



Neutral Citation Number: [2020] EWHC 2004 (Ch)

Case No: HC-2017-001837

**IN THE HIGH COURT OF JUSTICE**  
**BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES**  
**BUSINESS LIST (ChD)**

Royal Courts of Justice, Rolls Building  
Fetter Lane, London, EC4A 1NL

Date: 24/07/20

Before :

**HH JUDGE HACON**  
(Sitting as a Deputy High Court Judge)

-----  
Between :

**SPRINT ELECTRIC LIMITED** **Claimant**  
- and -  
**(1) BUYER'S DREAM LIMITED**  
**(2) ARISTIDES GEORGE POTAMIANOS** **Defendants**

-----  
-----  
**Michael Hicks** (instructed by **Moore Blatch LLP**) for the **Claimant**  
**Jaani Riordan** (instructed by **Blake Morgan LLP**) for the **Defendants**

Hearing dates: 14-15, 18 and 20-21 May 2020.  
-----

**Approved Judgment**

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

.....  
HIS HONOUR JUDGE HACON

## **Judge Hacon :**

### **Introduction**

1. On 30 July 2019 Richard Spearman QC, sitting as a Deputy Judge of the Chancery Division, handed down judgment in two related proceedings. The first, which Mr Spearman called “the Source Code Claim”, was a claim for the breach of two contracts concerning computer source code. In the second (“the Unfair Prejudice Claim”), the second defendant (“Dr Potamianos”) contended that the affairs of both the claimant (“SEL”) and its parent company Sprintroom Limited (“SRL”) had been conducted in a manner prejudicial to his interests.
2. Dr Potamianos succeeded in the Unfair Prejudice Claim and was found to be entitled to a buy-out order relating to his shares in SRL.
3. In the Source Code Claim, SEL was largely successful. Mr Spearman found that in breach of contract the defendants had failed to provide SEL with particular versions of the source code of software called “PL/X”. There were other findings of which only one is relevant here. One of the contracts in dispute contained schedules, including Schedule No. 200815 which required the first defendant (“BDL”) to amend software called the “JL/X” software so that it would function on new computer hardware. Mr Spearman found that BDL had failed to do this.
4. On 28 September 2018 Mr Spearman ordered the defendants to deliver up to SEL specified versions of the PL/X source code. This was done on 11 October 2018.
5. Mr Spearman also ordered an inquiry as to damages, including that suffered by SEL by reason of (a) the failure of the defendants to provide SEL with the PL/X source code when it should have done and (b) the failure of BDL to provide SEL with amended JL/X software.
6. This is the trial of the inquiry as to damages.

### **Representation**

7. Michael Hicks appeared for SEL, Jaani Riordan for the defendants. I am grateful to both counsel for their presentations of the issues.

### **Terminology**

8. Mr Spearman gave a helpful guide to some of the terms he used, which will also appear in this judgment:

“9. This judgment uses the following terminology:

- (1) Computer programs of the kind in issue in the present case are written and edited by the author in human readable form. This is known as ‘source code’. In the

present case, some of the source code is written in high-level programming language, and some of it is written in low-level programming language (called 'C' and 'assembly language' or 'assembler' respectively). Source code comprises text files which are intelligible to a suitably skilled person and contain step-by-step instructions defining particular algorithms, and it may be divided into a number of separate modules or libraries, each dealing with a different algorithm or related group of algorithms. (It is SEL's case that in order to enhance, modify or fix bugs in the program it is in practice essential to have access to, and the right to edit, the source code.)

- (2) The form of the program which can be run on the target computer is known as 'object code. A computer program known as a 'compiler' is used (possibly in conjunction with other procedures) to turn source code into object code, which is machine-readable and consists of binary numbers as opposed to text. Source code and object code are different forms of a computer program.
- (3) A 'Hex File' is one form in which object code can be stored. A device known as a 'programmer' is used to take the Hex File and to transfer and store it in the appropriate component of the target computer system on which it is to be run. The component may be a memory chip or the memory of the micro-computer itself, depending on the design of the target computer system. A Hex File may be loaded on to production equipment, and used by customers, independently of, and without any need to store or to access, the source code. In addition, aspects of the program, including many site-specific parameters, can be configured by users without the need to modify the source code. However, access to the source code is needed if it is thought necessary or desirable to make changes to the underlying logic of the computer program.
- (4) The term 'software' embraces intangible program code and associated data. This term is used to distinguish such materials from the computer 'hardware'. Software which is stored permanently in components on an electronic circuit board may be referred to as 'firmware'. In this case, Hex Files are firmware.
- (5) The small computer which forms part of the SEL hardware is referred to in the documents and by the witnesses as a 'microcontroller' or 'microprocessor' (the technical differences between the two do not matter for present purposes).

- (6) ‘Intel’ and ‘Microchip’ are rival manufacturers of microcontrollers.’

### **Background facts**

9. SEL makes and sells electric motor drives. These are devices which control the speed, torque and direction of rotation of an electric motor. They may be designed to operate either DC or AC motors and in the latter case will also control the frequency of the current supplied to the motor.
10. SEL was incorporated in September 1987 by Edwin Prescott (“Mr Prescott”) and David Van Der Wee (“Mr Van Der Wee”). Mr Prescott acted as SEL’s Technical Director and Chairman with responsibility for product design, testing, technical literature and customer technical support. Mr Van Der Wee managed everything else.
11. By 1996 SEL had expanded its range from just analogue drives to include digital drives. A digital drive is controlled by a computer which like other computers consists of hardware, here in the form of a microcontroller, and software. The software determines how the microcontroller operates and causes information to be displayed to users.
12. Dr Potamianos was known to Mr Prescott and Mr Van Der Wee as someone who could help SEL acquire expertise in digital drives, which had been the subject of his PhD thesis at Nottingham University. In a letter dated 20 September 1996 Mr Prescott offered Dr Potamianos the post of Head of Research and Development at SEL. The letter explained the tax advantages of Dr Potamianos setting up a service company through which his services could be provided, mirroring the service companies set up by Mr Prescott and Mr Van Der Wee. On 11 March 1997 BDL was formed as Dr Potamianos’ service company and on 8 May 1997 BDL entered into a contract for services with SEL (“the 1997 Contract”). On 26 May 1999 Dr Potamianos became a director of SEL and was given the title “Research and Development Director”.
13. On 27 March 2000 SEL and BDL entered into a second contract for services agreement (“the 2000 Contract”).
14. From May 1997 Dr Potamianos had sole responsibility for the development of software to be used in SEL’s digital drives. The first range was launched in 2001, known as the “PL/X” range. Following the launch and until 2015 Dr Potamianos worked on successive improvements to the PL/X software. This was manifested in the market by new versions of SEL’s digital drives being released from time to time. They had the updated object code compiled from the successive versions of the source code developed by Dr Potamianos.
15. The hardware used for the PL/X range, the microcontrollers, were bought from Intel Corp (“Intel”), the well-known Californian manufacturer of computer hardware. In 2006 Intel announced its intention to discontinue the relevant microcontrollers, so SEL turned to Microchip Technology Inc (“Microchip”), a manufacturer based in Arizona, as an alternative source. This required Dr Potamianos, through BDL, to modify the PL/X software.

