre of gravity it is vital to ensure there is no “snatch” effect when turning or there will be damage to the crane and supporting crane track in addition to the obvious risk to staff.

65. The technological challenge and advance achieved was to design and develop a new forging process by developing a new set of manipulators that turn and lift hollow ingots of 330 tonnes at extreme heat. As there was no “off the shelf” solution available the Appellant designed an initial scaled down version of both a tilting frame and the “C” frame to test the degree to which the Appellant could run a job of this size flawlessly and safely.

66. The Appellant explored developing a thin steel case that was coated in special paint. This was then used for the outer ingot where the sides of the product were filled with hot metal, once the metal cooled down and the steel case removed an ingot was developed. Mr Lowe explained that numerous different designs and processes were developed and explored. A huge challenge was ensuring an even distribution of the metal within the case. Eventually the Appellant sought to design a “hook” based mechanism that could withstand the heat to move the ingot.

67. For the design work the Appellant used a specialist designer, Atkins which Mr Lowe considered shows the design autonomy for the project. Once the prototype was completed and tested a full scale final solution was manufactured for Sheffield Forgemasters which was purchased on commercial terms. In oral evidence Mr Lowe confirmed that Atkins drew up the version which was then made by the Appellant as a prototype. Atkins was appointed partly because the Appellant did not have the in-house knowledge and partly because it

would give Sheffield Forgemasters more confidence in them. It was a bespoke product which only Forgemasters could use.

68. There was no contract between Sheffield Forgemasters and the Appellant as they were known to each other and had regularly worked together over many years.

The Trombone gantry project

69. Mr Lowe explained that the Appellant was asked to design an innovative moving platform to allow operative to get close to a 105 tonne ladle of molten metal with an operating temperature of 1100 degrees so that additives could be added in close proximity to the molten metal during the steel making process in a safe way. An added complication was that a rapid escape route was needed.

70. The Appellant began by discussing the project with the management and operatives about the way in which they undertook their work which allowed the Appellant to explore the design of a moving platform based on a trombone principle which was enhanced significantly to explore a rapid but safe retraction movement. Initially electric drives were considered but the Appellant concluded that they did not give the required flexibility. The Appellant settled on an innovative gradual hydraulic based retraction method which allowed a soft start to avoid jolting with any person over the molten metal but then moved to an accelerated transfer movement to allow for a rapid evacuation outcome.

71. The moving walkway presented safety issues as if the gantry needed to be retracted at speed if an operator was in danger there was the potential of jerking and causing the operator to fall into the molten metal below. The key area of research and development was described by Mr Lowe as the design of a hydraulics or pulley mechanism that avoided a jerking or “snatch” effect. The technological uncertainty was how to create the soft start and increasing speed mechanism rather than the ordinary single speed version of hydraulics; Mr Lowe was not aware that any such mechanism had been created in this way before. The Appellant was paid approximately £6,000.

72. In relation to the MSC estimate of staff days, Mr Lowe confirmed that it was probably right but difficult to say. He clarified that Mr Marshall designed the item. Mr Lowe doubted that it was the first variable speed hydraulic mechanism produced but stated that he had not seen one before in similar circumstances.

The 5000 tonne manipulator project

73. This was another commission for Sheffield Forgemasters who had broken the leg of their 5000 tonne forge but had installed a new 5000 tonne press. However, their new manipulator was on the wrong side of the press.

74. The Appellant was commissioned to investigate fitting a new manipulator onto the opposite side of the press over the top of a large cellar area which also acted as a hydraulic oil sump. Mr Lowe explained that this was very creative innovative engineering and was not freely available as an “off the shelf solution”.

75. The need for a new innovative solution arose because in this design the operative of the press and the operator of the charger worked independently of each other. If they did not properly synchronise then the whole of the force of the press can be transmitted back through the manipulator and then the track creating a massive force on the concrete foundations which could lead to catastrophic failure.

76. After undertaking extensive drilling work to establish the thickness and strength of the concrete floor foundations the results were inconclusive. The Appellant continued to explore new design solutions eventually establishing that they would need to design a significantly

stronger track from scratch. The project was made more complex by the hostile working environment; during the forging process red hot “slag” forms on the surface of the material being forged. As a result of the oil sump there is a risk of major fire if any of the red hot material falls into or near the oil sump which would ignite; the design therefore had to include a specialised one-off sealing system to guard against the fire risk. After successful completion of the project Sheffield Forgemasters purchased an off the shelf fire extinguisher to smother any fires.

77. Mr Lowe stated that part of the project was not billed, such as strengthening the floor but the design of the track was billed and paid for. Mr Lowe explained that he considered the strengthening of the floor R&D because although the technology to strengthen a floor already existed, each case had to be looked at on its own merits as it depended on the floor in question.

78. Although one of the documents forming part of the claim is attributed entirely to the animal centrifuge project and there was no mention of the manipulator project in Mr Marshall’s claim, Mr Lowe explained that some of it would have related to the manipulator.

Tilting wash down system

79. Mr Lowe explained that the Appellant was approached by Birchwood Concrete Products for a solution that was not in production anywhere to manufacture as a bespoke commission a system to wash down “slide formers” of various shapes, sizes and weights. A “slide former” is a machine which casts pre-stressed concrete floor beds. Each bed is approximately 150 metres long and the formers have to be cleaned after every cycle which is about every hour or so. The cleaning has to be very quick to get back to production but at the same time has to ensure that all surfaces are thoroughly cleaned to remove concrete, sand and any other residues.

80. Prior to approaching the Appellant Mr Lowe explained that the only way that the customer could carry out the process was with an operative standing below and cleaning it with a jet wash. However, this process was onerously slow and the HSE subsequently prohibited this method. The design challenge for the Appellant was to create a tilting machine that could accommodate various weights, shapes and sizes of the formers as a single size would not work. The system also needed to be strong enough to turn properly and during a jet wash process without any electrical components nearby due to the high pressure water exposure.

81. The Appellant built and supplied a prototype for continued testing and development which catered for all of the challenges by the innovative use of a hydraulics system to manipulate the moulds which was also HSE compliant.

82. Mr Lowe explained that it had been the intention to market the product but within 4 months of releasing it the customer closed down and became part of a different company which used a totally different product. The item was designed by Mr Marshall.

Animal waste centrifuge

83. The Appellant’s client was Agritech, a business that had operated within the farming industry. They sought a product design which would allow animal waste to be spun to separate out the animal fat which sits under the animal skin. This allowed the fat to be turned into a product rather than being sent to landfill with the animal waste.

84. Agritech saw that issues around eco-environmentalism, health and safety considerations and the ever-increasing cost of landfill meant that their continuing reliance on landfill was untenable but the composition of animal waste would render a number of useful and saleable

by-products if they could source the correct equipment to transform the various elements before decomposition.

85. Agritech believed that when animal waste was spun at the right speed and temperature, then fat separation and retention could occur. The design challenge was to find a way to design a centrifuge of such size and which could operate at the necessary maximum speed to achieve the desired results. From its research the Appellant established that an optimum spin rate of 3000 revs needed to be achieved.

86. Mr Lowe stated that there was no viable solution available in the market; any previous attempts had failed or been of questionable success achieving only small results or highly questionable/undesirable environmental outcomes. The Appellant discussed with the customer design and building an innovative plant that could deal with the challenges which were identified as follows:

- (1) The plant needed to be self-contained to allow it to be controlled and monitored without interference;
- (2) The plant needed to be portable enough to allow it to be transported as close as possible to where the waste product was produced, such as the end of a slaughterhouse production line;
- (3) To include a steam heating system which provided the higher temperatures of cooling and still operate consistently at varying altitudes which would affect heating sources and water levels;
- (4) To include both a mincing or liquidising mechanism to adjust product viscosity;
- (5) A method of mixing the product to give a homogenised end product during the cooking process; and
- (6) A means of pumping the product into a centrifugal separation process to create the desired splits to be able to produce both stable and saleable components.

87. Having briefed this specification the Appellant constructed an initial unit that was able to produce a soap material but which contained a contaminated water effluent. After further trials, errors and modifications the Appellant was able to hone the design to produce a split of both bio-fuel and tallow as saleable products and with clean wastewater effluent. Mr Lowe explained that the project was a long running commitment as they developed, analysed, logged, tested and repeated to achieve the final outcome which had not been done before.

88. Mr Lowe stated that all of the projects were new commissions to investigate, design and produce innovative products that were not freely available; if the products had been available the customers would simply have sourced them from those existing products. In his view, the Appellant has spent many years pushing the boundaries of knowledge to create new and innovative designs to achieve bespoke solutions which clearly falls within the boundaries of HMRC's R&D criteria. Mr Lowe explained that if animal waste was not previously being separated then the Appellant's activities would at least be an appreciable improvement to a process.

89. Mr Lowe explained that the uncertainties faced by the Appellant were the optimisation of the rotational speed, establishing the correct level of heat transfer temperatures and how to maintain them and establishing a correct and viable series of separation techniques. The Appellant sourced a centrifuge mechanism from Germany and converted it to make a prototype for use within the food or farming sector to begin testing. The Appellant tried numerous trials to achieve the right blend of competing uncertainties. The design was then honed to produce a split of both bio-fuel and tallow as saleable products with clean

wastewater effluent. The Appellant's role was to carry out the design and research and the customer would market and supply the items with profits being equally split. Although there had been a number of attempts at making the machine, none had been made where 100% of the product could be sold. Mr Lowe believed that the customer had sold two of the machines.

90. There is only invoice relating to Agritech which Mr Lowe confirmed did not relate to the R&D project although it contained the allocated job number 70159 which was said by Mr Lowe to relate to the centrifuge. However, Mr Lowe explained that there should also be different job numbers and that the error could be the mistake of an employee in the office or of Mr Marshall, although he thought Mr Marshall was likely to be right.

91. Mr Lowe agreed that there were no documents such as sales or purchase invoices for the project to support the R&D claim other than Mr Marshall who designed it.

92. Mr Lowe agreed that a patent document exhibited by HMRC showed the patent held by Agritech and involved the same area of work. He noted that the objective was to get clearer water which did not happen in the first 3 years but agreed that it was a broadly similar area of work than that which had gone before, although he added that it may appear the same but he did not know enough about the experiments which may not be the same. Mr Lowe confirmed that he was able to give evidence as to the basis of the project but not the detail. He agreed that Agritech had the conceptual idea prior to engaging the Appellant.

General R&D

93. In oral evidence Mr Lowe confirmed that the Appellant no longer pursued the claim falling under this heading as he accepted there was insufficient information in support it.

94. Mr Lowe explained that there is very little that is genuinely "new" in research and development. In the Appellant's view all of the projects were new commissions to investigate, design and produce innovative products that were not freely available.

95. Mr Lowe explained that Mr Marshall is self-employed and keeps his own records. In relation to the additional evidence adduced at the hearing of this appeal, Mr Lowe explained that when Mr Marshall submitted invoices some had job numbers and some did not; this did not cause any problems at the time. When Mr Lowe was preparing the appeal he spoke to Mr Marshall who explained where he thought costs should be apportioned. In cross examination Mr Lowe explained that each job is allocated a job number, however some of the earlier job numbers have been destroyed and others were provided in the additional evidence. Mr Lowe did not recall being asked by HMRC to keep records.

96. In cross-examination Mr Lowe confirmed that the schedules of staff time were compiled by MSC. Mr Lowe did not know how MSC had arrived at the figures. He had personally met with MSC; no one else from the Appellant had. MSC took the information from the Appellant's files which he believed the office manager had provided. Mr Lowe stated he may have guided MSC on his hours because he does not fill in time sheets but he does keep a diary which MSC had access to. Mr Lowe explained that although he had signed the agreement with MSC which indicated that they had not verified the information and that the Appellant was ultimately responsible for it, he had not checked what MSC did as they were the experts. He did not guide them and left MSC to do it. He accepted he could not verify the accuracy of the figures. In re-examination Mr Lowe confirmed that the staff time estimates were those of MSC who were tasked with collating all of the information. Other estimates requested were those of Mr Lowe who prepared the documents using the notes in his diary and he had also provided the document "Breakdown of costs associated with weld procedure for the welding of dissimilar metals."

97. Mr Lowe explained that he was involved in all aspects of the company; not in detail but he oversaw everything from disputes, sales, production to staff welfare. Mr Lowe estimated that his involvement is 65% management and 35% production. In relation to HMRC submission that Mr Lowe's claim is excessive if his role was 65% management, Mr Lowe could not help or give a figure; he could not recall what happened in specific periods but stated that he worked from 7am to 7pm and his hours are longer than others'. He agreed that his bonus should not have been included and that MSC had never asked him about this; he was surprised that they had not asked the accountant.

98. In relation to records, Mr Lowe stated that he did not destroy records although they do get destroyed every 7 years or so. There had been a clear out when someone left at or around that time. Also, there had been a fire approximately 2 years ago. Mr Lowe disputed that he had been asked for records; the Information Notices had been sent to his representative and he did not know what information had been requested. Mr Lowe stated that he was not trying to be evasive but that he did not know if the closure notice issued by the Tribunal on the basis that no further documents were available was a submission based on his instructions to his agent. Mr Lowe did not know whether his representative had sent him copies of correspondence sent to HMRC on his behalf; he believed so but noted he would not have known if he did not receive it. Mr Lowe disputed that the reason for the absence of documentation such as contracts, purchase orders and correspondence with the Welding Institute and sub-contractors was because those documents undermined the Appellant's claim to R&D relief.

99. The MSC Report provided an overview of the Appellant company and the nature of its business as a steel welding and fabricating company. The Report explained that initial research into potential new concepts and small projects are classed as "General R&D". An idea with commercial potential becomes an R&D project in its own right.

100. The Report goes on to provide details about each of the projects in respect of which the Appellant claimed R&D relief. The marine gears project began in October 2008 and ended in April 2009. The Report described that "welding such dissimilar alloys is something that several companies had tried before but without success. To achieve this objective the company worked very closely with The Welding Institute. The technical challenge was described as follows:

"It was found that what was happening was that at the high temperatures involved the weld material itself was pulling in carbon from the parent metal, changing its physical characteristics. When the weld cooled the thermal stresses involved were causing the altered weld material to crack. It was therefore necessary to investigate the effect of this phenomenon of varying all the various parameters involved, temperature, weld current, weld material and, particularly, weld speed. The faster the weld speed the cooler the joint and the less time there was for carbon absorption. If the weld speed was too fast however the joint did not have time to form properly.

It was found that the strength of the weld was very sensitive to weld speed, but by carefully and very accurately controlling the temperature, volts, amps and weld speed, a good quality weld could be reliably created."