16. Microcontrollers are mounted on motor control boards and witnesses spoke of SEL's software or firmware being on the Intel or Microchip "board" or "platform". The first SEL drives on the Intel platform were released in February 2000, using object code compiled from version 2.11 of the PL/X source code.
17. The numbering of the successive versions of the PL/X source code was chosen by Dr Potamianos. Not every new version resulted in the marketing of drives with a new corresponding source code. Only if a modification gave rise to a significant operational advantage was a new version of the drive released to customers.
18. In 2007 there was a restructuring of the ownership of SEL. Until that year Mr Prescott and Mr Van Der Wee had been equal shareholders. Mr Van Der Wee said that he wished to retire, so in July 2007 Mr Prescott bought his shares and became sole shareholder. On 24 July 2007, at a meeting of the board of directors of SEL comprising Mr Prescott and Dr Potamianos, it was resolved that 40% of the shares in SEL were to be issued to Dr Potamianos.
19. On 30 May 2012 SRL was incorporated with Mr Prescott and Dr Potamianos as directors. It was to act as a holding company for SEL. On 1 November 2012 Mr Prescott and Dr Potamianos transferred their shareholdings in SEL to SRL and they became, respectively, 60% and 40% shareholders in SRL.
20. Although Intel had announced in 2006 the discontinuance of the Intel boards used by SEL they remained available for some time. In October 2012 SEL released drives using the new v.5.23 software; this was intended to be the last on Intel boards. The first release of SEL drives on Microchip boards was on 1 January 2014. This release had object code compiled from v.6.10 of the PL/X source code.
21. At around this time both Mr Prescott and Dr Potamianos were thinking about reducing their day to day involvement with SEL and handing over some decision making to younger directors, specifically Gary Keen, who had been appointed sales director in March 2009, and Mark Gardiner who joined SEL in April 2013 as technical operations manager.
22. On 24 June 2014 SEL issued a press release announcing that Mr Keen and Dr Gardiner had been appointed joint managing directors of SEL and that they would run the company, while Mr Prescott and Dr Potamianos would remain on a part time basis as technical advisers. This was done without Dr Potamianos' approval. Over the next months trust between the officers of SEL deteriorated.
23. On 10 November 2015 SEL entered into its third and last contract for services with BDL, in effect a contract for services to be provided by Dr Potamianos ("the 2015 Contract").
24. On 11 October 2016 SEL's solicitors sent BDL a letter before action alleging that BDL was in breach of the 2000 Contract by failing to deliver to SEL version 6.13 of the PL/X source code.

### **The Source Code and Unfair Prejudice Claims**

25. On 22 June 2017 the Claim Form in the Source Code Claim was issued and served shortly afterwards with the Particulars of Claim. SEL's Particulars alleged, among several other things, that:
- (1) BDL was obliged under the 1997, 2000 and 2015 Contracts to provide to SEL version 6.13 of the PL/X source code together with documents created or obtained by Dr Potamianos relating to that code;
  - (2) BDL was obliged under Schedule 200815 to 2000 Contract to write software which enabled SEL to operate its JL/X range of drives using the Microchip platform rather than the obsolete Intel platform;
  - (3) Dr Potamianos was subject to the same obligations arising from his duties as a director of SEL;
  - (4) SEL was entitled to:
    - (a) delivery up of the source code for versions 6.11, 6.12 and 6.13 of the PL/X source code and related documents;
    - (b) damages for failure to deliver up under (a);
    - (c) repayment of £42,000 + VAT paid by SEL to BDL in respect of Schedule 200815 or alternatively damages for BDL's failure to perform its obligations under the schedule, quantified at £42,000 + VAT.
26. A Defence was served together with a counterclaim for infringement by SEL of copyright in the source code written by Dr Potamianos, alleged to be owned by BDL.
27. On 14 September 2017 Dr Potamianos commenced the Unfair Prejudice Claim.

### **Judgment and Order**

28. The Source Code Claim and the Unfair Prejudice Claim came to trial together on 8 May 2018. Judgment was handed down on 30 July 2018 and a final order made on 28 September 2018.
29. SEL's Source Code Claim for the most part succeeded. Mr Spearman found that the true relationship between SEL and Dr Potamianos was one of employer and employee, that accordingly SEL owned the copyright in the source code created by Dr Potamianos as employee and was entitled to delivery up of the source code. Alternatively, there was to be implied into the 1997 Contract a term requiring Dr Potamianos to supply SEL with the source code created under that contract together with related documents, that the same obligation arose under the express terms of the 2000 Contract and a similar term was to be implied into the 2015 Contract. Dr Potamianos was in breach of the duties he owed to SEL as a director. BDL's counterclaim for

infringement of copyright was dismissed. SEL's claim in relation to Schedule 200815 succeeded but its claims in relation to other schedules (not referred to above) failed. Dr Potamianos' Unfair Prejudice Claim succeeded.

30. The consequential order in relation to the Source Code Claim was made on 28 September 2018. Paragraph 1 required BDL and Dr Potamianos to deliver up all versions of the PL/X source code created by Dr Potamianos, specifically including versions 6.11, 6.12 and 6.13, together with documents relating to all such versions and any object code compiled from those versions. The order for delivery up was complied with on 11 October 2018.
31. The order for an inquiry as to damages, so far as is relevant, was in the following terms:
  - “3. There shall be an inquiry as to the damages suffered by the claimant by reason of the following: -
    - (1) the defendants' failures to provide the claimant with the items specified in paragraph 1 above in breach of the first defendant's obligations specified in paragraphs 57 to 59 of the particulars of claim, and in breach of the second defendant's duties specified in paragraph 62 of the particulars of claim;
    - (2) the first defendant's failure to perform Schedule No. 200815 as alleged in paragraphs 72 to 74 of the particulars of claim.”
32. Paragraphs 57 to 59 of the Particulars of Claim set out BDL's obligation to provide the PL/X source code and related documents. Paragraph 62 set out Dr Potamianos' personal obligation to provide the PL/X source code and related documents. Paragraphs 72-74 set out BDL's failure to provide JL/X object code which could be installed on a Microchip board and the equivalent source code, or related documents.
33. With regard to the failure to supply PL/X source code and related documents, SEL's claim for damages against BDL overlaps the claim against Dr Potamianos. To avoid repetition I will hereafter refer only to BDL's obligation even though it was in fact shared by Dr Potamianos.
34. Damages in relation to documentation fell away. It was common ground that documentation had been supplied to SEL in 2007 and nothing relevant was created after that date.
35. At all relevant times SEL had access to the object code compiled from v.6.13. In other words, SEL could sell products which incorporated the latest version which it was entitled to have from BDL. SEL also had access to v.6.11 of the source code from June 2016. What it did not have was the source code for either v.6.12 or 6.13.
36. In the end what mattered was access to v.6.13. V.6.12 contained a serious bug and SEL's lack of access to that version of the source code was of limited relevance.

### **SEL's case in summary**

37. SEL's case in respect of the PL/X software is that it should have been able to develop and improve the source code for v.6.13 from the moment it needed to. Bugs had to be removed from v.6.13 and new features are needed to enable SEL's PL/X products kept pace with the competition. Instead SEL had to wait until October 2018 to start on this development work. In the meantime it was forced to work on v.6.11 source code as its starting point. This caused three years of delay in SEL's ability to launch new drives with updated PL/X firmware, a delay which has led to a loss of sales and will lead to a loss of future sales. SEL's claim for damages largely breaks down into lost profits due to the delay and to the cost of having to amend the v.6.11 source code.
38. With regard to the JL/X software, SEL's complaint is that it could not be installed on a Microchip platform because BDL (in effect Dr Potamianos) failed to write and provide the necessary amendments to the source code as he was contractually required to do. This caused SEL (a) to lose sales of JL/X products and consequent profits and (b) to spend money on trying to amend that source code so that the compiled software was compatible with the Microchip platform and (c) to spend money on supplying Intel boards to customers to ensure that their JL/X firmware functioned.
39. The foregoing is the broad picture of SEL's claim. In its Points of Claim SEL divided its claim into heads and many sub-heads. These were amended by the time of the trial and I will consider each individually below. The total sum claimed by SEL in damages is £5,331,413.

### **Defence in summary**

40. The defendants say that SEL could and should have been able to develop v.6.11 of the PL/X source code into v.6.13 within 3 months of Dr Potamianos' refusal to supply SEL with v.6.13. Such was SEL's incompetence and lack of urgency in amending v.6.11 that (a) SEL has suffered no relevant loss at all aside from minor costs of amendment to the source code, (b) otherwise any loss there may have been was not caused by the breach of contract, (c) SEL failed to mitigate its loss and (d) any loss aside from that admitted is too remote. SEL could have fixed the problem with the JL/X software very quickly at any time.
41. The defendants offer £11,648 in respect of the limited loss for which they accept responsibility.

### **The law**

#### *The basic rule*

42. The basic rule governing the assessment of damages for breach of contract is long established. In *Robinson v Harman* (1848) 1 Exch 850, 855, Parke B said:



“The rule of the common law is, that where a party sustains a loss by reason of a breach of contract, he is, so far as money can do it, to be placed in the same situation, with respect to damages, as if the contract had been performed.”