101. The double deck loader was said in the Report to have started in June 2008 and was continuing at the time of the Report. The Report stated:

"One of the recent developments in freight haulage is the introduction of double deck trailers. In situations where the cargo on a pallet is incapable of being double stacked these trailers effectively double the load capacity of a lorry. These trailers however require special lifts in loading bays to enable the pallets to be lifted to the upper deck."

102. The Report described the difficulties encountered in traditional loaders which used a scissor lift which required 16 separate hydraulic cylinders to operate the machine. The Appellant's work sought to design and develop a much more economical and flexible lift using a single master hydraulic cylinder. The first prototype was produced at the end of 2008. A second prototype was subsequently produced with a mechanism based on catch gears. The Report stated that the Appellant was at that point working on a third version to incorporate customer feedback received. The Report describes one of the main technical challenges as being the requirement to be fail safe in operation; it was a mandatory health and safety requirement that if there was a failure such as a cable breaking that the lift did not drop. Another challenge was the confined space available for the mechanics which is determined by the standard dimensions of loading bays.

103. The Hollow Ingot Manipulator project began in September 2008 and ended in February 2009. The Report described the production of large forged cylinders as being important in a variety of applications. They were previously manufactured using a solid ingot that is then machined out. However, at the time of the Report it was possible to produce hollow ingots which saved considerable costs. The problems encountered with hollow ingots relate to the ability to manipulate them once cast through the rest of the manufacturing process. The Appellant's activities sought to develop a set of manipulator designs capable of turning and lifting the hollow ingots at high temperatures. The first pilot system was installed at Sheffield Forgemasters at the start of 2009. The Report described the technical challenge as the high temperature of the ingot which means that chains or cables cannot be used. The solution was to create a cradle made of heat resistant steel specific to each ingot in which the ingot was picked up.

104. The trombone gantry project began in July 2008 and ended in September 2008. The Report described that the project related to the need for operators to get as close as possible to the mouth of a ladle of molten steel and the project was to produce a workable retractable gantry to provide safe access and an easy escape route in an emergency. The Report described the challenge as the hostile nature of the environment towards any kind of machinery in a steelworks; it is extremely dirty with particles of iron oxide and sparks of molten metal flying around. The most effective design was found to be based on a similar principle to a trombone.

105. The 5000-tonne manipulator track project started in November 2009 and ended in December 2009. The objective of the project was to develop a manipulator capable of taking the full force of a 5,000 tonne press without damage. The Report described the main challenge as addressing the lack of suitably prepared foundations; it was necessary for the device to withstand the forces involved while potentially sited over a void or cellar beneath the equipment. The potential loads therefore had to be spread as widely as possible over the foundations. Another factor to address was the risk of oil leaking from the unit which could easily be ignited by sparks from the steel; the unit therefore had to be capable of operating in a sealed environment.

106. The tilting wash down system project began in March 2008 and ended in August 2008. The Report described the problem when manufacturing pre-cast concrete in cleaning the moulds after each run of mouldings which is difficult to do in situ. The project sought to develop a system for manipulating the moulds and rotating them through 180 degrees so they could be pressure cleaned from either side. The main challenge lay in the wide variety of sizes and shape in the moulds that had to be manipulated; each mould had a different centre of gravity and therefore created different stresses on the machinery when handled.

107. The animal waste centrifuge project began in May 2009 and was still continuing at the time of the Report. The project is described as a revolutionary concept and the first of its kind with the aim of developing a centrifuge capable of processing the waste from abattoirs and separating out the remaining useful material, oil, tallow and food quality protein. The initial prototype was on trial at the time the Report was prepared and was said to be producing good results. The technical challenge was described as achieving adequate rotational speed to separate the constituents; eventually a company in Germany was found which provided the core centrifuge mechanism. The Appellant experimented to find the effects of different temperatures, centrifuge speed and mechanical design on the purity of the products produced.

108. The Report provided a summary of staff engaged in the projects and their roles as follows:

- (1) Mr Lowe – the managing director and technical director who provided technical direction as required and acted as primary problem solver when complex technical issues arose;
- (2) Mr Peter Quinn – the buyer who procured materials for prototypes;
- (3) Mr Andy Staton – a planner who specified the kit of parts to be assembled and manufactured after the computer design phase;
- (4) Mr Stephen Sparrow – the works manager who took overall responsibility for expediting the manufacture of the prototype through the workshop and tackling any manufacturing issues that arose such as scale-up problems;
- (5) Mr Ian Barker – the workshop foreman who had day to day hand-on management of the workshop team;
- (6) The workshop team who were responsible for welding, machining and assembly of prototypes.

109. The Report enclosed the working papers in support of the claim in the form of schedules of calculations. The Report confirmed that the Appellant did not patent the products produced as:

“this is viewed as uneconomic given the ultimate revenues generated from a number of the new products that they develop. All intellectual rights remain with the Company.”

110. On behalf of HMRC we heard evidence from HMRC Officer Mr Reilly who opened enquiries into the Appellant’s amended returns for 30 April 2009 and 30 April 2010 on 6 February 2012. In consultation with Officer Gilbert who dealt with R&D relief, Officer Reilly identified the following concerns after reviewing the claim:

- (1) General questions as to why previous accounts and computations had not referenced R&D and how the costs subsequently claimed had previously been accounted for in order to verify that the expenditure was incurred in the relevant periods;
- (2) The calculations provided in the MSC Report showing day rates for employees and levels of NIC seemed inconsistent with the total salary recorded. In particular Mr Reilly had questions relating to Mr Lowe’s salary and bonus which was a different figure to the total remuneration recorded in the accounts for the tax year ended 5 April 2009;

- (3) There was no narrative description of the work subcontracted to other persons or companies, no supporting detail for the 2009 period and no invoices for 2009 or 2010;
- (4) The consumable costs were mainly steel but there was no explanation as to where the steel was sourced, who had paid for it or what happened to it, for instance if it was scrapped there may have been consideration received;
- (5) The 2010 claim included “general R&D” which required further explanation;
- (6) Details in respect of some projects, such as the Hollow Ingot project, indicated that the work was undertaken to a customer’s requirements. HMRC sought further information as to whether the Appellant worked independently to present the customer with a solution or whether it acted as a sub-contractor which required a claim under the large company scheme.

111. Following information being sought, HMRC were advised by MSC on 20 March 2012 that the Appellant was in possession of MSC’s full working papers. In 2012 HMRC applied for and were granted a Schedule 36 FA 2008 Notice which led to further information being provided although Mr Reilly considered that the responses lacked the necessary detail and he wrote to the Appellant on 28 September 2012 setting out the further information he required. Further correspondence between the parties ensued over the course of 2013.

112. On 8 December 2014 HMRC issued an approved Schedule 36 Notice to Sheffield Forgemasters and MSC. In relation to Sheffield Forgemasters, HMRC was advised that it would be difficult to obtain the invoices requested due to personnel and system changes.

113. There was a further email between Mr Lowe and Sheffield Forgemasters dated 2 December 2008 in which Mr Lowe gave a quote for an “ingot turnover unit” to given specifications. It indicated that delivery could be within 6-8 weeks of receipt of an order and the price included the full cost of design, drawings and modelling.

114. From this information Mr Reilly took the view that the Hollow Ingot manipulator was produced as part of the normal production of goods and services and that this had been invoiced by the Appellant and paid for by Sheffield Forgemasters; it should therefore be excluded from the claim. Mr Reilly noted that there was no indication that the R&D claim had been reduced by payment received even if the Appellant considered the Hollow Ingot was not part of the normal production of goods and services. After 9 January 2015, when further invoices and requisition summaries were received from Sheffield Forgemasters, no further communication was received.

115. MSC responded to the Schedule 36 Notice by stating that it was the Appellant’s responsibility to provide MSC with accurate information and that MSC does not generally have access to prime records. MSC advised that it was in dispute with the Appellant and remained unpaid. MSC alleged that the Appellant may have: “misrepresented the position to HMRC regarding documents etc”.

116. On 26 January 2015 HMRC received the contract between the Appellant and MSC dated 15 November 2010 which included success fees for 2009 and 2010 of 25% of the R&D Tax Credit and/or R&D Tax Relief. There was a similar success fee for the year ending 30 April 2011 although no claim was made by the Appellant for that year. There was also a letter from MSC to the Appellant dated 12 May 2014 terminating the contract for failing to disclose that the Appellant was undergoing tax investigations at the relevant time and a response from the Appellant dated 19 May 2014 disputing the facts and MSC’s right to terminate.

117. MSC also provided working papers which repeated the schedules in the report and provided a final draft of the technical narrative. Email communications between the Appellant and MSC between 5 January 2011 and 29 May 2013 were also provided as follows:

- (1) An email dated 5 January 2011 from Mr John Doherty of MSC to the Appellant which included a request for sales invoices where customers had made any direct financial contribution towards R&D activity;
- (2) An email from the Appellant to MSC making changes to the draft report on 5 February 2011;
- (3) The final versions emailed to the Appellant on 9 February 2011 from MSC;
- (4) An email dated 14 April 2011 from MSC stating that the Appellant was in breach of contract;
- (5) An email from MSC dated 23 February 2012 reminding the Appellant that they had been provided with all the paperwork from MSC which was based on information from the Appellant;
- (6) An email from MSC to the Appellant's representative Mr Brothers dated 10 July 2012 and copied to Mr Lowe which enclosed a full set of working papers, the technical narrative and subcontractor invoices.

118. MSC also provided miscellaneous supporting documents including:

- (1) A spreadsheet containing a breakdown of welding of dissimilar metals, including a deduction of £11,000 for a direct contribution from their client;
- (2) Scans of Marshall Engineering Design invoices;
- (3) Scottish Widows monthly premium list showing 42 employers, four of whom were shown as leavers;
- (4) Handwritten documents relating to wages and man hours/days for each project which provided 5 digit codes for the following projects:
 - (a) Tilting Washdown system – 68342
 - (b) Trombone platform – 69264
 - (c) Hollow Ingot – 69659
 - (d) Manipulator track – 70834
 - (e) Drive selector/general - 70979
- (5) A printed narrative on the Appellant's headed paper concerning consumables, marine gears and project details.

119. Mr Reilly sought to analyse the 5-digit codes handwritten onto the Marshall invoices; his analysis showed that some expenditure was allocated to the 5 known project codes with the remainder allocated amongst 25 other codes or labelled "various".

120. A further Schedule 36 Notice was issued to the Appellant which requested statutory records in the form of sales invoices issued to Sheffield Forgemasters, the Ministry of Defence and the customers for the double deck loader, the tilting washdown system and the animal waste centrifuge.

121. On 15 July 2015 the Appellant provided a box of sales invoices to HMRC. Mr Reilly considered the invoice descriptions and in relation to the following he considered that they indicated that the Appellant was a subcontractor in relation to the R&D projects:

- (1) Recharge of £47,450 to design, manufacture and install manipulator track including invoice 70834 for £53,412;
- (2) Recharge of £15,600 to the company with the animal centrifuge for the services of a draughtsman;
- (3) Recharge of £749,268 concerning the double deck loader;
- (4) Recharges of £243,220 concerning the hollow ingot manipulator which includes invoice 69663 for £11,420 and invoice 69659 for £84,300 which appear to be the supply mentioned in the email of 2 December 2008 from the Appellant to Forgemasters;
- (5) Recharges of £10,695 concerning marine welding (Mr Reilly noted that the Appellant did deduct £11,000 from the Marine Welding expenses);
- (6) Recharges of £24,669 concerning the tilting wash down;
- (7) Recharges of £13,706 concerning the trombone gantry including invoice 69264 for £6,206.39.

122. Mr Reilly issued Closure Notices on 10 January 2018 together with a summary of his reasons for the assessments as follows:

- (1) The Appellant had not demonstrated the costs claimed as R&D were part of the original annual accounts and were an allowable deduction in calculating the profits at the time. These details were requested by Mr Reilly on a number of occasions both formally and informally as he considered it fundamental to identifying whether the Appellant incurred the claimed expenditure and, if so, when;
- (2) The Appellant had not demonstrated the actual scientific or technological advance being sought by the work despite requests. Mr Reilly considered the lack of meaningful engagement by the Appellant meant he was unable to establish that the expenses claimed related to activity that met the definition of R&D under the BIS Guidelines;
- (3) The Appellant failed to demonstrate the outcome of the scientific or technological advance being sought despite requests. Mr Reilly noted that the BIS Guidelines are clear that the attempt to advance scientific or technological knowledge does not need to be successful but he considered that the Appellant ought to know the outcome of the respective processes to sufficiently demonstrate that the activities fell within the statutory guidelines;
- (4) The Appellant failed to demonstrate that the scientific or technological process that was used to try to achieve the advance. Despite requests the Appellant provided little to no detail of the methods used;
- (5) The Appellant failed to demonstrate that it worked independently on the projects. The projects described by the Appellant and the associated invoices all appear to relate to products commissioned by a specific customer. There is no evidence to suggest that the Appellant was independently looking to develop products or solutions that they could then market. The contractual nature of the relationships with the customers were relevant to Mr Reilly's consideration as to who was conducting R&D, any contracting-out arrangements and who owned any intellectual property. Mr Reilly was not provided

with sufficient information upon which he could conclude that the statutory tests for qualifying R&D were met;

(6) The Appellant had received significant payments from the customers linked to the claimed R&D projects and without further explanation Mr Reilly was unable to verify that the claimed expenditure was not entirely subsidised by the Appellant's customers and therefore not claimable;

(7) The Appellant failed to demonstrate that the work subcontracted to Marshall Engineering Designs was all related to qualifying R&D projects. Mr Reilly requested details formally and informally on a number of occasions however none were provided. Consequently, Mr Reilly was unable to verify or quantify the correct costs and considered the Appellant's claim unsubstantiated;

(8) The Appellant failed to provide the underlying invoices for the steel and other consumables included in the claim despite requests. As a result, Mr Reilly had concerns about the underlying material and could not verify the accuracy of the expense claims;

(9) The Appellant's narrative initially described the "General R&D" which was included in the claim as encompassing "projects that involve relatively minor additions of capability to existing products". Mr Reilly later established from information provided by MSC in January 2015 that the expenditure related to projects on a "drum grinder" and a "drive selector". The Appellant failed to provide details to substantiate the claims as R&D;

(10) The Appellant failed to produce relevant business records to support the claim having stated that the records do not exist.

123. Mr Reilly confirmed in cross-examination that he had no direct knowledge of the Appellant's business at the relevant time; his role was to investigate the claim by seeking evidence in support of it.

124. The evidence of HMRC Officer Gilbert was agreed. In summary Mr Gilbert has a significant amount of experience of R&D activities as an Officer of HMRC. Mr Gilbert provided guidance in a consultative role to HMRC caseworkers including Mr Reilly in relation to the Appellant's case. Mr Gilbert reviewed the information provided by the Appellant in support of its R&D claim separately to Mr Reilly and took the view that there was insufficient information to enable HMRC to agree the claim. Mr Gilbert had concerns about the nature of the activities and whether they met the qualifying criteria for scientific or technological advance and also about the figures and categories claimed, such as the sums included for salaries. Mr Gilbert confirmed that at a meeting with MSC on 21 May 2014, after HMRC was informed by the Appellant that MSC held all the documentation HMRC required, it was clear that MSC did not hold the material sought or that which he would have expected in support of the claim MSC prepared on behalf of the Appellant. By way of example Mr Gilbert explained that MSC could provide little information about the nature of the work undertaken by the Appellant or why it would meet the qualifying criteria for credit.

125. Mr Gilbert concluded that the Appellant failed to provide sufficient evidence to show the required scientific or technological advance, correct project methodology or qualification of all expenditure included in the claims. He also held residual concerns over the values of some elements of the claims and over whether the Appellant's claim should be amended to take account of sub-contractor rules in the legislation.

SUBMISSIONS FOR HMRC

126. HMRC submitted that the Appellant was under a duty to retain relevant records to substantiate the claims and where relevant make those records available (paragraph 21,

schedule 18 FA 1998). The basis upon which the closure notices were issued was that the Appellant had no further records to produce.

127. In relation to the absence of documents, HMRC submitted that the Appellant's reliance on *Fleming* claims is misplaced; those appeals involved historic claims which went beyond the legislative period for the retention of documents. It is not analogous to this appeal in which a COP 9 enquiry had been opened. A positive claim for relief was made by the Appellant who was told not to destroy records; the Appellant had a duty to retain records and make them available to HMRC as requested which he failed to do despite four Schedule 36 Notices in respect of which the Appellant only complied with one. The Appellant asserts that he maintained records yet there has been no reasonable explanation why they have not been produced. During oral evidence Mr Lowe asserted for the first time that there had been a fire, yet he provided no date of any such fire instead contending that it happened in the last 2 years.

128. HMRC submit that the Appellant has not discharged the burden of proof that:

- (1) The expenditure itemised in the MSC Report was incurred and attributable to the periods shown and in the amounts claimed;
- (2) Where payments to subcontractors are claimed, those payments relate to the projects outlined in the MSC Report;
- (3) Any expenditure incurred satisfies the statutory tests to be classed as R&D;
- (4) Any expenditure satisfies the other statutory requirements of the SME scheme.

129. In relation to (1) above, namely the contention that the Appellant has not demonstrated that expenditure itemised in the MSC Report was incurred and attributable to the periods shown and in the amounts claimed, HMRC submitted that there is an absence of evidence to show how claimed expenditure has been accounted for. By way of example, there is no explanation as to how steel claimed to have been used within unsold prototypes has been accounted for; as steel retains a scrap metal value if it was included within closing stock then there is no allowable deduction as relief is prevented by s1044(5) CTA 2009.

130. HMRC noted a discrepancy between the salary and bonus figure of £225,232.99 for Mr Lowe noted in the MSC Report when compared with the figure of £59,126 in the 2009 accounts for the "emoluments of the highest paid director". HMRC did not accept that Mr Lowe was necessarily the highest paid director as shown in MSC's schedule 2 of the 2010 claim shows a much lower salary and bonus than the highest paid director in the 2010 accounts. Furthermore, the Appellant advised HMRC that the figure used for costing Mr Lowe's time was taken from his P14 for the year which included a bonus that was "accrued in the 2008 accounts". MSC suggested that this bonus was in fact paid in 2008; HMRC submitted that a bonus for performance in 2008 cannot be attributed to the cost of any R&D activity in 2009. Staffing costs must be attributable to the relevant R&D (s1124 CTA 2009) and therefore expenditure accruing before the relevant activity is excluded. Furthermore, the as the bonus was accounted for in the preceding period and related to work pre-dating any R&D activity it is excluded by s1044(5) CTA 2009. On this basis, HMRC submit that the Appellant's claim is, at the very least, overstated.

131. HMRC submit that the absence of purchase invoices makes it impossible to verify the timing of the claimed expenditure or the link to respective R&D activities. There is no clear explanation as to how daily rates and number of staff days used to calculate staff costs were arrived at nor any documentary evidence to support the claim (s1124 CTA 2009).

132. HMRC submit that for the reasons set out above the Appellant has not discharged the burden of proof in relation to s1044(5) CTA 2009.

133. In relation to payments to subcontractors the Appellant provided invoices to HMRC. However, HMRC noted that the invoices were often apportioned by five digit codes which appear to relate to unique projects. Details relating to the codes formed part of a Schedule 36 Notice issued to the Appellant on 23 October 2012 and repeated in a later Notice issued on 12 April 2016. HMRC maintain that the information necessary to verify that the amounts invoiced relate to the activities which form the basis of the R&D claims as required by s1053(1) and (2) CTA 2009.

134. In relation to the job codes provided in additional evidence at the hearing which were said to be based on Mr Marshall's records, HMRC highlighted that the records themselves were not produced nor did Mr Marshall give evidence. Consequently, job codes by which orders could be tracked through the business remain unclear. Only in oral evidence did Mr Lowe refer to job cards for the first time and asserted that they may have been used to allocate staff time. However, the job cards have also not been produced and it was clear from the evidence that items (such as £6,000 "various jobs" and gear wheel £4,000) have been included despite the fact that they do not form part of the claim. HMRC submitted that in those circumstances the evidence is unreliable.

135. HMRC submitted that the Appellant subcontracted a significant amount of the work and therefore the subcontractor who carried out the relevant work is the one who can give evidence as a competent professional, in particular relating to the double deck loader, the hollow ingot project and animal centrifuge. However, no witnesses were called to give evidence relating to those projects. HMRC submitted that it is questionable whether Mr Lowe is a competent professional; his areas of expertise are not specified and although HMRC accept that Mr Lowe is an experienced engineer and no doubt a competent professional in many areas, there are fields in which he had no prior experience such as the animal centrifuge project and consequently Mr Lowe was unable to give evidence regarding the detail of the technology.

136. That said, HMRC subsequently accepted that Mr Lowe was a competent professional who gave evidence relating to all projects save for the animal centrifuge. However, HMRC submitted, his evidence lacked specificity regarding technological advances and was vague in its assertions of "exploration", "innovation" and "research". In that regard, the same criticisms raised in *B E Studios v Smith & Williamson* [2005] EWCH 1506 (Ch) ("*B E Studios*") are applicable to Mr Lowe's evidence. By way of example HMRC submitted that the Appellant's description "innovative use of a hydraulic system" is both inadequate and insufficient to discharge the burden of proof.

137. The Appellant has failed to provide:

- (1) The baseline level of scientific or technological knowledge in the relevant field;
- (2) The scientific or technological uncertainties faced;
- (3) How the project sought to address those uncertainties;
- (4) What the advance in scientific or technical knowledge was being sought;
- (5) Why it was considered an advance in that particular field.

138. In the absence of identifying any clear scientific or technological uncertainties that the Appellant sought to resolve or any explanation as to how they sought to advance overall knowledge in any field of science or technology the Appellant's evidence is no more than an assertion that the products were innovative or novel; relying on *B E Studios*, HMRC

submitted that such assertions are insufficient to demonstrate that the activities undertaken to resolve a scientific or technological uncertainty.

139. By way of analogy HMRC submitted that if a taxpayer were to build a bridge, each bridge is unique in terms of considerations such as height, span, load bearing and environmental uncertainties such as winds. However, environmental uncertainties are not uncertainties in a technical sphere. In considering the type of bridge to build, existing technology is used. A prototype may be built to check the features but this would not amount to R&D. Even if the result was a bridge larger than any other or with a greater load bearing capacity this would not necessarily amount to an advance in technology nor overcoming a scientific or technological uncertainty; therefore a claim for the construction of a bridge to order would not qualify for R&D relief.

140. HMRC submitted that there were clear issues in relation to Mr Lowe's recollection of the projects so many years after the claim was made; this was apparent from a number of contradictions in his evidence. The fact that new information was provided in oral evidence did not afford HMRC the opportunity to review or check that evidence. Furthermore, Mr Lowe accepted on a number of occasions that his witness statement was misleading or inaccurate, for example he had indicated in his statement that the Welding Institute were unable to assist the Appellant yet in oral evidence Mr Lowe asserted that a member was seconded to assist throughout. The description of the double deck loader project in the witness statement indicated that it was contained in the back of a lorry; Mr Lowe agreed this was misleading with the explanation that it had been written by a member of staff who had not written it accurately. Also, in relation to the double deck loader the Appellant's evidence before the Tribunal was that the advance added by the Appellant was a multiplier device, which had not been stated in either of his two witness statements or the MSC Report. In relation to the hollow ingot project, the Appellant's statement suggested that the Appellant had a role in developing a wider forging process but in oral evidence the Appellant confirmed that its role was providing a bespoke tool and that the customer carried out the forging process. In respect of the animal centrifuge project, in oral evidence Mr Lowe mentioned for the first time that there was a profit sharing arrangement with the customer.

141. HMRC submitted that Mr Lowe's explanation that his witness statements were poorly drafted taken together with the new information given in oral evidence raises questions as to whether Mr Lowe can be deemed to be a competent professional who is able to give reliable evidence relating to the projects and the Tribunal should consider the weight to be attached to his evidence.

142. HMRC submitted that the Appellant has failed to discharge the burden of proving that all of the expenditure claimed either directly contributes to the resolution of identified scientific or technological uncertainty (para 4 BIS Guidelines) or is a qualifying indirect activity (para 5 and para 31 BIS Guidelines). Each of the projects related to a bespoke product produced for a specific customer and the Appellant has failed to demonstrate which parts of the expenditure were direct or qualifying indirect contributions.

143. HMRC highlighted that in relation to the production of prototypes and/or final products, para 28(c) of the BIS Guidelines states that:

“Activities which do not directly contribute to the resolution of scientific or technological uncertainty include...the production and distribution of goods and services.”

144. HMRC disputed the Appellant's submission that the evidential burden of rebutting Mr Lowe's assertions passed to them; without details of the relevant field of science or technology, project plans, procedures and tests HMRC were not in a position to identify the

relevant type of expert to give evidence. HMRC could not meaningfully respond to the new information provided by Mr Lowe in oral evidence.

145. In respect of (3) and (4) above, namely whether the statutory tests are satisfied, HMRC submitted that the Appellant has not provided any evidence of a method or plan in relation to each of the projects outlined in the MSC Report. Despite requests for details of “the scientific or technological process that has been gone through to try and achieve the advance” which were contained within the Schedule 36 Notices dated 7 June 2012, 23 October 2012 and 12 April 2016 HMRC maintain that the evidence was never produced. On the basis that the Appellant has failed to discharge the burden of proof that any of the expenditure falls within the BIS Guidelines (para 3) the claims are unsubstantiated.

146. HMRC submitted that R&D is a generous relief and notified state aid. HMRC are obliged to police claims to ensure the relief is correctly given. HMRC accept that a degree of pragmatism is needed but submitted that there is also an obligation on the Appellant to engage in order to substantiate and support the claim with evidence. In this appeal the Appellant’s assertions have not been supported with documentary evidence. HMRC Officer Mr Reilly made clear on numerous occasions the information he was seeking. However the Appellant’s responses were to refer Mr Reilly to the MSC Report or challenge why the information was sought. Information such as full sales invoices would provide a clearer picture as would some evidence of written agreements or contracts with the customers and records of tests and results. Without documents such as contracts the Appellant failed to discharge the burden of proof as to where any IP rights were vested. Mr Lowe’s evidence that it lay with the Appellant where it was the Appellant’s design is at odds with the projects where the designs were drawn up by others such as Mr Marshall. Furthermore there was no evidence to support Mr Lowe’s assertion, made for the first time in oral evidence, that Mr Marshall assigned copyright to the Appellant.

147. HMRC submitted that the Appellant has misconstrued the provisions relating to subcontractors; there is no reference in Condition D to payment being required. The test is whether activities of R&D were contracted out. If the Appellant was commissioned to design bespoke products and the design of those products is R&D, then that commission to provide a solution for the customer has been contracted out by the customer. In all projects save the marine gears project the description was that the work was subcontracted.

148. “Subsidised expenditure” HMRC highlighted s1138 CTA which provides that a company’s expenditure is treated as subsidised “to the extent that it is otherwise met directly or indirectly by a person other than the company”. HMRC submitted that this includes payment for a bespoke product including R&D; the uncertainty is factored into the price. By way of example, the invoices for drawings included the design.

149. In relation to each project HMRC made the following submissions:

Marine gears project:

150. HMRC confirmed in closing that if the Tribunal accepted Mr Lowe’s evidence at face value, including the new information provided for the first time during oral evidence, then the activities in relation to the marine gears project as described would amount to R&D which was not subcontracted. However, there still remains an issue regarding the burden of proof and the absence of documentary evidence to demonstrate when the activity took place as the one invoice produced does not establish R&D and there are no supporting documents in evidence.

151. If, nevertheless, the Tribunal accepts the evidence then there remains an issue regarding the value of the claim. HMRC noted that only item 1 on the breakdown of costs documents

had been excluded from the claim. However, items 1 – 22 relate to welding to the original specification and are therefore not R&D. In addition, Mr Lowe’s time value is affected by the bonus issue and in those circumstances HMRC submitted that the claim is overestimated.

Double deck loader

152. HMRC submitted that Mr Marshall is the competent professional who should speak to this project. There are 5 patents which names Mr Adams of Transdek as the inventor. Mr Lowe did not consider the patents to relate to the same product as he designed but HMRC submitted that there remains significant doubt as to where the IP rights are vested. The patents were registered prior to the Appellant’s involvement and Mr Lowe clarified in evidence that Transdeck went on to produce the items without the Appellant. The only documentary evidence is that relating to the patents which appear to show significant work and a patent on a lift very similar to that described by the Appellant.

153. In oral evidence Mr Lowe described the manipulator and locking mechanism as the key advance; the manipulator had never before been mentioned by the Appellant. Furthermore, the Appellant did not explain whether the project was achieved through existing technology and applied to a new product or whether the Appellant contends this was a new advance in technology. If it is said to be an advance in technology, then the claim must still fail as other aspects do not constitute R&D. Mr Lowe’s evidence referred to general non-specific “problems to resolve” but there is no evidence beyond routine enhancements. The claim does not make clear the expenditure apportioned to any specific technological advancement. HMRC also submitted that this was a commission which was subcontracted. The documents available show that Mr Marshall’s invoices for his time were costs that were directly subsidised.