43. That statement has been approved many times. It was described as the “lodestar” in *Golden Strait Corpn v Nippon Yusen Kubishika Kaisha (The Golden Victory)* [2007] 2 AC 353, para 36 and the “fundamental principle of the common law of damages” in *Bunge SA v Nidera BV* [2015] UKSC 43 at [14]. It was recently endorsed in *Morris-Garner v One v One Step (Support)* [2018] UKSC 20; [2019] AC 649 at [32].

#### *Causation*

44. Baron Parke’s formulation in *Robinson v Harman*, in particular the words “by reason of” implies a requirement of causation. There must be a causal connection between the defendant’s breach of contract and the claimant’s loss, see *Malik v Bank of Credit and Commerce International SA* [1998] AC 20, at 51.
45. Mance J explained the test in *Famosa Shipping Co. Ltd v Armada Bulk Carriers Ltd (The Fanis)* [1994] 1 Lloyd’s Rep 633, at 636-7:

“The general issue is in my view appropriately stated as being whether any profit or loss arose out of or was sufficiently closely connected with the breach to require to be brought into account in assessing damages. Resolution of that issue involves taking into account all the circumstances, including the nature and effects of the breach and the nature of the profit or loss, the manner in which it occurred and any intervening or collateral factors which played a part in its occurrence, in order to form a common sense overall judgment on the sufficiency of the causal nexus between breach and profit or loss.”

#### *Loss of profit*

46. In the present case, as in many, the most substantial heads of claim concern an alleged loss of profit. A claimant is entitled by way of damage to its loss of profit caused by a breach of contract (leaving remoteness aside). Put at its simplest, this is the difference between the net profit (i.e. income minus relevant costs) which the claimant would have made absent the breach minus the actual net profit made over the same period, see *Flame SA v Glory Wealth Shipping PTE Ltd* [2013] EWHC 3153 (Comm); [2014] QB 1080, at [18].
47. There are further matters to consider. One is that the claimant may, as in the present case, claim that the breach will cause it to lose profit in the future as well having diminished its profit in the past. Given that no court will investigate likely events between the trial and doomsday, the court is bound to decide on an end to the relevant period. This is when the question whether any loss has been sustained has on the facts become too speculative to permit the making of any award, see *Jackson v Royal Bank of Scotland plc* [2005] UKHL 3, at [37], per Lord Hope, with whom the remainder of their Lordships agreed.

48. Another potential difficulty is that a hypothetical profit, whether in the past or future, is by its nature difficult to assess with any certainty. When quantifying such a profit the court does not apply the balance of probabilities in a simple way. In *Parabola Investments Ltd v Browallia Cal Ltd* [2010] EWCA Civ 486, Toulson LJ (with whom Mummery and Rimer LJJ agreed) said:

“[22] There is a central flaw in the appellants' submissions. Some claims for consequential loss are capable of being established with precision (for example, expenses incurred prior to the date of trial). Other forms of consequential loss are not capable of similarly precise calculation because they involve the attempted measurement of things which would or might have happened (or might not have happened) but for the defendant's wrongful conduct, as distinct from things which have happened. In such a situation the law does not require a claimant to perform the impossible, nor does it apply the balance of probability test to the measurement of the loss.”

### *Mitigation*

49. Mitigation is an aspect of legal causation. In *Bunge SA v Nidera BV* [2015] UKSC 43 Lord Toulson JSC (with whom Lord Neuberger PSC, Lord Mance and Lord Clarke JJSC agreed) said:

“[81] It is well recognised that the so-called duty to mitigate is not a duty in the sense that the innocent party owes an obligation to the guilty party to do so: *Darbishire v Warran* [1963] 1 WLR 1067, 1075, per Pearson LJ. Rather, it is an aspect of the principle of causation that the contract breaker will not be held to have caused loss which the claimant could reasonably have avoided.”

50. The burden of proof is on the defendant to show that there was a course of action which it was reasonable to expect the claimant to adopt and which would have avoided all or part of the claimant's loss, see *Standard Chartered Bank v Pakistan National Shipping Corp* [2001] CLC 825 (CA), at [38].
51. There may be a range of responses available to the claimant each of which can be regarded as reasonable, see *Wilding v British Telecommunication plc* [2002] EWCA Civ 349.
52. Looking at *Wilding* in more detail, although Potter and Brooke LJJ did not expressly agree with Sedley LJ's judgment, all three members of the Court of Appeal were of the view that an appeal from the Employment Appeal Tribunal should be dismissed. On the subject of the innocent party taking reasonable steps Sedley LJ (at [55]) referred to the speech of Lord Macmillan in *Banco de Portugal v Waterlow and Sons Ltd* [1932] AC 452, at 506 and said:

“In other words, it is not enough for the wrongdoer to show that it would have been reasonable to take the steps he has proposed: he must show that it was unreasonable of the innocent party not to take them. This is a real distinction. It reflects the fact that if there is more than one reasonable response open to the wronged party, the

wrongdoer has no right to determine his choice. It is where, and only where, the wrongdoer can show affirmatively that the other party has acted unreasonably in relation to his duty to mitigate that the defence will succeed.”

53. Thus, to the extent that the harm which the innocent party claims to have suffered was caused or exacerbated by the innocent party’s unreasonable conduct, there will be no compensation in damages. Potter LJ explained the matter this way in *Standard Chartered Bank* at [41]:

“In every case where an issue of failure to mitigate is raised by the defendant it can be characterised as an issue of causation in the sense that, if damage has been caused or exacerbated by the claimant’s unreasonable conduct or inaction, then to that extent it has not been caused by the defendant’s tort or breach of contract.”

54. What sort of action or inaction qualifies as unreasonable? One aspect of that characterisation is of relevance to the present case. The way forward adopted by the innocent party after the breach of contract (or tort) may not have been directed solely at mitigating the damage, there may have been other considerations. It does not necessarily follow that such a way forward was unreasonable. If the innocent party in its attempt to mitigate goes beyond what is strictly required, it may still be found to have acted reasonably should the further acts be sufficiently connected with what was strictly required to mitigate the harm. On the other hand, if the conduct relied on by the innocent party as its mitigation of loss is collateral to – independent of – what was required to mitigate the harm, the innocent party may not claim losses caused by that conduct. In *Mobil North Sea Limited v PJ Pipe & Valve Company* [2001] EWCA Civ 741, Rix LJ, with whom Aldous and May LJ agreed, said (at [30]):

“As a result of a breach of contract a party is obliged to mitigate. In his attempts to mitigate he may go beyond his obligation, but that is his reaction to the problem caused by the breach and the consequences of the rules of mitigation follow. It is quite different if the transaction, which is relied upon as avoiding loss, is an entirely independent and collateral matter arising not in the context of mitigation at all.”

55. In *Koch Marine Inc v D’Amica Societa di Navigazione Arl (The Elena D’Amico)* [1980] 1 Lloyd’s Rep 75, Robert Goff J considered the decision of the innocent party, after the breach of contract, not to take advantage of an available market in which to negotiate a replacement contract. He said (at p.89):

“It does not matter ... that his decision was a reasonable one, or was a sensible business decision, taken with a view of reducing the impact upon him of the legal wrong committed by the shipowners. The point is that his decision is independent of the wrong.”

56. This was in a particular context, identified by Lord Toulson JSC in *Bunge* in a passage of his judgment approving *The Elena D’Amico*:

“[78] The broad principle deducible from *The Elena d'Amico* [[1980] 1 Lloyd's Rep 75] and the cases there considered is that where a contract is discharged by reason of one party's breach, and that party's unperformed obligation is of a kind for which there exists an available market in which the innocent party could obtain a substitute contract, the innocent party's loss will ordinarily be measured by the extent to which his financial position would be worse off under the substitute contract than under the original contract.

[79] The rationale is that in such a situation that measure represents the loss which may fairly and reasonably be considered as arising naturally, ie according to the ordinary course of things, from the breach of contract: *Hadley v Baxendale* 9 Exch 341. It is fair and reasonable because it reflects the wrong for which the guilty party has been responsible and the resulting financial disadvantage to the innocent party at the date of the breach. The guilty party has been responsible for depriving the innocent party of the benefit of performance under the original contract (and is simultaneously released from his own unperformed obligations). The availability of a substitute market enables a market valuation to be made of what the innocent party has lost, and a line thereby to be drawn under the transaction.