Hollow ingot

154. HMRC submitted that the competent professional who could give evidence on this project was Atkins Bennett who drew up the designs, but no evidence was called. This was a bespoke tool to be used by the customer in its trade and is therefore not R&D. Mr Lowe confirmed in evidence that the “attempts” involved discussions to use existing technology. The Appellant has failed to discharge the burden of proof that there was a technological advance in a specific field; HMRC submitted that the project was the application of existing technology in the same field. The Appellant provided no explanation why the C-hook constituted an advancement. The wider forging problems are irrelevant as Mr Lowe clarified that the Appellant had no role or influence in it.

155. Mr Lowe clarified in evidence that the invoices produced did not relate to this project and there is therefore no evidence regarding the sale of the product.

156. HMRC noted that the MSC Report indicated that the first pilot began at the start of 2009 however in oral evidence Mr Lowe could not be sure of the timing of the project.

157. HMRC also submitted that this was another example of the Appellant being contracted by Sheffield Forgemaster to provide a solution. In relation to the 2009 element of the claim, Atkins Bennett developed the designs that the customer used in the R&D process. There is no evidence as to where the IP rests; the Appellant submitted that it rests with them but there is no evidence to substantiate this.

Trombone gantry

158. The Appellant explained that it was the issue of speed that presented the challenge in this project. HMRC submitted that this was no more than a design challenge and does not therefore constitute a technological uncertainty. The Appellant’s activities did not extend the limits of existing technology. In oral evidence Mr Lowe did not confirm that the Appellant

produced the first invention of variable speed nor that it produced wider knowledge in a field of technology. HMRC submitted that the project may have developed the Appellant's knowledge and produced a clear enhancement of the electronic version of the same product but under the BIS Guidelines (paragraph 9C) this is not sufficient. The evidence of Mr Lowe did not offer any explanation of the scientific process or how any technological uncertainty was overcome; existing technology was simply applied in a different context. Furthermore, HMRC submitted, the project was subcontracted by Sheffield Forgemaster to the Appellant to find a solution; the Appellant was paid to design the product to the customer's specification.

5000 tonne manipulator track

159. HMRC submitted that the main uncertainty was environmental, namely the strength of a specific floor and establishing the strength of that floor does not amount to a technological uncertainty. There was also no explanation as to whether the Appellant used new or existing technology which is insufficient to discharge the burden of proof. The project was subcontracted; the Appellant was brought in to work on-site at the customer's premises and the entire commission was its installation – the invoice contains the following description:

“To design, manufacture and install manipulator track for new press”

HMRC submitted that this indicates that all aspects formed part of the contract which was subcontracted and subsidised.

Tilting washdown

160. HMRC submitted that this was an example of the application of existing technology to a previous manual process. The challenge lay with moving large items which does not amount to a technological uncertainty. Mr Lowe's evidence, HMRC submitted, described functionality issues rather than uncertainty in knowledge. In oral evidence Mr Lowe described the “extensive research” referred to in his witness statement as a process of selecting from existing technology; Mr Lowe even referred to “normal everyday design issues”. Nothing in Mr Lowe's evidence explained why there was considered to be a technological uncertainty and therefore the Appellant has failed to discharge the burden of proof. HMRC submitted that the work was subcontracted; this was a bespoke product for one customer to solve that customer's problem and it was not marketed widely. The Appellant was contracted by the customer to solve the problem. Furthermore, the design element was included in the cost and was therefore subsidised.

Animal centrifuge

161. In oral evidence Mr Lowe confirmed that he had not worked on this type of project before. HMRC submitted that in those circumstances Mr Lowe did not have sufficient knowledge of the technology to offer reliable evidence; instead Mr Marshall would be the competent professional best placed to give evidence. Mr Lowe's evidence indicated that it was Agritech who carried out the testing which would constitute R&D; the Appellant's role of putting the centrifuge together is the use of existing technology and does not constitute R&D. The patent adduced by HMRC predates the Appellant's involvement and shows that the conceptual design already existed and was owned by Agritech. As this element of the claim relates to 2010 there is no issue arising in relation to intellectual property rights, however HMRC submitted that the patent is relevant as an indication of who carried out the R&D and whether the activities were subcontracted. Mr Lowe's oral evidence that Agritech carried out the testing contradicts his witness statement which indicated that it had been the Appellant who carried out tests. HMRC submitted that the customer subcontracted a concept that already existed and was patented and which was paid for.

General

162. Mr Priestley highlighted the Appellant's concession in respect of the claim for "general R&D" which was no longer pursued and which therefore required no submissions. He noted that the Appellant had also accepted that there had been an error by the inclusion of Mr Lowe's bonus in the figures which, Mr Priestley submitted, supported a conclusion that the figures were unreliable.

163. Mr Priestley noted that job codes were provided by way of additional evidence. However, the reliability of the figures remained an issue and the Appellant provided no clear figures upon which an alternative estimate could be properly reached.

164. Mr Priestley submitted that only expenditure tied to a specific invoice should be allowed where the remaining conditions were met. The Appellant's reliance on MSC is misplaced as it is stated in the contract and confirmed in correspondence that they did not verify the information or carry out any type of audit trail. No documents to support the claims made for consumables have been provided and therefore there is no basis upon which HMRC could verify those claims or consider whether the claims were reasonable. There is no clear evidence to show when any R&D may have begun or when a project ended, no records documenting the activities and no records to demonstrate that the staff times forming the claim related to specific R&D work or detailing what that work entailed.

165. HMRC's Guidance CIRD81350 sets out HMRC's position regarding costs of high value prototypes it calls "first of class"; high value units which are subsequently sold as a final unit. HMRC submitted that these do not typically qualify for R&D because they are not constructed solely for use in R&D. HMRC submitted that these are, to some extent, production items as therefore the expenditure incurred may be excluded from the definition of R&D under para 28(c) of the BIS Guidelines. HMRC accepted that such an item might incorporate one or more R&D projects which satisfy the definition. However, the Appellant has failed to identify any such sub-projects and has included all associated expenditure including subsequent optimisations that would fall under para 12 of the BIS Guidelines. HMRC submitted that the sales invoices adduced appear to demonstrate the sale of some prototypes and, HMRC submitted, such sales amount to the sale of first class items. The purpose of prototypes developed by the Appellant were to address customers' commercial requirements; prototypes do not necessarily imply that there has been R&D.

166. HMRC highlighted that in the relevant periods a minimum of £10,000 of qualifying R&D expenditure was required; although the Appellant's claims exceed the threshold, if the Tribunal concludes that only part of the expenditure claimed qualified, the threshold would need to be met for each accounting period separately.

167. In order for expenditure to be "Qualifying Chapter 2 expenditure" it must satisfy conditions C to E of s1052 CTA 2009 (condition C only in respect of 2009). The conditions are mirrored by conditions B to D in s1053 CTA 2009 in relation to contracted out R&D and HMRC's submissions relate to both provisions. The conditions are:

- (1) Condition C/B – Any intellectual property created as a result of R&D is or will be vested in the company (whether alone or with other persons);
- (2) Condition D/C – The expenditure is not incurred by the company in carrying on activities which are contracted out to the company by any person; and
- (3) Condition E/D - The expenditure is not subsidised.

168. Condition E is required to ensure the SME scheme remains compatible with Art 107, section 2 of the TFEU as the scheme is a notified State Aid.

169. In respect of Condition C/B HMRC submitted that the evidence indicates that the Appellant was commissioned to produce bespoke products to given specifications. On occasions the design of the product was subcontracted out. In such circumstances there is no basis to assume that any IP arising from the activity claimed for 2009 would rest with the Appellant; it could be acquired by either the customer or rest with the designer.

170. In relation to the double deck loader and animal centrifuge projects in particular, HMRC have identified registered patents that appear to demonstrate that the IP rested with the customers. The pre-existence of patents also suggests that any significant uncertainties had already been overcome by the customers.

171. In relation to Condition D/C HMRC submitted that if the Appellant was seeking to resolve a scientific or technological uncertainty, the fact that the Appellant was commissioned to provide a bespoke product to overcome those uncertainties would mean that the Appellant's customers had subcontracted them to find a solution. This is particularly so where the customer had registered patents or had wider R&D projects that the work fed into (for example the hollow ingot project) as it demonstrates that the customer was, at its highest, contracting the Appellant to help them develop products and ideas. It is irrelevant that the Appellant was not asked by the customer to carry out the work in a specific way; this is true for all subcontracted R&D as if the customer was able to prescribe the design there would be no uncertainty and no R&D.

172. HMRC submitted that if something is unknown it is uncertain and outside the circle of knowledge; although there may be a hypothesis the knowledge is not expanded until the uncertainty is solved. There is no definition of "readily deducible" but, HMRC submitted, it is the opposite of scientific or technological uncertainty, something which requires thought and is not obvious.

173. HMRC submitted that they did not seek to put forward a strict framework as to what constitutes a "project"; the process may be informal but requires foresight and planning to some degree and it would be expected that some sort of record might be available. In contrast, by way of example. HMRC submitted that if one or more competent professional can consider the matter and reach a solution, this would, in HMRC's view, be readily deductible. Mr Lowe's evidence fell within the latter example; he confirmed that solutions were reached by exploring and discussing options. The Appellant has conflated the "design challenge" described by Mr Lowe with R&D.

174. At paragraph 9 the BIS Guidelines requires an "appreciable improvement"; Mr Priestley submitted that the Tribunal risks interpreting this too narrowly if read in isolation; the requirement of an advance in the field must not be ignored – paragraph 9 is an example with reference to paragraphs 6-8. The use of existing technology is not R&D; it is for the Appellant to show that this was not the case.

175. HMRC do not accept that the Appellant bore the full risk of the purported R&D in relation to bespoke products. HMRC submitted that it is implausible that the Appellant would accept the full risk of researching a niche area without some form of commission from that customer as asserted by Mr Lowe. Moreover, no contracts have been provided to show the terms of any engagements but invoices and emails available show that design time was charged to customers which contradicts Mr Lowe's evidence.

176. In relation to Condition E/D, s1138(1) (c) CTA 2009 states that a company's expenditure is treated as subsidised "to the extent that it is otherwise met directly or indirectly by a person other than the company." HMRC submitted that where the Appellant was paid to undertake an activity there is a clear and direct link between payments received and the qualifying expenditure. The Appellant's sales invoices show that the Appellant was directly

remunerated for its design and production expenditure by its customers, with charges made for design time by the hour and there is very limited evidence of this being adjusted for within the claim. Even if the Appellant undertook R&D at its own risk, if the R&D is for the production of a bespoke product for a customer then payment for that product would amount to subsidy of the R&D. Although Mr Lowe was able to highlight one example of a payment received leading to some expenditure being excluded (the marine gears project initial stages), he stated in relation to MSC:

“I expect that they adopted the same methodology throughout the entire claim they formulated across all of the projects.”

177. HMRC submitted that this assumption does not acknowledge that MSC would only be aware of subsidisation declared by Mr Lowe to MSC and the Appellant has failed to show that subsidisation was properly accounted for.

APPELLANT’S SUBMISSIONS

178. On behalf of the Appellant Mr Firth cautioned against the approach urged by HMRC. He submitted that if the R&D scheme is applied in the strict and limited way sought by HMRC the result will be that the difficulties in substantiating any claim to the extent HMRC argue will undermine the purpose of the regime.

179. Mr Firth submitted that the advancements the Appellant sought to achieve and did achieve are clear from the evidence of Mr Lowe. There is sufficient evidence before the Tribunal to establish expenditure on the balance of probabilities. Mr Firth submitted that there is no requirement to prove expenditure to the level of certainty suggested by HMRC. Similarly, the evidence before the Tribunal is sufficient to establish that the sub-contracted costs were incurred in relation to R&D and that the Appellant’s R&D activities were not contracted out or subsidised. In relation to IP, the Appellant submitted that intellectual property did vest in the Appellant and it is free to use the solutions it developed.

180. As to whether the Appellant’s activities amounted to R&D the Appellant highlighted the BIS Guidelines and drew attention to example A1 (at [28] above) in support of its submission that Mr Lowe is an engineer with vast experience and his evidence in relation to each project clearly satisfies the test of a competent professional giving his opinion as to whether the respective projects amounted to an advance in overall knowledge.

181. Mr Firth contended that HMRC’s reliance on *BE Studios* is misplaced; the case is not authority for the proposition that the opinion of a member of staff that an objective would represent an advance is insufficient as HMRC suggest. The issue in that case was that no one at the taxpayer company with a background in software could identify what the advance sought to be achieved was (at [49], [55] & [57]):

“In cross-examination Mr Price was asked to identify what scientific or technological breakthrough was involved in such *“innovation, creativity and uncertainty”* by reference to each of the sub-paragraphs and he was compelled to answer that he could not do so because he lacked the technical background and knowledge.

Mr Evans nowhere describes any new scientific or technological development achieved by BES’ staff which enabled BES to be *“ahead of the curve”* in developing interactive computer games and other products. This could have been achieved by the use of existing computer technology.

Miss Berry’s answers highlighted the fact that she did not herself have the technological expertise with which to answer the questions, and in particular, she was not able to describe any scientific or technological innovation or breakthrough which BES staff were trying to achieve or had achieved.”

182. In essence, HMRC's case consists of the following assertions:

- (1) There is no evidence to support that there was an advance; and
- (2) There is no evidence that the activities were conducted as a "project".

183. Mr Firth submitted that point (1) is a misunderstanding of both the law and burden of proof. It is plain that Mr Lowe is a competent professional such that his view of the problem and solution as an advance satisfies the legal test. Furthermore, once the Appellant has established a prima facie case by Mr Lowe's evidence, the evidential burden passes to HMRC to advance evidence to support a contrary position. HMRC have failed to adduce any evidence from a competent professional and the views of HMRC or Mr Priestley about what a competent professional engineer would or would not adduce are both irrelevant and admissible.

184. The Appellant submitted that the correspondence between the Appellant and its customers sought by HMRC would only give a small part of the picture; the oral evidence of Mr Lowe is sufficient to provide a fuller picture when considered together with the documents showing expenditure. Mr Lowe gave considerable thought to the estimates provided and discussed the projects in detail with MSC which enabled MSC to provide a technical report. Although there is no contemporaneous evidence to verify the figures claimed, there is no evidence to show that the estimates are unreasonable and therefore unless there is reason to believe that they are unreasonable they should be accepted. Mr Lowe did his best to answer questions in evidence given the passage of time; the criticisms levelled against him are unfair. The only challenge arising from HMRC's case related to the number of hours Mr Lowe worked per day; that of itself does not undermine the figures as a whole and therefore it is reasonable to conclude that the estimates are reasonable. The legislation anticipates apportionment for consumables and staff and it is therefore for the Tribunal to carry out a just and equitable apportionment exercise as it does in the context of different appeals.

185. The Appellant submitted that HMRC had, to a degree, accepted the costs relating to subcontracted work as Mr Reilly had based his analysis on the handwritten notes provided by Mr Lowe. The Appellant agreed with Mr Reilly's observation that not all job codes were available; the Appellant sought to resolve this by seeking clarification from Mr Marshall albeit at a late stage of proceedings. The Appellant has produced its best breakdown of costs which the Tribunal was invited to adopt.

186. Mr Firth submitted that HMRC's submission that the marine gears project may not even have taken place was misconceived; there was no challenge to Mr Lowe's honesty and Mr Firth submitted that the evidence he gave was truthful and to the best of his recollection.

187. Mr Firth submitted that it was a matter for HMRC that it chose not to instruct an expert; HMRC was in possession of the MSC Report and the Appellant's witness statements; in the absence of expert evidence on behalf of HMRC the Tribunal is left with the evidence of Mr Lowe.

188. Point (2) seeks to impose an unnecessary and unjustified level of formality onto R&D. The Guidelines identify a project as "a number of activities conducted to a method or plan in order to achieve an advance" (see para 19). The Appellant submitted that the activities were plainly projects and by way of examples highlighted the following:

- (1) The marine gears project involved trialling different methods of welding whilst altering the heat, speed and other parameters in order to find a solution;

- (2) The double deck loader project involved a plan to build a moving floor using one hydraulic cylinder rather than 16;
- (3) The hollow ingot project involved a plan to design and trial different methods of manipulating the ingots to identify one that could cope with the extreme weight and heat;
- (4) The trombone gantry project involved a plan to design a retracting platform without an initial jolt;
- (5) The 5000 tonne manipulator project involved a plan to develop a stronger track that could withstand the immense weight;
- (6) The titling washdown system involved a plan to develop a tilting mechanism to allow the machine to be cleaned safely;
- (7) The animal waste centrifuge project involved a plan to research the optimum speed and temperature at which fat would be separated from animal waste and develop a way to reach those speeds and temperatures in a viable design.

189. The Appellant submitted that it would be wrong to expect a “plan” in this context to consist of a series of predetermined steps as the whole point of R&D is that the ultimate solution is not known and it is inherent in the uncertainty that not all steps can be planned.

190. In relation to the specific projects the Appellant made the following submissions:

Marine gears

191. Mr Firth submitted that the Appellant had identified flaws in the approved process and developed a new welding process for dissimilar alloys. If the evidence of Mr Lowe was accepted the project constituted R&D.

Double deck loader

192. Mr Marshall was involved in this project. The patents exhibited by HMRC do not cover the Appellant’s solution and therefore HMRC cannot show that the intellectual property rights are vested elsewhere. Furthermore, it was submitted, the rights could potentially be shared. The test is not whether new technology was used or existing technology adapted; relying on paragraph 13 of the BIS Guidelines the Appellant submitted that there does not need to be a fundamental advance in technology. The solution was not readily deducible and HMRC have not demonstrated otherwise. The Appellant disputed that the activities were subcontracted to the Appellant; the customer simply purchased the final product and drawings. In relation to subsidisation, the Appellant sold the product and needed to recover its costs.

Hollow Ingot

193. Atkins Bennett was involved in this project. It is clear that the solution was not readily deducible as demonstrated by the need to build a prototype. The activities were not subcontracted to the Appellant; the customer purchased the final product and drawings. In relation to subsidisation, the Appellant sold the product and needed to recover its costs. HMRC’s submissions are speculation and they have produced no evidence to support their assertions.

Trombone Gantry

194. The Appellant submitted that the Appellant’s activities which sought to achieve a product in practice and the design challenge referred to be HMRC fell within paragraph 13 of the BIS Guidelines. There is no reason why the Appellant’s description of “exploring” cannot amount to R&D and the fact that colleagues were spoken to in order to overcome the

challenges demonstrates that the solution was not readily deducible. The use of technology from a different field which is taken and applied in a different context can constitute R&D. The Appellant relies on the same submissions made earlier relating to intellectual property; there is no reason and HMRC have not shown that the rights are not vested in the Appellant.

5000 tonne manipulator

195. The Appellant relied on its earlier submissions; its activities sought to achieve a solution in a practical context which is sufficient to demonstrate the uncertainty. The activities were not subcontracted or subsidised for the reasons set out above.

Tilting washdown

196. The Appellant highlighted its earlier submissions, adding that the Appellant was given the opportunity to improve the process by which slide formers were cleaned. The Appellant designed a tilt to the machine which needed to be strong enough to turn and accommodate various weights. The considerations such as weight clearly demonstrated that the product and improvement were not readily deducible.

Animal centrifuge

197. In support of the Appellant's submission that this was a collaborative project, Mr Firth relied on HMRC's "Corporate Intangibles Research and Development Manual" published on 11 March 2016 (updated 29 April 2019) "subcontracted R&D activities" which stated:

"Where two companies are both carrying out R&D on the same subject they may decide to pursue the R&D jointly with each making a contribution and each free to enjoy any fruits of the R&D. This is collaborative research and each company would potentially be eligible for R&D relief on its share of the qualifying expenditure.

...

Where one company engages another company to carry out R&D activity on the first company's behalf in exchange for payment, with the first company having rights to the intellectual property resulting from the R&D then that is subcontracting of the R&D to the second company."

198. The aim was to achieve clear water; Agritech had the waste experience and the Appellant had the engineering expertise. The evidence was that the Appellant was not paid by Agritech and therefore the project was not contracted out.

General

199. On behalf of the Appellant it was accepted that the figures put forward by the Appellant required amendments in light of the concessions made relating to Mr Lowe's bonus and additional evidence relating to Mr Marshall. The issue relating to Mr Lowe's bonus in 2008 appears to have arisen as a result of using payroll data for tax years rather than financial years. In those circumstances Mr Firth invited the Tribunal to reach its decision in principle with the numerical effect of the decision to be considered by the parties.

200. Mr Firth submitted that HMRC's restricted and strict approach is not consistent with the guidelines. In relation HMRC's analogy of a "circle of knowledge", Mr Firth submitted that although the Appellant agreed to an extent, HMRC's reference to expanding overall knowledge is incorrect; the guidelines clearly recognise at paragraph 20 that a more nuanced view should be taken by the inclusion of what is publicly available or readily deducible. Applying that approach to Mr Lowe's evidence that he was not aware of a solution or an "off the shelf" product, then such work would fall within R&D notwithstanding that there may be someone else in the world with a solution.

201. Mr Firth submitted that HMRC's repeated reference to knowledge and knowing whether something is or is not possible is not the test; the BIS Guidelines at 13 include how to achieve something in practice. Therefore, if someone seeks to achieve something then this is sufficient to amount to addressing a technological uncertainty. By way of example, the tilting washdown project involved a number of considerations in working out how to achieve something that it was believed must be possible; HMRC are wrong to submit that this makes the solution readily deducible.

202. In relation to the issue of adaption, HMRC submitted that it must come from another field to amount to R&D. The Appellant disagrees; the BIS Guidelines state that it "includes" but is not limited to adaption of knowledge from another field. HMRC have conflated the adaption of existing technology with adaption of technology from another field; the Guidelines do not say that it is excluded. The application of technology to a different field can demonstrate an uncertainty, for instance the use of hydraulic cylinders in the tilting wash down system.

203. The Appellant submitted that the question is not whether Mr Marshall would be the most competent professional but whether Mr Lowe is a competent professional which HMRC accept for all projects except animal centrifuge. The Appellant submitted that Mr Lowe's experience of engineering clearly qualifies him as a competent professional.

204. . The Appellant did not agree with HMRC that subcontracting does not require payment specifically for R&D. The Appellant submitted that it is logical to conclude that contracting out requires an agreement to carry out R&D for which payment is received. In this appeal the Appellant was asked to provide a specific product which the customer purchased.

205. Similarly, the Appellant did not agree with HMRC's submission relating to subsidy. The Appellant submitted that HMRC's approach, if accepted, would lead to the very broad effect that where a taxpayer agrees to make a product and attempts to recover its costs at sale this would be deemed to be subsidised. The Appellant submitted that this approach is not correct and that payment for a product is not subsidising R&D.

206. In respect of proof of sub-contracted costs, the invoices in support were analysed and incorporated into the R&D claims by MSC; there is no reason to believe that this was done in an incorrect or inappropriate way. As to contracting out and subsidies, Mr Lowe's evidence confirms that the Appellant undertook projects at its own risk and that the final product, if developed, was sold on commercial terms.

207. Mr Firth submitted that the Appellant's evidence demonstrated that the activities were carried out as projects. Whilst the evidence that HMRC seek of a detailed process of budgeting, identification of existing knowledge, design of a scientific process and documentation of attempted resolution of uncertainty might be the ideal, it is far more than required by the BIS Guidelines.

208. As to proof of expenditure the Appellant submitted that it is the Tribunal's task to assess the evidence in order to arrive at its best assessment of the expenditure incurred on the projects. Furthermore, reliance on the burden of proof to decide a case is exceptional. In support of its submission the Appellant relied on *Anglian Water Services Limited v HMRC* [2018] UKUT 431 (TCC) at [62] & [63]:

"Clearly the FTT had to focus on the evidence before it, the relevance and probative value of that evidence and the weight to be attached to the different types of evidence. It had to make findings of fact based on that evidence and consider what inferences it could properly draw from those primary facts. There was no dispute that this was the approach the FTT was bound to take.

In contrast, Mr Mantle submitted that the FTT properly strove hard to reach a decision based on the evidence and that was the right approach. He referred us to *Stephens v Cannon* [2005] EWCA Civ 222 for the propositions described by Wilson J at [46]:

“46. From these authorities I derive the following propositions:

- (a) The situation in which the court finds itself before it can despatch a disputed issue by resort to the burden of proof has to be exceptional.
- (b) Nevertheless the issue does not have to be of any particular type. A legitimate state of agnosticism can logically arise following enquiry into any type of disputed issue. It may be more likely to arise following an enquiry into, for example, the identity of the aggressor in an unwitnessed fight; but it can arise even after an enquiry, aided by good experts, into, for example, the cause of the sinking of a ship.
- (c) The exceptional situation which entitles the court to resort to the burden of proof is that, notwithstanding that it has striven to do so, it cannot reasonably make a finding in relation to a disputed issue. ...”

There was no dispute about these propositions.”

209. In the real world, it is often necessary to rely on reasonable estimates. The schedules which accompanied the R&D claims set out the calculations. The Appellant has provided its best estimates of staffing time and costs. HMRC have produced no evidence to contradict those estimates and in those circumstances HMRC cannot succeed in undermining the Appellant’s estimates to such a degree that the Tribunal cannot reach any findings on the issue and would be entitled to rely on the burden of proof.

210. The Appellant submitted that as it was the Appellant that undertook the research and development and developed solutions there is no basis to conclude that the Appellant was not entitled to use the solutions it arrived at or that the intellectual property was vested elsewhere. The evidence of Mr Lowe confirmed that in respect of specific projects, such as the double deck loader, the Appellant marketed and sold units. Condition C is satisfied irrespective of whether or not other persons were also entitled to reuse the solutions and the patents identified by HMRC do not cover the solutions developed by the Appellant.

DISCUSSION AND DECISION

Our approach to the applicable legislation

211. Our approach was to consider each of the activities and associated expenditure which made up the Appellant’s claims for R&D relief and apply the legislative provisions to those activities. We noted Mr Firth’s submissions regarding the burden of proof and the observations made in *Anglian Water* (above). Whilst we agreed with the comments of the UT set out above, on our reading a clear distinction is drawn between “a legitimate state of agnosticism” which required resort to the burden of proof in order to reach a decision and findings of fact made following consideration and balancing of the relevance, probative value and weight to be attached to evidence from which those findings of facts and inferences can properly be drawn. In this appeal, for reasons we will set out, we found that the evidence on behalf of the Appellant was unreliable, vague and at times inconsistent to the extent that we could not be satisfied on the material before us that the statutory requirements were met.

212. Despite significant amount of correspondence in the bundles a significant proportion of the documents related to background information such as the Information Notices issued to the Appellant and the direct evidence relating to the R&D claim was limited. We disregarded the submissions and evidence of both parties regarding the provision of documents and Appellant’s co-operation which we considered irrelevant to the issues to be determined and we have reached our decision on the basis of the material before us.

213. Our starting point was to consider the definition of R&D (for period ended 30 April 2009 s834A ICTA 1988 and the equivalent provision for the period ended 30 April 2010 at s1138 CTA 2010). For the purposes of this appeal there was no material difference to the tests that we must apply.

214. The BIS Guidelines at paragraph 3 set out that R&D takes place when a project seeks to achieve an advance in science and technology. The activities must also directly contribute to achieving this advance through the resolution of scientific or technological uncertainty. Paragraph 19 defines a “project” as consisting of a number of activities conducted to a method or plan. The BIS Guidelines state that “it is important to get the boundaries of the project correct” in that it should include all of the activities “which collectively serve to resolve the scientific or technological uncertainty associated with achieving the advance”. The Guidelines clarify that a project could include a number of sub-projects or be part of a larger commercial project although in the latter situation the wider project which does not address the scientific or technological uncertainty would not be R&D.

215. The parties took different views on what is required in order for activities to constitute a project; HMRC sought evidence of plans and records to substantiate the Appellant’s assertion that its activities amounted to a project whereas Mr Firth submitted that HMRC’s approach was overly narrow and the inherent uncertainty involved in R&D means that plans cannot always be formulated in the proscriptive manner suggested by HMRC.

216. The Oxford Dictionary defines “project” as:

“a plan or scheme; a planned undertaking”

217. We preferred the submissions on behalf of HMRC. We considered that the BIS Guidelines reflect the ordinary everyday meaning of “project” and that formulation of a plan is required for R&D activities. Although there is no requirement for a plan to be recorded in a particular manner, we would expect some record or documentary evidence or, in the absence of which, a detailed explanation which identified the uncertainty and the way in which the activities were designed to resolve it; in doing so the “boundaries” highlighted by the BIS Guidelines would be clearly identified and the activities which contributed to seeking the resolution of the uncertainty would also be identifiable.

218. Paragraph 6 of the Guidelines requires that an advance in science or technology extends overall knowledge or capability in a field. As noted by the Appellant this includes adapting knowledge or capability from another field although an advance is still required and the adaption must not have been readily deducible.