[80] Whether the innocent party thereafter in fact enters into a substitute contract is a separate matter. He has, in effect, a second choice whether to enter the market – similar to the choice which first existed at the time of the original contract, but at the new rate prevailing (the difference being the basis of the normal measure of damages). The *option* to re-enter or stay out of the market arises from the breach, but it does not follow that there is a causal connection between the breach and his *decision* whether to re-enter or to stay out of the market, so as to make the guilty party responsible for that decision and its consequences. The guilty party is not liable to the innocent party for the adverse effect of market changes after the innocent party has had a free choice whether to re-enter the market, nor is the innocent party required to give credit to the guilty party for any subsequent market movement in favour of the innocent party. The speculation which way the market will go is the speculation of the claimant.”

57. It seems to me that the Court of Appeal's judgment in *Mobil North Sea* and Robert Goff J's judgment in *The Elena D'Amico* support a general principle concerning the law on mitigation which goes beyond the context of those cases. The principle was articulated by the author of *The Law of Contract Damages*, 2<sup>nd</sup> ed., at 16-50 (original italics):

“Thus when asking whether an action was reasonable and so does not break the chain of causation, a special sense of ‘reasonable’ is meant. It does not mean sensible or having a reason, rather it means acting sensibly *in response to and not independently of the wrong.*”

58. Where there has been mitigation, damage in the form of a loss of profit will be assessed by comparing a counterfactual – what would have happened if there had been no breach – with the real history of what happened, including the breach and mitigation. The harm suffered is measured by the extent to which the innocent party is financially worse off in the real history than it would have been in the counterfactual.
59. Where the wrongdoer establishes that the innocent party could have mitigated its loss and did not, loss of profit damage can be assessed by comparing two counterfactuals. In the first there was no breach; the contractual obligation was performed. I will call this the “no breach counterfactual”. In the second, the breach took place but the innocent party acted in mitigation of its loss. I will call this the “mitigation counterfactual”. The harm caused by the breach is measured by the extent to which the innocent party would have been financially worse off at the conclusion of the mitigation counterfactual when compared with the no breach counterfactual.
60. In *Golden Strait Corp v Nippon Yusen Kubishika Kaisha (The Golden Victory)* [2007] UKHL 12, Lord Bingham said:
- “[10] An injured party such as the owners may not, generally speaking, recover damages against a repudiator such as the charterers for loss which he could reasonably have avoided by taking reasonable commercial steps to mitigate his loss. Thus where, as here, there is an available market for the chartering of vessels, the injured party’s loss will be calculated on the assumption that he has, on or within a reasonable time of accepting the repudiation, taken reasonable commercial steps to obtain alternative employment for the vessel for the best consideration reasonably obtainable. This is the ordinary rule whether in fact the injured party acts in that way or, for whatever reason, does not. The actual facts are ordinarily irrelevant. The rationale of the rule is one of simple commercial fairness. The injured party owes no duty to the repudiator, but fairness requires that he should not ordinarily be permitted to rely on his own unreasonable and uncommercial conduct to increase the loss falling on the repudiator.”
61. It seems to me that where the innocent party claims to have acted in mitigation and its actions are found to have been in part reasonable (in the mitigation sense) but in part collateral to mitigation of the harm suffered, damages are again assessed by comparing the no breach counterfactual with the mitigation counterfactual and evaluating the extent to which the innocent party would have been financially worse off at the conclusion of the mitigation counterfactual. However, the mitigation counterfactual will exclude any conduct by the innocent party which was collateral to mitigation of the harm but generated at least part of the harm.

*Cost of steps taken to remedy the breach*

62. In addition to a claim for loss of profit, the innocent party may claim the cost of reasonable steps taken to make good or mitigate the damage caused by the breach, see *Radford v De Froberville* [1977] 1WLR 1262, at 1270. This is not

limited to the cost of the means of mitigation which, with hindsight, would have been the cheapest, see *Zodiac Maritime Agencies Ltd v Fortescue Metals Group Ltd* [2010] EWHC 903 (Comm); [2011] 2 Lloyd's Rep 360, at [65]:

“The law is satisfied if the party placed in a difficult situation by reason of the breach of a duty owed to him has acted reasonably in the adoption of remedial measures, and he will not be held disentitled to recover the cost of such measures merely because the party in breach can suggest that other measures less burdensome to him might have been taken.”

63. The costs may include the cost of diverting staff to deal with problems caused by the breach of contract. Wilson LJ summarised the relevant principles in *Aerospace Publishing Ltd v Thames Water Utilities Ltd* [2007] EWCA Civ 3; [2007] Bus LR 726:

“[86] I consider that the authorities establish the following propositions. (a) The fact and, if so, the extent of the diversion of staff time have to be properly established and, if in that regard evidence which it would have been reasonable for the claimant to adduce is not adduced, he is at risk of a finding that they have not been established. (b) The claimant also has to establish that the diversion caused significant disruption to its business. (c) Even though it may well be that strictly the claim should be cast in terms of a loss of revenue attributable to the diversion of staff time, nevertheless in the ordinary case, and unless the defendant can establish the contrary, it is reasonable for the court to infer from the disruption that, had their time not been thus diverted, staff would have applied it to activities which would, directly or indirectly, have generated revenue for the claimant in an amount at least equal to the costs of employing them during that time.”

*Liability only for a breach of strict obligations under the contract*

64. When considering the no breach counterfactual, if the defendant had a choice of alternative methods of performance of the contract, damages will be assessed on the basis that party in breach would have performed its minimum legal obligation, i.e. the alternative which would have been the least onerous for that party, see for example *Agouman v Leigh Day* [2016] EWHC 1324 (QB) at [130]. That said, it is to be assumed that performance of the contract would have been in good faith even though the party in breach would have had its commercial interests very much in mind. Patten LJ reviewed the authorities in *Durham Tees Valley Airport Ltd v bmibaby Ltd* [2010] EWCA Civ 485; [2011] 1 Lloyd's Rep 68:

“[79] None of the cases I have referred to has or could have questioned the principle laid down by the majority of the Court of Appeal in *Abrahams [v Herbert Reich Ltd* [1922] 1 KB 477] which is set out most clearly in the judgment of Atkin LJ. The court, in my view, has to conduct a factual inquiry as to how the contract would have been performed had it not been repudiated. Its performance is the

only counter-factual assumption in the exercise. On the basis of that premise, the court has to look at the relevant economic and other surrounding circumstances to decide on the level of performance which the defendant would have adopted. The judge conducting the assessment must assume that the defendant would not have acted outside the terms of the contract and would have performed it in his own interests having regard to the relevant factors prevailing at the time. But the court is not required to make assumptions that the defaulting party would have acted uncommercially merely in order to spite the claimant. To that extent, the parties are to be assumed to have acted in good faith although with their own commercial interests very much in mind.”

### *Remoteness*

65. The authors of *Chitty on Contracts* 33<sup>rd</sup> ed., Vol I, at 26-121 summarise the combined effect of *Hadley v Baxendale* (1854) 9 Ex. 341, *Victoria Laundry (Windsor) Ltd v Newman Industries Ltd* [1949] 2 KB 528 and *Koufos v C. Czarnikow Ltd (The Heron II)* [1969] 1 AC 350 in a formulation approved by the Court of Appeal in *Brown v KMR Services Ltd* [1995] 4 All ER 598, at 621:

“A type or kind of loss is not too remote a consequence of a breach of contract if, at the time of contracting (and on the assumption that the parties actually foresaw the breach in question), it was within their reasonable contemplation as a not unlikely result of that breach.”

66. The majority of the House of Lords (Lords Hoffman, Hope and Walker) in *Transfield Shipping Inc v Mercator Shipping Inc (The Achilleas)* [2008] UKHL 48; [2009] 1 AC 61 explained the principle of remoteness on an alternative basis, namely that a defendant will not be liable for losses if they cannot reasonably be regarded as having assumed responsibility for losses of the particular kind suffered. Lord Hoffman said:

“[21] It is generally accepted that a contracting party will be liable for damages for losses which are unforeseeably large, if loss of that type or kind fell within one or other of the rules in *Hadley v Baxendale*: see, for example, Staughton J in *Transworld Oil Ltd v North Bay Shipping Corpn (The Rio Claro)* [1987] 2 Lloyd’s Rep 173, 175 and *Jackson v Royal Bank of Scotland plc* [2005] 1 WLR 377. That is generally an inclusive principle: if losses of that type are foreseeable, damages will include compensation for those losses, however large. But the *South Australia* and *Mulvenna* cases [*South Australia Asset Management Corpn v York Montague Ltd* [1977] AC 191 and *Mulvenna v Royal Bank of Scotland plc* [2003] EWCA Civ 1112] show that it may also be an exclusive principle and that a party may not be liable for foreseeable losses because they are not of the type or kind for which he can be treated as having assumed responsibility.

[22] What is the basis for deciding whether loss is of the same type or a different type? It is not a question of Platonist metaphysics. The

distinction must rest upon some principle of the law of contract. In my opinion, the only rational basis for the distinction is that it reflects what would reasonably have been regarded by the contracting party as significant for the purposes of the risk he was undertaking. In *Victoria Laundry (Windsor) Ltd v Newman Industries Ltd* [1949] 2 KB 528, where the plaintiffs claimed for loss of the profits from their laundry business because of late delivery of a boiler, the Court of Appeal did not regard ‘loss of profits from the laundry business’ as a single type of loss. They distinguished, at p 543, losses from ‘particularly lucrative dyeing contracts’ as a different type of loss which would only be recoverable if the defendant had sufficient knowledge of them to make it reasonable to attribute to him acceptance of liability for such losses. The vendor of the boilers would have regarded the profits on these contracts as a different and higher form of risk than the general risk of loss of profits by the laundry.”

67. Notwithstanding the different approach to remoteness in *The Achilleas*, the test taken from *Hadley v Baxendale*, *Victoria Laundry* and *The Heron II* has not been abandoned. Rather, it has been taken to apply to the usual run of cases, but on the facts of some it may require qualification. Toulson LJ (with whom Richards and Mummery LJ agreed) said this in *Siemens Building Technologies FE Ltd v Supershield Ltd* [2010] EWCA Civ 7; [2010] 1 CLC 241:

“[43] *Hadley v Baxendale* remains a standard rule but it has been rationalised on the basis that it reflects the expectation to be imputed to the parties in the ordinary case, i.e. that a contract breaker should ordinarily be liable to the other party for damage resulting from his breach if, but only if, at the time of making the contract a reasonable person in his shoes would have had damage of that kind in mind as not unlikely to result from a breach. However, *South Australia* and *Transfield Shipping* are authority that there may be cases where the court, on examining the contract and the commercial background, decides that the standard approach would not reflect the expectation or intention reasonably to be imputed to the parties. In those two instances the effect was exclusionary; the contract breaker was held not to be liable for loss which resulted from its breach although some loss of the kind was not unlikely. But logically the same principle may have an inclusionary effect. If, on the proper analysis of the contract against its commercial background, the loss was within the scope of the duty, it cannot be regarded as too remote, even if it would not have occurred in ordinary circumstances.”

*Events subsequent to the breach*

68. In *Golden Strait Corp v Nippon Yusen Kubishika Kaisha (The Golden Victory)* [2007] UKHL 12; [2007] 2 AC 353, at [30] the House of Lords (Lord Bingham and Lord Walker dissenting) held that if, by the time of the trial, it is known that an event subsequent to the breach would have limited the damage caused by the breach of contract (*in casu* the outbreak of the Second Gulf War which would have entitled the party in breach to terminate the contract), this



must be taken into account when assessing the loss that the innocent party would have suffered, even though the event was not known at the date of the breach. It provides an exception to the general rule that damages are assessed as of the date of the breach.

69. Mr Riordan submitted, and I accept, that BDL are entitled to point to the outbreak of the covid-19 pandemic as a matter to be considered.

*Burden of proof*

70. The overall burden of proof rests on the party seeking damages, both as to causation and quantification, see *Capita Alternative Fund Services (Guernsey) Ltd v Drivers Jonas (a firm)* [2012] EWCA Civ 1407, at [80]. Some leeway may be given to a claimant reasonably suffering from difficulty in proving loss. Leggatt J addressed this in *Marathon Asset Management LLP v Seddon* [2017] EWHC 300 (Comm); [2017] 2 CLC 182:

“[164] There are legal principles which may assist a claimant who has difficulty in proving loss. One such principle is that difficulty of estimation should not be allowed to deprive the claimant of a remedy, particularly where that difficulty is itself a result of the defendant's wrongdoing. Accordingly, the court will attempt as best it can to quantify the claimant's loss even where precise calculation is impossible. The court may do so by making reasonable assumptions about what the claimant's financial position would have been if the defendant had complied with its obligation to the claimant. A second principle is that, where the defendant has destroyed or wrongfully prevented or impeded the claimant from adducing relevant evidence, the court will make presumptions in favour of the claimant. The classic illustration of this principle is the old case of *Armory v Delamirie* (1722) 1 Strange 505; 93 ER 664, where a chimney sweeper's boy found a jewel and took it to the defendant's shop to find out what it was. The defendant did not return the jewel but only the empty socket, and was held liable to pay damages to the boy. Experts gave evidence about the value of the jewel which the socket could have accommodated. According to the case report:

‘The Chief Justice directed the jury, that unless the defendant did produce the jewel, and show it not to be of the finest water, they should presume the strongest against him, and make the value of the best jewels the measure of their damages: which they accordingly did.’

[165] These principles can help a claimant to overcome evidential difficulties in proving damages. There is a limit, however, to how far they can be taken. They may assist in resolving uncertainties where evidence is not reasonably available but they do not enable the court to conjure facts out of the air and they have little role to play where evidence could reasonably have been obtained,<sup>3</sup> or has in fact been adduced.<sup>4</sup> They may give the claimant a fair wind, but not a free ride.<sup>5</sup>

(Leggatt J's footnotes were: (3) "See e.g. *Capita Alternative Fund Services (Guernsey) Ltd v Drivers Jonas* [2012] EWCA Civ 1417, paras 80, 122-3"; (4) "See e.g. *Force India Formula One Team Ltd v Aerolab Srl* [2013] RPC 36, paras 92-93"; (5) "See Adam Kramer, *The Law of Contract Damages* (2014) at 470-1.")

*The loss of a chance*

71. Mr Riordan very briefly referred to the loss of a chance (as explained in *Allied Maples Group Ltd v Simmons & Simmons* [1995] 1 WLR 1602). He submitted that no claim to the loss of a chance was available in law to SEL in this case. Mr Hicks said nothing at all about the loss of a chance, either in his written or oral submissions. Amid deployment at the trial of very extensive written arguments, written evidence and Excel spreadsheets, I gave the matter limited thought.
72. However, causation in relation to some of the claimed heads of damage in this case depends on the hypothetical action of one or more third parties, so I do not believe that assessing damage by reference to the loss of a chance can be so easily dismissed. In *Wellesley Partners LLP v Withers LLP* [2014] EWHC 556 (Ch) Nugee J said (at [188(3)]):

"... as I read the authorities, the claimant does not have a choice whether to adopt the *Allied Maples* approach; if the case is an *Allied Maples* type of case, this is the appropriate way to approach the issues of causation and quantification."
73. In *Assetco plc v Grant Thornton UK LLP* [2019] EWHC 150 (Comm) Bryan J took a similar view at [411]:

"The loss of a chance principle is accordingly mandatory in the sense that where the claimant's loss depends on the hypothetical action of a third party then the claimant must prove as a matter of causation that he has a real or substantial chance of the third party taking that action, and if that is shown then the evaluation of the chance is part of the assessment of the quantum of damage."
74. I think that I am obliged to decide whether the law on the loss of a chance must be applied to any of SEL's heads of damage. Before doing so, I have to consider what the law is.
75. *Chaplin v Hicks* [1911] 2 KB 786 is generally identified as the origin of the line of authority in which damages are assessed by reference to the loss of a chance. The defendant, a well-known actor manager, arranged for a competition to select twelve women to whom he would give theatrical engagements. The plaintiff applied and was one on a shortlist of fifty voted for by the public. The claimant was invited by post for an interview but because she was away from her London home she did not receive the letter until the day of the interview. The jury found that the defendant had not taken reasonable means to give the plaintiff an opportunity to attend for an interview and assessed damages. The plaintiff was awarded £100. The main point in the

appeal was whether the jury should have been left to assess damages. The Court of Appeal held that it should and would not interfere with the decision of the jury.