219. The uncertainty required by the Guidelines arises where knowledge of whether something is possible or achievable in practice is not readily available or deducible by a competent professional in the field. Notably, uncertainties that can be readily resolved by a competent professional and improvements/fine-tuning which do not “materially affect the underlying science or technology” are not R&D. This is consistent with the requirement for an advance which, it appears to us, must go beyond a minor improvement and which materially affects the characteristics.

220. In summary, we considered that the Appellant is required to demonstrate that there was a clear methodology behind the activities which were carried out such that it identified the uncertainty it sought to resolve and in doing so attempted to produce (whether or not successful) a material change or improvement which added to or extended knowledge in a field of science or technology which was not publicly available or could be worked out by a competent professional in that field without difficulty.

221. In our view a narrow approach is required; we found support for this view in *Gripple Ltd v Revenue and Customs Commissioners* [2010] EWHC 1609 (Ch) at [12]:

“I would, however, make the general point that the provisions form a detailed and meticulously drafted code, with a series of defined terms and composite expressions, and a large number of carefully delineated conditions, all of which have to be satisfied if the relief is to be available. The schedule runs to 26 paragraphs and occupies ten pages in Tolley's Yellow Tax Handbook for 2005/06. I emphasise this point because one of Mr Gordon's submissions for Gripple is that the schedule evinces a general intention to provide enhanced relief for expenditure on R & D, and that a generous construction should where possible be adopted in order to further that general aim. I am unable to accept this submission. It seems to me, on the contrary, that a detailed and prescriptive code of this nature leaves little room for a purposive construction, and there is no substitute for going through the detailed conditions, one by one, to see if, on a fair reading, they are satisfied.”

222. The references to “detailed and meticulously drafted code” and “carefully delineated conditions” in our view makes clear that the Guidelines require strict application to achieve their purpose. This view appears consistent with the approach in *B E Studios v Smith & Williamson* [2005] EWCH 1506 (Ch) (“*B E Studios*”) from which we derived assistance at [45], [46] & [55]:

“45. In his closing written address for S&W, Mr Pilling makes the following submissions: -

3 It is ... remarkable that the Claimant's witness evidence made virtually no attempt to address either of these questions. No evidence was led which identified what the Claimant was actually doing which constituted R&D. Those witnesses who touched on this subject in their statements did so fleetingly, and in determinately non-specific terms. No evidence was called from any of the employees who were supposedly engaged in R&D. Most of those employees did not even get a mention in the witness statements of those witnesses who were called.

4 What emerged from the evidence is that both the Claimant's factual witnesses and its expert witness, Mr Owen, have made an assumption that because they believed that the Claimant's products were in some general sense "innovative" or "cutting edge" it therefore follows that they were the product of R&D within the meaning of the statute....

5 It is submitted that this bare assumption was not a sufficient basis upon which to advance a claim for R&D tax credits to the Inland Revenue, and neither is it a sufficient basis to advance a claim for damages against the defendant."

46. I have to say, straight away, that I accept Mr Pilling's submissions. My reasons for arriving at that conclusion involve an examination of the evidence of those of BES' staff who gave evidence and what is known or can be deduced from their evidence and from the documentary evidence about the role and work performed by the other members of BES' staff who were not called.

...

55. Mr Evans nowhere describes any new scientific or technological development achieved by BES' staff which enabled BES to be "*ahead of the curve*" in developing interactive computer games and other products. This could have been achieved by the use of existing computer technology.”

223. The remaining issues provided for under s1052 or s1053 CTA 2009 relate to qualifying expenditure, what that qualifying expenditure related to, issues relating to intellectual property and whether the activities were contracted out or subsidised.

224. The Appellant submitted that sub-contracting exists where a person pays another to undertake R&D. It does not exist where one person asks another to see if they can find a solution to a problem and if they can that product will be purchased. The Appellant highlighted HMRC's Guidance CIR D 84250:

“where one company engages another company to carry out R&D activity on the first company's behalf in exchange for payment, with the first company having rights to the intellectual property resulting from the R&D then that is subcontracting of the R&D to the second company”

225. The Appellant also submitted that payment made to obtain goods/services is not one made in order to meet directly or indirectly the expenditure of the company – even if that expenditure was incurred in order to be able to provide the service or goods

226. We note that HMRC's manual is guidance only and does not have the force of law. We also observe that Conditions D and E are drafted in wide terms; Condition D refers to activities which are “contracted out” without any specific reference to payment. However, we agree that logically the contracting out of activities would usually, but not necessarily, involve payment. The difficulty for the Appellant in this appeal is that no terms of engagement have been provided which may have clarified the nature of the activities forming part of the contract and whether, and if so to what extent, R&D was included. In our view, there is no reason why any payments made could not be for the product, the R&D or both. Similarly, we did not accept the Appellant's submissions regarding subsidisation; section 1138 makes clear that expenditure is treated as subsidised “to the extent that it is otherwise met directly or indirectly by a person other than the company.” In our view this could include R&D. We have therefore proceeded to reach our conclusions on the basis of the material before us, drawing inferences where we concluded it was reasonable to do so.

227. The statutory requirement until 9 December 2009 was that any IP created as a result of the R&D was vested in the company. There was no requirement that IP must be created, only that if it was created it vests in the company.

228. The Appellant noted the pragmatic approach taken in HMRC Manual CIR D 81550:

“The carrying out of R&D without the creation of any IP does not prevent relief being due. The requirement is only that if any IP arises from the R&D then it vests in the company.

In practice, there are many different forms of IP and attempting to identify all of them and the attached legal rights might often be an unrealistic task to attempt. In practice it should generally be accepted that so long as the claimant company has a real and material interest in any IP that has arisen, then the test is satisfied. But where there is an agreement recording that all IP that is created belongs to another party that is likely to be conclusive evidence that the IP test is failed.”

229. The Appellant noted that this guidance is consistent with the general principle against requiring proof of a negative as per *Kellogg Brown & Root Holdings (UK) Ltd v HMRC* [2010] EWCA Civ 118 at [47]:

“The fact that s50(6) of the Taxes Management Act 1970 places an initial general onus on the taxpayer challenging an assessment does not affect the point that, if HMRC's assessment relies on the fact that two apparently independent companies are “connected” under the terms of s286(5)(b), then that would be for HMRC to prove.”

230. The requirement is applied at the time when the IP is created. It is no bar to relief that someone else subsequently has the IP as long as the claimant company was not obliged to transfer the IP under a pre-existing agreement, as per the example in HMRC's manual:

“Ark Engineering Ltd has an arrangement with its researchers, and a local university to which it sub-contracts part of the work, that patent rights are split equally on any invention that they devise. The R&D project results in an invention that has commercial possibilities. Immediately following the grant of the patent the company transfers its rights to a subsidiary. Although the company holds a part of the rights and held them only for a brief period it meets the requirements of the legislation, because it was not obliged to transfer them by any pre-existing agreement.”

231. We accepted the Appellant's submissions relating to IP issues and our findings are set out below.

General conclusions on the evidence

232. We considered Mr Firth's submission that Mr Reilly had no direct involvement in the Appellant's business at the relevant time and that he was not professionally qualified to comment on the Appellant's activities. In our view the point is misconceived; Mr Reilly's role was to investigate the Appellant's claim and seek, where required, objective evidence in support of that claim. We found Mr Reilly's evidence was reliable and credible in setting out the inquiries he had made and the basis upon which he had refused the claim due to a lack of evidence in support to verify either the activities or the expenditure involved. The case for HMRC was, in summary, to require the Appellant to demonstrate that the statutory requirements were satisfied.

233. Although the bundles contained a witness statement from Mr Hoy, a senior tax manager at Shorts Accountants within the R&D team, it was confirmed on behalf of the Appellant that the evidence was not relied upon and we therefore disregarded the statement in its entirety.

234. We found Mr Lowe's evidence relating to the activities which formed the basis of the claim was vague and at times contradictory. We accepted that the passage of time may have affected Mr Lowe's recollection of events, however we found the combination of factors such as inconsistencies, lack of detail and knowledge on pertinent matters and Mr Lowe's acceptance that elements of his witness statements may be inaccurate undermined the reliability of his evidence as a whole.

235. We treated the MSC Report with caution; no evidence was led from the author and the contents of the Report were therefore untested. Furthermore, the Report expressly stated that verification of the contents was the responsibility of the Appellant and not MSC and there was no evidence to show or explain what underlying source documents were used or how they were used to compile the Report.

236. We found the invoices and evidence relating to Mr Marshall was unclear; many did not refer to specific job numbers and others failed to adequately identify or apportion the specific activities involved which were said to constitute R&D. Mr Marshall did not give evidence and although we accepted that Mr Lowe had spoken to him we found Mr Lowe's attempts to clarify were vague and unclear. We were left with estimates of expenditure which the Appellant did not, with any clarity, apportion to R&D activities. There was no clear explanation as to the basis of the estimates, how they related to activities which directly or indirectly contributed to achieving an advance in science or technology and what the costs specifically related to. In the absence of documentary evidence or cogent oral evidence we agreed with the submissions of HMRC that the Appellant's figures and estimates simply could not be verified and there was no basis upon which we could be satisfied that they were reliable or even reasonable.

237. In summary, in assessing whether the Appellant's activities amounted to R&D we concluded that in respect of all save the marine gears project the Appellant failed to identify the objective sought to be achieved, namely the scientific or technological uncertainty, the plan or method by which the Appellant sought to overcome the uncertainty and the overall advancement sought (whether or not achieved). There was no cogent evidence to show that there was any planning involved or that the Appellant worked independently to achieve a solution; to the contrary in a number of cases the evidence indicated that the Appellant was working to a pre-existing concept within parameters set by the customer. There was no evidence beyond Mr Lowe's assertion that the activities were novel or innovative and even where this assertion was made Mr Lowe accepted in relation to some of the activities that the concepts may well have existed already. Even if the Appellant's activities were novel, there was still no evidence to demonstrate that the outcome sought to advance overall knowledge in the field or that the challenge went beyond those to be expected in day to day activities. The Appellant's evidence did not demonstrate who was engaged in or how they contributed to specific R&D activities.

238. Even if we are wrong in our value judgment of the activities relied on in support of the R&D claim, we considered the evidence relating to expenditure wholly inadequate. There was no clear evidence setting out how the figures were calculated. By way of example, the MSC Report made clear that assumptions had been made and that responsibility for verifying the figures rested with the Appellant yet the evidence of Mr Lowe indicated that he had made no attempt to do so but instead had relied on MSC. Mr Lowe's assertion that he expected that MSC had considered and excluded any subsidised expenditure was not borne out by the evidence and the incorrect inclusion of items such as Mr Lowe's bonus further undermined the reliability of the figures. The information from Mr Marshall was confused and Mr Lowe's attempts to explain did not leave a clear picture or a reliable basis in support of the figures, for example his vague assertion that Mr Marshall's documents were likely to be accurate. The absence of underlying documents to support the claim did not assist the Appellant, for instance in relation to consumables, staff hours and Mr Lowe's hours which we were told came from his diary which was not produced. Furthermore, we did not accept the Appellant's submission that the figures should be accepted as reasonable in the absence of evidence to the contrary; the burden of proof lay with the Appellant and we found that there was no evidence to demonstrate or support the basis upon which the figures were put forward. We also rejected the Appellant's submission that there was no challenge by HMRC to the figures provided in relation to staff hours and consumables; it was clear that part of HMRC's reasons for refusing the claim was that the figures could not be verified and their refusal to accept the figures formed part of its case.

239. The observations and principles set out in *BE Studios* informed our approach and we found the following comments in relation to the predecessor DTI Guidelines were applicable to the evidence in this appeal (at [23]):

“... ”

9. Identifying the boundary between R&D and non-R&D activities can sometimes pose practical difficulties. But an activity will be R&D if carried on in the field of science or technology and undertaken with a view to the extension of knowledge.

10. R&D is thus characterised by work which breaks new ground and the novelty of what is being created in an atmosphere of scientific or technological uncertainty, and if successful will result in the extension of scientific or technical knowledge (although it is recognised that R&D will not always be successful). R&D should be founded on the investigation and exploitation of a scientific principle. This may be in pursuit of the creation or development of, for example, new liquids, substances, materials,

software, designs, products, processes, technology or knowledge. R&D may result in intangible as well as tangible outputs.

11. Within this context, activities will be R&D if they consist of: the application of new scientific or technological principles in an existing area of investigation; or the application of existing scientific or technological principles in a new area of investigation.

12. Care must be taken to distinguish R&D from other activities that may be part of the wider innovation process. R&D will not include activities based upon the use of well-established products or processes, which may be new to the user but do not represent any departure from common knowledge or practice for the industry sector concerned. Neither will R&D include any activity that is not intended to lead to a scientific or technical advance or which did not break new ground intended to lead to substantial improvement for the business's products, processes or services.

13. Experimental development falls within R&D, but commercial development, including pre-production development and product development is outside R&D. There may still be difficulties in distinguishing these activities. The basic rule is to look at the primary objective of the work undertaken. If the primary objective of the development is to test the viability of the R&D, or to make further technical improvements on the product or process, then the work comes within the definition of R&D (subject to the basic requirement that R&D has to include an appreciable element of novelty). On the other hand, further development is not R&D if the product, process or approach is substantially set, or the technological uncertainty has been resolved, even though the development may be related to the design or bringing on of a product. Similarly, pre-production planning, or work to get a production or control system working smoothly is not R&D. Thus, R&D would include novel work which draws on or creates a new source of knowledge which might lead to the breaking of new ground or a technical advance and which might subsequently entail the creation or development of a new or substantially improved product, process or service.

14. This means that work on the periodic updating or modification of a product will not be R&D if it does not involve an appreciable element of innovation and does not break new ground. However, a programme of R&D may result in incremental improvements to a product, service or process.”

240. We note that in the relevant periods a minimum of £10,000 of qualifying R&D expenditure was required. As we were invited to provide a decision in principle only we have not addressed the threshold issue in any detail; the parties will have the opportunity to make further representations in due course if necessary once the issue of quantum has been considered in light of our findings.

241. Having set out our general observations and findings we now turn to deal with each of the activities forming the basis of the Appellant’s claim for R&D relief.

The Appellant’s activities

242. The Appellant confirmed that the original claim for “General R&D” was no longer pursued and we therefore disregarded the evidence relating to this aspect of the claim.

Marine Gear Welding

243. This claim fell within the period 2008-2009 and totalled £49,704 comprising:

- (1) £46,104 staff costs;
- (2) £3,000 heat and light;
- (3) £600 non-destructive testing.