76. More relevantly, the breach of contract was characterised as having caused the plaintiff to lose her *opportunity* to be chosen as one of the twelve who were given theatrical engagements. The Court identified why the usual approach to causation would have visited an injustice on the claimant. She was on a shortlist of 50 where only 12 could succeed in the competition. It could not be said that on a balance of probabilities the defendant's breach of contract was the cause of her failure to win the theatrical engagements. Yet as all three members of the Court of Appeal pointed out, the claimant had lost something of value because of the defendant's breach. The opportunity of itself had value. The solution was to say that the breach of contract had not caused the plaintiff to lose the engagements, but it had caused her to lose the chance of obtaining them. The head of damage became the loss of the chance rather than the loss of the engagements. The defendant's breach of contract had plainly caused her to lose the chance and the jury had assessed the value of that chance.
77. In *Kitchen v Royal Air Force Association* [1958] 1 WLR 563 the plaintiff's husband was electrocuted and killed in the kitchen of his house. The plaintiff consulted solicitors in relation to potential litigation against the electricity company. The solicitors negligently failed to issue a writ in time for a case under the Fatal Accidents Acts to be made and the claimant was thereby deprived of the chance to pursue and benefit from court proceedings. The plaintiff succeeded in an action for negligence against the solicitors and was awarded damages. The solicitors appealed. The Master of the Rolls (Lord Evershed, with whom Parker and Sellers LJJ agreed) held that it was impossible to say whether the claimant would have succeeded in an action against the electricity company but that she had lost something of value, namely her cause of action. The appeal was dismissed.
78. It seems that *Chaplin v Hicks* was not cited to the Court of Appeal in *Kitchen* but the underlying logic of the Court's judgment on damages was similar. If the head of damages had been the loss of what the plaintiff would have received in an action under the Fatal Accidents Acts, she could not on the balance of probability have proved that she would have won such an action and therefore could not have proved that the defendant solicitors had caused the loss of the financial benefit of winning. But the Court of Appeal treated her head of damage as being the loss of the chance to litigate. The defendant solicitors had caused the loss of that chance. The issue was the value of the chance and the Court did not interfere with the valuation made at first instance.
79. In *Allied Maples Group Ltd v Simmons & Simmons* [1995] 1 WLR 1602 the judge at first instance held that a solicitor's negligence had deprived the plaintiff of the opportunity to negotiate a better bargain with the vendor of four department stores and related assets. The agreement reached with the vendor left the plaintiff vulnerable to contingent liabilities of subsidiaries within the vendor's group. The plaintiff would have been better off if it had been competently advised in relation to those contingent liabilities, if it had

consequently sought a better bargain from the vendor and if the vendor had agreed to an amended bargain. Stuart-Smith LJ (with whom Hobhouse LJ agreed) identified the issue on damages in this way (at 1609):

“... where the plaintiffs’ loss depends upon the actions of an independent third party, it is necessary to consider as a matter of law what is necessary to establish as a matter of causation, and where causation ends and quantification of damage begins.”

80. Stuart-Smith LJ distinguished three sets of circumstances in his analysis of causation. In category (1), the negligent act was a positive act done in the past. In such a case the claimant must show, on the balance of probability, that the defendant’s act caused the claimant’s loss.

81. In category (2), the negligence consists of an omission – a failure on the part of the defendant to have done something. Then causation depends on a hypothetical question: what would the claimant have done if the defendant had not so failed? The claimant must prove, on the balance of probability, that if the defendant had not so failed the claimant would have taken action to obtain the benefit he lost or to avoid the loss he suffered.

82. In both these first two categories, should the claimant succeed on the balance of probability, he will obtain damages equivalent to the entirety of his loss, although the court must evaluate that loss. On the other hand, if the claimant does not succeed on the balance of probability, his claim to damages fails on causation and he is awarded no damages at all. In that sense, it is all or nothing.

83. Stuart-Smith LJ then then examined the third set of circumstances (at 1611):

“(3) In many cases the plaintiff’s loss depends on the hypothetical action of a third party, either in addition to action by the plaintiff, as in this case, or independently of it. In such a case, does the plaintiff have to prove on balance of probability, as Mr. Jackson submits, that the third party would have acted so as to confer the benefit or avoid the risk to the plaintiff, or can the plaintiff succeed provided he shows that he had a substantial chance rather than a speculative one, the evaluation of the substantial chance being a question of quantification of damages?”

Although there is not a great deal of authority, and none in the Court of Appeal, relating to solicitors failing to give advice which is directly in point, I have no doubt that Mr. Jackson’s submission is wrong and the second alternative is correct.”

84. Thus, where the claimant’s case on causation depends on the hypothetical action of a third party, done with or without the claimant, the claimant need only show on the balance of probability that the defendant caused the claimant to lose the *chance* of obtaining the benefit lost or to avoid the loss suffered.

85. Beyond establishing that there was a substantial, as opposed to a speculative, chance that the action of the third party would have resulted in no loss to the claimant, the size of that chance is irrelevant to causation. But it is relevant to quantification. When the court moves on to the quantification of damage, the sum awarded will correspond to the value of the beneficial outcome – in *Allied Maples* the financial benefit of a better bargain with the vendor – together with a discount commensurate with the probability that the chance would have led to the beneficial outcome. By way of example, if the defendant caused the claimant to lose a 30% chance of obtaining a benefit which is quantified at £1,000, the claimant will be awarded £300 in damages.
86. Having stated his view of the law quoted above, Stuart-Smith LJ went on to support it by reference to several authorities, including *Chaplin v Hicks* and *Kitchen*. Stuart-Smith LJ seems to have had in mind that the reasoning in *Allied Maples* was consistent with those earlier cases. In *Chaplin v Hicks* the claimant's claim that she had lost theatrical engagements depended on the actions of a third party – on whether the defendant would have chosen her as one of the 12 winners. Similarly the claim in *Kitchen*, that the claimant had lost the benefit of successful litigation, depended on the actions of others involved in the hypothetical litigation.
87. Stuart-Smith LJ expressly rejected any distinction between the claimant losing the chance of gaining a benefit and their losing the chance of avoiding a liability (at p.1611). Gaining a benefit and avoiding a liability are both beneficial outcomes (the term I will use to mean either in the alternative) and those chances are to be treated the same.
88. There is a further point to make about the judgment in *Allied Maples*. In a category (3) case, if a claimant were allowed to choose which approach to causation is to be adopted, it would always choose the loss of a chance approach when it believes that the court is liable to find that there was less than a 50% probability that its breach of contract caused the loss of the beneficial outcome. A claimant would go for the usual approach whenever it believes that this probability will be found to have been above 50%. The availability to claimants of a selection between the two would be unjust to defendants. Hence, the loss of a chance approach to the assessment of damages for cases in Stuart-Smith LJ's category (3) is not optional, see *Wellesley* and *Assetco* cited above.
89. To adapt the example given earlier: if the defendant caused the claimant to lose a 70% chance of obtaining a benefit which is quantified at £1,000, the claimant will be awarded £700 in damages even though, on the balance of probability, the defendant caused the claimant to lose £1,000.
90. The short point about *Gregg v Scott* [2005] UKHL 2 was that the *Allied Maples* approach to damages is not available in a medical negligence case. But I will try to say something about it because the House of Lords, in particular Lord Hoffmann, discussed the rationale behind the *Allied Maples* line of cases.

91. In *Gregg v Scott* the claimant attended his GP with a lump under his left arm. The defendant doctor negligently misdiagnosed his condition as benign. The claimant moved home and registered with another GP who referred him to a hospital where his condition was diagnosed as non-Hodgkin's lymphoma. By this time the tumour had spread to his chest. The defendant GP was found to have been negligent. The trial judge also found that 42% of those with the claimant's type of cancer would have survived for ten years in the absence of such negligence. The delay in diagnosis and treatment had reduced the claimant's prospects of survival for ten years to 25%. The judge concluded that on the first of those statistics the negligence had not been the cause of the claimant being unlikely to survive ten years (this being the criterion adopted). The claim was dismissed.
92. One of the arguments advanced before the House of Lords was that the defendant's negligence had caused the claimant to lose the *chance* of achieving a longer life expectancy and that this should have been assessed accordingly. The majority (Lord Hoffmann, Lord Phillips and Baroness Hale) held that a claim to the loss of a chance was not available in a medical negligence case.
93. Lord Hoffmann discussed the usual rule: findings of fact must be established by satisfying the burden of proof (at [79]):
- “... the law regards the world as in principle bound by the law of causality. Everything has a determinate cause, even if we do not know what it is. ... There is no inherent uncertainty about what caused something to happen in the past or about whether something which happened in the past will cause something to happen in the future. Everything is determined by causality. What we lack is knowledge and the law deals with lack of knowledge by the concept of the burden of proof.”
94. He continued:
- “[82] One striking exception to the assumption that everything is determined by impersonal laws of causality is the actions of human beings. The law treats human beings as having free will and the ability to choose between different courses of action, however strong may be the reasons for them to choose one course rather than another. This may provide part of the explanation for why in some cases damages are awarded for the loss of a chance of gaining an advantage or avoiding a disadvantage which depends upon the independent action of another person: see *Allied Maples Group Ltd v Simmons & Simmons* [1995] 1 WLR 1602 and the cases there cited.
- [83] But the true basis of these cases is a good deal more complex. The fact that one cannot prove as a matter of necessary causation that someone would have done something is no reason why one should not prove that he was more likely than not to have done it. So, for example, the law distinguishes between cases in which the outcome depends upon what the claimant himself (*McWilliams v Sir William Arrol & Co*

[1962] 1 WLR 295) or someone for whom the defendant is responsible (*Bolitho v City and Hackney Health Authority* [1998] AC 232) would have done, and cases in which it depends upon what some third party would have done. In the first class of cases the claimant must prove on a balance of probability that he or the defendant would have acted so as to produce a favourable outcome. In the latter class, he may recover for loss of the chance that the third party would have so acted. This apparently arbitrary distinction obviously rests on grounds of policy. In addition, most of the cases in which there has been recovery for loss of a chance have involved financial loss, where the chance can itself plausibly be characterised as an item of property, like a lottery ticket.”

95. Two judgments of the Court of Appeal have explored the borderline between loss of a chance cases and those in which the claim to damages should not be assessed according to the approach set out by Stuart-Smith LJ for his category (3) cases.
96. In the first, *Parabola Investments Ltd v Browallia Cal Ltd* [2010] EWCA Civ 486, the second claimant (“Tangent”) was a financial institution which carried out stockbroking activities. It brought a successful claim in deceit against the second and third defendants. For about eight months those defendants had made fraudulent misrepresentations to the claimants on a daily basis. The judge held that Tangent was entitled (a) to recover the amount by which its trading fund had been depleted as a consequence of the fraud, (b) a sum reflecting the lost opportunity to trade with a full fund during 8 months of the fraud (referred to as “stage 1”) and (c) damages for loss of investment opportunity for the period between the end of the fraud and the trial (“stage 2”). Tangent had traded at a loss during stage 1 and although it had traded profitably during stage 2, it had continued to suffer the adverse effect of the fraud since its trading had been conducted with smaller resources. The judge quantified the losses for the two stages by assessing on the evidence and the balance of probabilities the increase in profits that Tangent would have made absent the fraud.
97. The second and third defendants appealed the award for loss of profits in stages 1 and 2. The case advanced by Tangent on causation depended on Tangent showing that it would have traded more successfully in both stages if there had been no fraud. Its case on causation thus turned on what Tangent *and* third parties – its trading partners – would have done if there had been no fraud. On its face this was an *Allied Maples* category (3) case but it does not seem to have been argued that way before the Court of Appeal. The Court did, however, consider the loss of a chance approach and rejected it. Toulson LJ, with whom Mummery and Rimer LJJ agreed, explained why that was:

“[23] The claimant has first to establish an actionable head of loss. This may in some circumstances consist of the loss of a chance, for example, *Chaplin v Hicks* [1911] 2 KB 786 and *Allied Maples Group Ltd v Simmons & Simmons* [1995] 1 WLR 1602, but we are not concerned with that situation in the present case, because the judge found that, but for Mr Bomford's fraud, on a balance of probability Tangent would have traded profitably at stage 1, and would have traded

more profitably with a larger fund at stage 2. The next task is to quantify the loss. Where that involves a hypothetical exercise, the court does not apply the same balance of probability approach as it would to the proof of past facts. Rather, it estimates the loss by making the best attempt it can to evaluate the chances, great or small (unless those chances amount to no more than speculation), taking all significant factors into account: see *Davies v Taylor* [1974] AC 2017, 212, per Lord Reid, and *Gregg v Scott* [2005] 2 AC 176, para 17, per Lord Nicholls of Birkenhead, and paras 67-69, per Lord Hoffmann.

[24] The Appellants' submission, for example, that 'the case that a specific amount of profits would have been earned in stage 1 was unproven' is therefore misdirected. It is true that by the nature of things the judge could not find as a fact that the amount of lost profits at stage 1 was more likely than not to have been the specific figure which he awarded, but that is not to the point. The judge had to make a reasonable assessment and different judges might come to different assessments without being unreasonable. An appellate court will therefore be slow to interfere with the judge's assessment. ... "

98. Those paragraphs were quoted by Floyd LJ, with whom Longmore LJ and Roth J agreed, in *Wellesley Partners LLP v Withers LLP* [2015] EWCA Civ 1146:

“[103] Toulson LJ is thus saying that Tangent's claim was not one which depended on 'loss of a chance' in order to identify some head of loss. The judge had been able there to find that it was likely that Tangent would have traded profitably, as contrasted with cases such as *Chaplin v Hicks* [1911] 2 KB 786 where no analogous conclusion could be drawn. The judge was nevertheless required to take account, in the assessment of damages, of 'the chances, great or small (unless those chances amount to no more than remote speculation), taking all significant factors into account.'”

99. *Parabola* was shortly followed by *Vasiliou v Hajigeorgiou* [2010] EWCA Civ 1475. The facts were that the defendant was the owner of premises in North London. He leased the ground floor to the claimant who converted it into a Greek restaurant. There were two trials in front of different judges concerning different periods. In both it was found that the claimant was unable to trade because of the defendant's breach of covenant and that the restaurant would have been a success if it had traded. Damages were assessed according to the profit that the restaurant would have made.
100. The defendant appealed the second judgment and argued that there should have been a discount to reflect the risk that the claimant would not have achieved the level of profit found.
101. The claimant's case on causation depended on proving that the defendant's breach of covenant had caused him to lose profit he would have made from running a restaurant. That required him to show that had there been no breach, he would have run his restaurant profitably and this turned in part on what



third parties – the prospective customers – would have done. Again, at first glance it was an *Allied Maples* category (3) case.

102. Patten LJ (with whom Ward and Black LJJ agreed) said:

“[20] The general rule is that the claimant must prove that the defendant's breach caused the loss which he seeks to recover by way of damages. That must be proved on the balance of probabilities. When that is done the loss is recoverable in full subject only to questions of mitigation or remoteness. In some cases, however, where the claimant's ability to have made the profit which it claims depends on the actions of unrelated third parties, there may be room for arguing that the court should approach the issue of causation by taking into account the chances of those events having occurred.

[21] In the classic loss of a chance case the most that the claimant can ever say is that what he (or she) has lost is the opportunity to achieve success (e.g.) in a competition (*Chaplin v Hicks* [1911] 2 KB 786) or in litigation (*Kitchen v Royal Air Forces Association* [1958] 1 WLR 563). The loss is by definition no more than the loss of a chance and, once it is established that the breach has deprived the claimant of that chance, the damage has to be assessed in percentage terms by reference to the chances of success. But there will be other loss of chance cases where the recoverability of the alleged loss depends upon the actions of a third party whose conduct is a critical link in the chain of causation. The decision of this court in *Allied Maples Group Ltd v Simmons & Simmons* [1995] 1 WLR 1602 has established that causal issues of that kind can be determined on the basis that there was a real and substantial chance that the relevant event would have come about.