244. The Appellant was approached to manufacture a gear for a nuclear submarine to a prescribed procedure which was provided. The Appellant completed the task to the designated specification and received payment of £10,695 shown in an invoice dated 27 February 2009. The Appellant accepted that this element was not R&D and £11,000 costs had been excluded for that reason. As explained by Mr Lowe and the MSC Report the prescribed procedure was unsuccessful due to cracks adjacent to the welding

245. The evidence of Mr Lowe was that the Appellant developed the solution at its own expense. We found that there was limited information provided by the Appellant who explained in writing that: "This work is classified and should you wish to investigate further we would have to obtain clearance from the MOD, as it is a protected classified product" which we noted had also been stated at a meeting with HMRC on 16 May 2013.

246. We noted Mr Firth's submission that HMRC's suggestion that the marine gears project may not even have taken place had not been pleaded nor had dishonesty. As we understood the submission, HMRC did not go as far as the Appellant believed and were not suggesting that the activity did not happen; rather the point was made simply to highlight the absence of documentation to support when and how the activities took place.

247. The only documentary evidence in support of this project is the sales invoice dated 27 February 2009. No terms of engagement for the period after the initial failure were provided. There was no documentary evidence of expenditure beyond the original attempts to weld to the specification provided and no documents setting out terms of engagement, payment, or correspondence between any parties such as the customer or the Welding Institute.

248. As to whether the claimed expenditure would satisfy the definition of R&D at parts 3 – 5 of the BIS, we found that Mr Lowe's oral evidence provided additional detail and clarification of the activities undertaken. We considered the definition of a "project" and concluded that while we would have expected some documents recording the processes and planning of the activities, the absence of such was not determinative of the issue. Mr Lowe's oral explanation of the involvement of the Welding Institute together with the detail of the activities carried out by the Appellant were in our view, on balance, sufficient to demonstrate that there had been a plan designed to reach the outcome sought and were therefore sufficient to constitute a project as required by the BIS.

249. We were also satisfied that the evidence set out in the MSC Report, when taken together with the evidence of Mr Lowe regarding the involvement of the Welding Institute who were unable to provide a solution and gave assistance to the Appellant supported the Appellant's evidence that such welds had not been successfully carried out before despite attempts by other companies and indicated to us that the problem constituted a scientific or technological uncertainty in respect of which the solution was not readily deducible (per paragraph 13 of the BIS Guidelines). We also accepted Mr Lowe's evidence that in conducting the work, they sought to advance overall scientific or technological knowledge in the field as per para 6.

250. We noted that there were inconsistencies in Mr Lowe's evidence regarding the involvement of the Welding Institute. Mr Lowe asserted in his first witness statement that he made the information available to the Welding Institute to be shared more widely which he subsequently clarified in his second statement to explain that: "TWI now know that we have this knowledge". However, despite the inconsistency we concluded that the evidence was sufficient to find that BIS Guidelines satisfied.

251. In relation to the amount of expenditure qualifying HMRC submitted that only a fraction of the expenditure claimed would qualify as R&D. The schedule showed a number of rows of expenditure. We found that rows 2 to 22 totalling £27,913.58 constituted welding and

testing of the original specification rather than seeking to resolve a scientific or technological uncertainty and therefore were not allowable. Although Mr Lowe's witness statement asserted that no R&D was claimed on initial attempts, we were satisfied that this is contradicted by the schedule and that this expenditure should not have formed part of the claim.

252. HMRC submitted that the schedule of costs implies that the Welding Institute had a more significant role than claimed by Mr Lowe and it appeared that the Institute was fundamental in directing the Appellant to the solution therefore the activities were no more than testing by a competent professional and readily deducing the solution from information made available by TWI. However, having accepted the evidence of Mr Lowe we took the view that this was not a reasonable inference to draw and we rejected HMRC's submission.

253. Rows 34 to 41 totalling £9,823 relate to the manufacture and finishing of the actual gear after a solution had been found. We agreed with HMRC that these activities related to the production of a product rather than an activity that seeks to resolve a scientific or technological uncertainty which would already have been resolved and therefore did not meet the definition of R&D under paragraphs 3 – 5 of the BIS Guidelines and the R&D would have ended (see paragraph 34 of the Guidelines).

254. We found, on balance, that Mr Lowe's evidence relating to materials, staff time and other expenses was clearer than that in relation to the other projects perhaps, we inferred, as a result of a greater degree of involvement in this project, and we accepted it despite the absence of documentary evidence in support.

255. A further issue arose regarding Mr Lowe's bonus which the Appellant conceded. Consequently, we were satisfied that the quantum of the claim was incorrect and required adjustment.

256. Turning to the application of s1052 CTA 2009, in relation to condition C the Appellant submitted that the details of the project were classified and that there was no patent. The statute requires that: "any intellectual property created" is vested in the company. We concluded that there was no material before us upon which we could be satisfied that any intellectual property was created and in those circumstances the Appellant did not fall foul of condition C.

257. Although HMRC's initial position was that the project may not satisfy condition D, the argument was not robustly pursued, Mr Priestley conceding that if the Tribunal accepted Mr Lowe's evidence the Appellant could not be deemed to have been acting as a subcontractor. For the reasons set out above, we accepted in respect of this project that Mr Lowe's evidence was clearer and more detailed than in relation to the remaining activities and we accepted that the Appellant had continued with the project independently and without subsidy. We were therefore satisfied that conditions D and E were met.

Double decker loader

258. The claim totalled £152,411 of which £151,709 was attributed to 2009 and £702 to 2010 and comprised:

- (1) £68,052 staff costs in 2009;
- (2) £36,482 steel and consumables in 2009;
- (3) £47,175 subcontractor costs paid to Mr Marshall in 2009; and
- (4) £702 staff costs in 2010.

259. We found Mr Lowe's evidence in respect of these activities vague and contradictory. Mr Lowe explained that the Appellant was approached by Transdek with a request to design a product which met certain criteria. The invoices provided covered design work calculated by reference to the number of design hours, it appears at an hourly rate, the supply of actual products such as a "cage lift" both early and subsequent versions, modified versions and other modifications. The invoices also refer to the "cage lift...as per our discussion with Mark Adams".

260. There were no technical drawings of the product developed. The MSC Report described "special lifts in loading bays to enable the pallets to be lifted to the upper deck" of double deck lorries and the replacement of existing scissor action lifts which created issues with "mechanical insufficiency" and "substantial civil engineering" to install. One challenge described related to "the standard dimensions of loading bays". However, Mr Lowe described a different product "which maximised the floor space" within a lorry by creating "2 floors". For the first time when giving oral evidence Mr Lowe described the key advance as being the manipulator.

261. We concluded that Mr Lowe's evidence was unclear and unreliable. We formed the view that the inconsistencies in Mr Lowe's evidence were due to his limited involvement in the project; as he stated in oral evidence Mr Marshall developed the product with little involvement from Mr Lowe. Mr Lowe accepted in cross examination that he only became aware of the inaccuracies in his evidence when he received the patents a few weeks prior to the hearing and had to explain them to his representative. He stated that the patents were technical and would not be understood but agreed that the lift concept already existed.

262. In relation to the amount of expenditure qualifying, we accepted HMRC's submission that the design and material costs of production are included without any attempt to identify those elements that directly contributed to resolving a scientific or technological uncertainty.

263. We agreed with HMRC that the absence of purchase invoices in relation to the steel and consumables make the expenditure unverifiable. We did not accept the arguments for the Appellant that the amounts can be quantified by looking at the project; the burden rests with the Appellant to substantiate its claim and we found that there was no clear basis for the figures provided.

264. Mr Lowe described the creation of a prototype which was subsequently modified to "hone and enhance the project". He stated that improvements were then "incorporated into the later produced units". Sales invoices show that design work appeared to be substantively completed by end of December 2008 with the subsequent invoices relating to "delivery of a cage lift" and subsequent design work then referred to in the sales invoices as "modifications", "improvements" and "revisions" which are excluded by paragraph 14 of the BIS Guidelines and yet appear to have been claimed.

265. There was no evidence, oral or documentary, from which we could be satisfied that the activities were conducted as a project. As set out above, records or similar documents would be expected, albeit not determinative. In the absence of documentary evidence, the oral evidence of Mr Lowe fell far short of demonstrating that there was any plan or methodology formulated or followed. Furthermore, the evidence failed to identify with any certainty or clarity the scientific or technological uncertainty sought to be resolved; to the contrary the patents predating the Appellant's involvement and Mr Lowe's own evidence of similar products indicated that any scientific or technological uncertainty had been overcome.

266. We considered whether the activities constituted an appreciable improvement. The product may have been bespoke and even innovative however the invoices which refer to "designs" and "drawings" did not provide any indication as to how the activities went beyond

a competent professional readily deducing a solution and producing a design. Furthermore, the documentary evidence taken together with that of Mr Lowe also failed to explain how the activities made a material change or advance in science or technology as a whole and in those circumstances, we could not be satisfied that the BIS Guidelines were satisfied.

267. Whilst we accepted that Mr Lowe's experience of engineering was sufficient to deem him a competent professional in general terms, the difficulty was that Mr Lowe did not give cogent evidence about the detail of the activities and we concluded, when considered together with the fact that Mr Marshall had been responsible for the design, that Mr Lowe had only a limited knowledge of the activity and his evidence was insufficient to demonstrate that the requirements of the BIS Guidelines at 3 – 13 were met.

268. We noted HMRC's submissions in relation to this and other projects involving Mr Marshall, namely that it was Mr Marshall who was the competent professional who could speak to the activities. The fact is that Mr Marshall did not give evidence and we make no observations as to what evidence he may have given or its potential relevance. We have reached our decision on the material before us and for the reasons set out above we concluded that the statutory requirements are not satisfied.

269. The Appellant attributed all of Mr Marshall's invoices for 2009 to this project despite a coding system which appeared to allocate some of the costs to other projects. We found the Appellant's evidence unclear in explaining the coding system and how any costs beyond the sum of £8,534.50 (which we accepted as correctly identified by HMRC as attributable to the code for this project) were attributed to this project and specifically any R&D activities. We concluded in the absence of any clear evidence that the Appellant's figures could not be relied upon as accurate.

270. Turning to the application of s1052 CTA 2009 Condition C, HMRC produced evidence from the Transdek website showing the double deck lifts it offers for sale and patents belonging which suggest the intellectual property rights belonged to Transdek. Although the Appellant asserted that the patents related to different products, we found Mr Lowe's evidence was no more than an assertion with no cogent explanation as to how the products differed and we inferred from the pre-existing patents together with the invoices for design "as per discussions with Mark Adams" of Transdek who is named on the patents as inventor that the Appellant was approached by Transdek who provided the concept.

271. The patents exhibited were as follows:

- European patent 1775246 filed on 4 October 2006 which makes reference to double-deck trailers and notes the limitations of mechanisms incorporating "scissor lifting" and the need for civil engineering or "excavation work" prior to installation;
- European patent 2025635 filed on 16 August 2007 which described "Apparatus including a moveable platform...The platform is moved by using a single ram, thereby avoiding the expense of the conventional multiple ram or scissor lift arrangements..."
- United States patent 8978830 filed on 27 April 2010 but with priority to GB application 0907333 (J48) which was filed on 29 April 2009. The US patent describes the invention as "lifting apparatus of a type which can be used to allow movement of goods to and from and between first and second goods storage areas...with the other goods storage areas typically being a vehicle trailer."
- European patent 2246280 which appears to be the European version of the US patent with the same GB reference as above.

- Google Patents show an abandoned US patent application which shows Transdek as the current assignee and Mr Adams as inventor. It was filed on 26 October 2010 with a priority given to a GB application filed on 26 October 2009 which relates to “locking assembly for lifting apparatus”.

272. We concluded from the evidence before us that the Appellant was subcontracted to provide a solution as opposed to independently developing a product. The Appellant’s evidence was that it was provided with parameters but developed the product at its own risk. However, we found that this evidence was contradicted by the sales invoices which show that the Appellant was reimbursed on an hourly basis for its design time. Taken together with our finding that Mr Lowe’s knowledge of the project was limited and his evidence regarding figures and payment, we concluded that the customer provided the concept of the product and was heavily involved in the design which was then implemented by the Appellant and which amounted to the Appellant being subcontracted, thereby failing to satisfy condition D. Furthermore, the documentary evidence suggest that the Appellant was fully recompensed for its time in developing product and prototypes therefore condition E was not satisfied.

Hollow Ingot Manipulator

273. This element of the claim totalled £121,535 of which £37,256 was attributed to the 2009 year and £84,279 to 2010 and comprised:

- (1) £13,256 staff costs in 2009;
- (2) £24,000 subcontractor costs (Atkins Bennett Ltd) in 2009;
- (3) £24,553 staff costs in 2010;
- (4) £59,726 steel and consumables in 2010.

274. As to the existence of expenditure, we accepted the submissions for HMRC that without purchase invoices for the steel and consumables, the expenditure cannot be verified as required by s1044 CTA 2009. Furthermore, it remains unknown how staff days were attributed specifically to the project as required by s1124 CTA 2009. We rejected the Appellant submission that there was no real challenge to these factors; HMRC had sought information from the outset of the enquiries to substantiate the claim which had not been provided and the absence of which had formed part of HMRC’s refusal of the R&D claim. In our view, neither the documentary nor oral evidence provided sufficient or clear information from which we could conclude that the Appellant’s claims in this regard were accurate or reliable.

275. The evidence of Mr Lowe was unpersuasive; his assertion that the product amounted to R&D simply because no “off the shelf product” was available to the customer is wholly insufficient to demonstrate that there was an advance to overall knowledge in science or technology or any uncertainty the solution to which was not readily deducible by a competent professional working in the field using existing knowledge.

276. There was also no evidence upon which we could conclude what, if any, plans or processes were used to arrive at the solution. The invoices from Atkins Bennett Ltd are for “Engineering” services for the “Design of Billett Turnover Unit for Forgemasters..C-Frame Ingot Lift” which led us to conclude that Atkins Bennett were commissioned to draw up plans for a specific product after some engagement with the customer and which therefore does not amount to R&D. We noted HMRC’s submission that the relevant competent professional was Atkins Bennett; for the reasons set out above in relation to Mr Marshall we make no findings in that regard nor did we consider what evidence Atkins Bennett could have provided. The difficulty for the Appellant is that in our view the evidence on behalf of the

Appellant, in particular that of Mr Lowe, was vague, unsupported by documentation and failed to provide the detail required to satisfy the BIS Guidelines. We found that the Appellant failed to demonstrate that the product constituted an advance in overall science or technology or that resolution of any such uncertainty was resolved by it.

277. We found that the Appellant failed to address which parts and how those parts of the expenditure claimed were attributable to R&D. By way of example an email dated 2 December 2008 indicated that any scientific or technological uncertainty that may have existed had been resolved by that date as a product to a specific design was offered for sale. In those circumstances we concluded that Mr Lowe's time for December 2008 to February 2009 and 2010 could not constitute qualifying expenditure for R&D activities. We also concluded that there was no clear evidence, documentary or oral, which demonstrated that the basis of the Appellant's claim for expenditure on staff and consumables was reliable.

278. Turning to the application of s1052 CTA 2009, the product was designed by Atkins Bennett and sold to the Appellant's customer Sheffield Forgemasters. There was no evidence regarding the terms of the engagement and no basis upon which we could conclude that any intellectual property rights were created.

279. In relation to condition D the evidence in our view demonstrated that the Appellant was commissioned to provide a bespoke solution. There was no cogent evidence to support the assertion that the Appellant bore any risk in these transactions; to the contrary, we were satisfied that design time was invoiced. We noted the evidence adduced by HMRC, namely a news article entitled "World Nuclear News" by World Nuclear Association dated 25 November 2010 which attributed the new process of forging hollow ingots to Sheffield Forgemasters:

"Sheffield Forgemasters of the UK has announced the successful conclusion of casting trials of a pioneering hollow steel ingot, which could help the company capitalise on key power generation sectors, including nuclear energy."

280. In the article Sheffield Forgemasters refers to the time and investment into its research and development facility. The head of the R&D department described the challenges as relating to the forging process:

"Establishing the correct parameters for a casting of this kind are highly complex and require processes such as finite element analysis and casting solidification modelling to achieve tangible results."

281. In addition to the article indicating that Sheffield Forgemaster was responsible for the R&D activities, the oral evidence of Mr Lowe was that the Appellant was not in fact involved in the forging aspect. In assessing all of the evidence before us, we could not be satisfied that the Appellant's involvement amounted to R&D rather than, for example, involvement in a wider commercial project with no contribution to the scientific or technological uncertainty (see para 19 BIS Guidelines). Furthermore, we concluded that the Appellant's work was subcontracted and is therefore excluded by Condition D.

282. We also concluded from the documents that the Appellant was reimbursed for the design costs plus the costs of building and supplying both the prototype in 2009 and subsequent product in 2010. In those circumstances we were satisfied that condition E was not satisfied.

Trombone Walkway Gantry

283. This element of the claim totalled £2,931 all attributable to staff costs in 2009.

284. Mr Lowe's witness statement explained that the Appellant was asked to design "an innovative moving platform to allow operatives to get close to a 105 tonne ladle of molten

metal” which was an “untried process”. We found the evidence on behalf of the Appellant was vague and did not demonstrate that there was any scientific or technological uncertainty. Mr Lowe’s evidence highlighted that the activity related to a moving platform with a “soft start and increasing speed mechanism”. However, there was no clear evidence to demonstrate or upon which we could conclude that there was no such existing technological knowledge, the details of any scientific or technological uncertainty that the Appellant was seeking to resolve or advance the Appellant sought to achieve. On the material before us there was also insufficient evidence to establish that there was any methodology or plan used to resolve any uncertainty such that it could amount to a project. Although the Appellant asserted that the product was “innovative” there was no explanation as to the basis of this assertion, for example any investigations carried out to ascertain the level of knowledge at the relevant time. We concluded that the evidence does not meet the requirements set out in the BIS Guidelines.

285. For the same reasons we found the Appellant’s evidence that its staff discussed possible solutions to arrive at an outcome was vague; there was no cogent evidence as to the nature of these discussions or how an outcome was arrived at. In those circumstances we could not be satisfied on the material before us that the solution was not readily deducible by a competent professional or that the activities constituted a project as envisaged by the BIS Guidelines. (BIS paras 14, 19 and 20).

286. Furthermore, we agreed with HMRC’s submission that the Appellant’s breakdown of staff costs which show a single staff day for Mr Lowe and a single staff day for “Andy Staton (Planner)” does not demonstrate or specify any R&D within the activity; rather it was the design and delivery of a bespoke engineering product to a customer. This is further supported by the sales invoices which are for the provision of drawings and subsequent provision of the product. We should also note that if this stands as the only remaining element of the 2010 claim, it does not meet the threshold at s1050 CTA 2009.

287. Turning to the application of s 1052 CTA 2009 we were satisfied that the activity was a direct commission subcontracted to the Appellant with no risk and in respect of which the Appellant was reimbursed for its expenditure. In those circumstances we were satisfied that any R&D activities that may have been involved were included in the commission and therefore subcontracted and subsidised contrary to conditions D and E.

5,000 Tonne Manipulator

288. This element of the claim totalled £29,070 all within 2010 and which comprised:

- (1) £10,577 staff costs; and
- (2) £18,493 for steel and consumables.

289. Mr Lowe explained that this activity involved the installation of a “new manipulator”. The initial challenges were the strength of the floor on which the manipulator was fitted. Mr Lowe stated the Appellant needed to “design, from scratch, a track that was significantly stronger” than the previous track. The invoice dated 23 December 2009 attributed £47,450 to “design, manufacture and install manipulator track for new press”.

290. The evidence on behalf of the Appellant failed to demonstrate that the activities sought to advance science or technology; there was no clear evidence as to what level of knowledge existed in relation to the strength of tracks at the time the Appellant carried out its activities nor how the Appellant’s activities sought to achieve an overall advance. There was no cogent evidence upon which we could conclude that there was any scientific or technological uncertainty nor what that uncertainty was regarding tracks of this strength (paras 6-11 BIS).

291. We agreed with the submission for HMRC that the challenge to the Appellant was in the design of a bespoke track that was stronger than its predecessor in an environment in which some of the parameters were not fully known at the outset. In our view this did not amount to a scientific or technological uncertainty as envisaged or required by the BIS Guidelines (paragraphs 13 – 14) but instead were uncertainties in relation to the working environment such as the strength of a particular floor and the exploration of such parameters did not amount to the advancement of overall scientific or technological knowledge in any field but rather to how the existing knowledge applied to the physical environment they were working in. We did not accept that the testing of the product due to unknown parameters supported the Appellant’s assertion that there was a scientific or technological uncertainty; the Appellant provided no detail about what the tests entailed or how they supported the assertion. In the absence of any cogent evidence beyond mere assertion we could not be satisfied that the solution was not readily deducible by competent professionals in the field.

292. In relation to the amount of expenditure qualifying, for the reasons we have set out earlier, the absence of purchase invoices in relation to the steel and consumables make the expenditure unverifiable. We found the Appellant’s submission that HMRC had produced no evidence to show that the figures put forward by the Appellant were unreasonable to be misconceived; the Appellant put forward figures but there was no documentary evidence to support them nor any details given to explain the basis of those figures. In those circumstances we could not be satisfied that the figures were reliable or that the claimed amounts were qualifying expenditure as required by the Guidelines.

293. Furthermore, we agreed with HMRC that even if there were scientific or technological uncertainty involved in strengthening the track, the costs of drilling to test the concrete floor and the vast majority of the costs of constructing and installing the product would not directly contribute to resolving that uncertainty (as per paras 4 and 5 of the BIS Guidelines) and therefore would not qualify as R&D expenditure.

294. As to the application of s1052 CTA 2009, we concluded that the Appellant was commissioned to design and fit the product into that specific customer’s working environment and therefore the work was subcontracted, and condition D is not met. We did not accept the Appellant, ‘The invoice produced indicates that the Appellant was reimbursed for its expenditure and we found therefore condition E was not satisfied.

Tilting Wash-down system

295. This element of the claim totalled £13,570 in 2009 comprising:

- (1) £6,070 staff costs; and
- (2) £7,500 steel and consumables.

296. Mr Mr Lowe expanded on the “design challenge” in his second witness statement in which he referred to the: “*design challenge, and the technological uncertainty we had to resolve*”. There was a single sales invoice dated 31 July 2008 for £24,669.75. Mr Reilly identified that Mr Marshall appeared to have done some work on the project and seems to have been paid at least £4,623.75 in relation to it.

297. We found there was no detail which could lead us to conclude on the evidence that there was any scientific or technological uncertainty; the evidence of Mr Lowe was vague and failed to identify what any such uncertainty was beyond a design challenge arising from a specific customer request which, in our view, did not satisfy the requirements of the BIS Guidelines. Although Mr Lowe asserted that this type of challenge “had not been approached before” there was no evidence to demonstrate how he was aware of this, what enquiries had been made in that regard or why any novel approach amounted to seeking to resolve a

scientific or technological uncertainty. There was also no evidence upon which we could be satisfied that any challenge could not be overcome by using existing technology or that the Appellant's product advanced, or sought to advance, overall knowledge in the field of science or technology.

298. We considered the sales invoice which indicated to us that the Appellant's customer commissioned the item with a pre-existing drawing. We found that this supported our finding that there was no scientific or technological uncertainty at the relevant time.

299. There was no detail or explanation as to what the "extensive research" entailed and we could not be satisfied on the vague assertions that the Appellant's activities were conducted as a project or that they sought to make an advancement in science or technology.

300. We agreed with HMRC's submissions that the subcontractor costs identified by Mr Reilly as relating to this project but claimed in relation to the double deck loader are also not allowable.

301. In relation to the amount of expenditure qualifying we noted that the sales invoice was dated 31 July 2008 however the Appellant claimed £2,852 staff costs in August 2008. We agreed with HMRC that it could be reasonably inferred that the prototype referred to by Mr Lowe had been delivered by the time of the sales invoice and that any further work was the "continued testing and development" referred to by Mr Lowe. On that basis we concluded that the further activities fell under the description of "improvements, optimisation and fine-tuning" at paragraph 14 BIS Guidelines and was not R&D.

302. As to the application of s1052 CTA 2009, in respect of Condition C it is unclear whether any intellectual property was produced and we therefore make no findings in this regard.

303. We were satisfied that the product was a bespoke commission from the Appellant's customer and that the Appellant acted as a subcontractor. We did not accept the Appellant's submission that it was only paid for a final product; Mr Lowe's own evidence explained that the Appellant was engaged to design, manufacture and fit the product which we were satisfied encompassed any R&D activities that may have taken place. In those circumstances condition D was not satisfied. Furthermore, as the Appellant was fully reimbursed for the design and fitting of the product condition E was also not met.

Animal Centrifuge

304. This element of the claim totalled £51,729.50 in 2010 comprising:

- (1) £704 staff costs; and
- (2) £51,025.50 subcontractor costs (John Marshall).

305. There was a sales invoice dated 26 November 2009 for £15,600 which stated:

"Draughtsman

To supplying the services of a draughtsman [sic] to detail to your instructions

From 8.4.09 to 12.11.09 inclusive"

306. As we understood the position, the draughtsman was Mr Marshall. We considered the invoice together with the application filed by Agritech for a patent for a centrifuge to extract oil from food wastes on 24 October 2007 (with priority given to a previous UK application filed on 28 October 2006). Taken together with Mr Lowe's evidence that Agritech believed that animal waste spun at the right speed and temperature would result in fat separation and retention, led us to conclude that the Appellant's activities were not R&D but an order to design to specification a product based on existing scientific knowledge.

307. We considered that the patent applications did not support the MSC Report which claimed:

“Being able to produce additional products of value from materials that had previously been disposed of was a revolutionary concept and the first of its kind”

308. In our view the concept involved already existed and was not, therefore, “revolutionary”. Mr Lowe’s evidence failed to establish that the Appellant’s activities sought to resolve a scientific or technological uncertainty or to advance overall scientific knowledge in the field. We found, and indeed Mr Lowe accepted, that he had not worked on a product of this type before and it was clear to us from the evidence that Mr Lowe had insufficient in-depth knowledge of the technology or science involved or the processes followed. We also found Mr Lowe’s evidence inaccurate in that his written evidence indicated that the Appellant carried out the tests however he subsequently clarified in oral evidence that Agritech was responsible for the testing. We concluded that Mr Lowe’s knowledge and understanding in this field was not sufficient to amount to that of a competent professional nor did his evidence demonstrate that the product sought to achieve an overall advance by resolution of uncertainty in the field.

309. In our view, engaging the services of a draughtsman does not automatically constitute R&D; there was no evidence before us upon which we could conclude that this was no more than a competent professional reaching a solution from existing knowledge and in our view the evidence indicated that this was the case. There was also no evidence of how the draughtsman’s services met the criteria set out at paragraph 19 of the BIS Guidelines that the activities were “conducted to a method or plan”.

310. Regarding the amount of qualifying expenditure, there was no explanation as to how the Appellant incurred subcontractor expenditure of £51,025.50 claimed as being “principally” for this project. We were told that the single sales invoice dated 26 November 2009 for £15,600 did not relate to this project and that in fact the Appellant was not paid. However, this evidence strengthened our view that the records and figures put forward and relied upon by the Appellant were at best confused and at worst unreliable.

311. As set out earlier, the Appellant explained and we were satisfied that Mr Marshall’s work related to a variety of projects and not principally the animal centrifuge as claimed. In the absence of clear evidence demonstrating the work carried out in relation to specific projects and attributable to identifiable R&D we concluded that the BIS Guidelines were not met. We were also satisfied that there was no basis for allocating Mr Lowe’s time to this activity beyond 26 November 2009 and the Appellant’s suggestion that this work was honing the product would not in our view meet the BIS Guidelines (see paragraphs 14 and 34).

312. In relation to s1052 CTA 2009, we considered that the existence of a patent together with Mr Lowe’s evidence indicated that the Appellant was subcontracted to provide services based on detailed instructions of an existing concept and that if there were any R&D activities involved the Appellant was acting in the capacity of a subcontractor thereby not meeting the requirement of Condition D. Although we were told that the Appellant was not paid for its involvement, we were satisfied that the work had been contracted out for payment. The fact that the customer reneged on payment did not alter this fact. Any remedy in this regard lies outwith the scope of this appeal and this Tribunal and is a matter between the Appellant and his customer depending on the terms of their agreement, which was not provided to us. On the basis that no payment was received, Condition C would be met.

SUMMARY

313. For the reasons set out above we allow the appeal in part. We consider that the claim relating to the marine gears project satisfies the legislative requirements for R&D relief in

principle. However, we have concluded that the quantum of the claim is incorrect and the parties should use best endeavours to reach agreement on the correct amount of the claim. If the parties are unable to reach agreement they must request a further hearing for the issue of quantum to be determined.

314. In relation to the remainder of the claim we dismiss the appeal.

Right to apply for permission to appeal

315. 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.

**JUDGE J DEAN
TRIBUNAL JUDGE**

Release date: 10 OCTOBER 2020