[24] Judge Levy, in the passages I have quoted from his judgment, found as a fact that Zorbas would have been a successful restaurant and therefore assessed its lost profits on that basis. His analysis of the variable factors I have outlined which formed the agreed components of that calculation involved taking into account the time needed to establish a reputation and other everyday contingencies but did not involve a more general discount of the kind described in *Allied Maples* to take account of the statistical possibility of failure. That was excluded by his finding that the restaurant would have been a success.

[25] Where the quantification of loss depends upon an assessment of events which did not happen the judge is left to assess the chances of the alternative scenario he is presented with. This has nothing to do with loss of chance as such. It is simply the judge making a realistic and reasoned assessment of a variety of circumstances in order to determine what the level of loss has been. ...”

103. Patten LJ then referred to a passage from Toulson LJ's judgment in *Parabola*, including paragraphs 23 and 24 quoted above. He continued:

“[26] In the assessment proceedings in the first claim Judge Levy reached a view about the prospects of success for the restaurant and then proceeded to carry out this sort of exercise in relation to the issues about cover turns and increases in profitability. As Toulson LJ, I think, makes clear, that process is not the kind of exercise contemplated as the second stage in *Allied Maples* and does not require a discount to be made for the possibility of failure which, on the judge's own findings, was non-existent.

[27] This is, I think, made clear in the judgment of Sir Anthony Clarke MR in *Owners of the Ship “Front Ace” v Owners of the “Vicky I”* [2008] EWCA Civ 101 where he said this:

‘[72] There are many cases in which courts or arbitrators have to determine what rate of profit would have been earned but for a tort or breach of contract. As I see it, in a case of this kind, where the court has held that the vessel would have been profitably engaged during the relevant period, where there is a relevant market and where the court can and does make a finding as to the profit that would probably have been made (and has been lost), there is no place for a discount from that figure to reflect the chance that the vessel would not have been employed.

[73] It has not in my experience been suggested in the past that any such discount should be made. This situation is to be contrasted with a case in which it is not shown that the vessel would have been profitably employed but she might have been. It may be that in those circumstances it would be possible to approach the problem as a loss of a chance. However, I would not wish to express a firm view on that question in this case, where it does not arise on the facts. Here, given the exercise carried out by the experts and given the figure agreed by them, there is in my opinion no warrant for a reduction of 20%, either to reflect a risk that the vessel would not have been employed or for contingencies to reflect that the figure agreed might not be accurate.’

[28] The task of the judge is to decide what profit could have been made. Once he does this any further discount is inappropriate. Judge Levy decided that he was assessing the profits of a successful restaurant. The only issue was how successful.”

104. In *Wellesley* Floyd LJ said:

“[108] The *Parabola* case [2011] QB 477 and the *Vasiliou* case [2010] EWCA Civ 1475 are illustrations of the principles established by the *Allied Maples* case [1995] 1 WLR 1602. As I have indicated, I do not read either judgment as disagreeing with Stuart-Smith LJ's proposition in the *Allied Maples* case that a judge's evaluation of the

substantial chance of obtaining the benefit in question forms a legitimate part of the quantification of damages.”

105. In order to understand any distinction between *Allied Maples* on the one hand and *Parabola* and *Vasiliou* on the other, I find it helpful, by way of a test, to apply the *Allied Maples* loss of a chance principles to the facts of those two cases. Looking at *Parabola* first, as I have indicated, the argument on causation in relation to the heads of claim for stages 1 and 2 depended on the hypothetical actions of third parties in the no tort counterfactual. According to the loss of a chance approach, the heads of damage would become the loss of a chance to trade profitably in stage 1 and more profitably in stage 2, the two beneficial outcomes. The fraud undoubtedly caused the loss of those chances. The chances would have been substantial, not speculative, so one would move on to quantification. This would require, for each of stages 1 and 2, an assessment of the profit that would have been made absent the fraud, the deduction of the profit actually made (or the addition of the loss) and then the application of a discount. The discount would be commensurate with the likelihood that the second claimant would have obtained the beneficial outcome sought by the claimant, i.e. the likelihood that the second claimant would have gained profits from trading in stage 1 and would have improved profits from trading in stage 2. But the judge found on the evidence that this *would* have been the case in respect of both stages. As both inferred and implied by the Court of Appeal, there was a 100% chance that the defendants’ fraud had caused the second claimant to be deprived of profit in both stage 1 and stage 2. It followed that although the extent of the lost profit had to be quantified for each stage, no discount would be appropriate.
106. Put another way, on the evidence the value of the chance of obtaining the beneficial outcome in each of stages 1 and 2 was the same as the value of the beneficial outcome itself. The only issue was the correct valuation of those lost beneficial outcomes. The court could therefore ignore the loss of a chance approach and go straight to quantification in the usual way.
107. This is to be contrasted with *Chaplin v Hicks, Kitchen* and *Allied Maples*. In each of those cases, had there been no breach of contract or negligence the claimant may or may not have obtained the beneficial outcome – respectively, theatrical engagements, the fruits of litigation and the benefit of a satisfactorily renegotiated sale agreement. In each case the value of the chance was therefore the value of the beneficial outcome with a discount commensurate with the size of the chance, i.e. with the likelihood that the chance would eventuate in the beneficial outcome.
108. Turning more briefly to *Vasiliou*, the judge found that if there had been no breach of covenant the claimant would have traded profitably. There was therefore a 100% chance that the breach had caused the claimant to lose the beneficial outcome: profits from the restaurant’s trade. The only issue was the quantification of those profits.
109. I think that one way of expressing the reasoning of the Court of Appeal in *Parabola* and in *Vasiliou* is to say that where a claim for damages falls within *Allied Maples* category (3) and on the evidence it is certain that the breach of

contract or tort caused the innocent party to lose the beneficial outcome, the court can go directly to quantifying the loss in the usual way, i.e. quantifying the value of the beneficial outcome of which the innocent party has been deprived. That is because the value of the chance is the same as the value of the beneficial outcome.

110. I understand Patten LJ to have had this in mind in *Vasiliou*. He said (at [44]):

“As explained earlier, the issue of how successful the restaurant would have been was not an issue of causation. It was relevant only to quantum. Judge Dight and Judge Levy were satisfied that the restaurant would have been profitable and calculated the damages accordingly. One can express this in terms of them assessing the chances of success at 100% but either way there is no room for a further discount. The calculation of profits which they made was not determined as the best level of profits reasonably obtainable. It was the amount which on their findings he would have earned.”

111. *Wellesley* provides an illustration of a case in which, unlike *Parabola* and *Vasiliou*, the loss of a chance approach was appropriate. The claimant was an executive search consultancy specialising in the investment banking sector. It instructed the defendant solicitors to make changes to its partnership agreement so that a new investor could be admitted to the partnership. The solicitors were found to have been negligent by drafting an option clause allowing the investor to withdraw half its capital at any time within the first 41 months of the agreement. The investor exercised its option after 12 months. Nugee J awarded damages in part on the loss of a chance, namely that if the investor had not withdrawn, the claimant would have opened an office in the USA and then would have had a 60% chance of obtaining business with a particular bank there, Nomura.

112. On appeal [2015] EWCA Civ 1146, the Court of Appeal rejected the argument that the judge had approached the analysis of loss on an incorrect basis. Floyd LJ (with whom Longmore LJ and Roth J agreed) considered *Allied Maples* and *Gregg v Scott* and said:

“[100] I would have thought that, applying those principles to the present case, it would be plain that, whilst WP would need to show on the balance of probabilities that, but for the negligence complained of, they would have opened a US office (a question of causation dependent on what the claimant would have done in the absence of a breach of duty), the actual loss which they claimed to have been caused by the defendant was dependent on the hypothetical actions of a third party, namely Nomura. Accordingly, in line with well established principle, the chances of Nomura deciding to award the mandates to WP would have to be reflected in the award of damages.

...

[109] On the judge's findings in the present case, the only viable claim to loss of profits in the United States was one to the loss of some

of the Nomura mandates. WP's case on causation, that Withers' negligence caused WP to lose the Nomura mandates, was one which depended on the hypothetical actions of Nomura, a third party. WP had, first, to prove that its own actions would have been such as to place itself in a position to obtain that work, and it had to do so on the balance of probabilities. It did so. All that remained on the issue of causation was for WP to establish whether there was a real and substantial chance that Nomura would have awarded some part of the mandates to WP. It did so. That was the beginning and end of its case on causation.

[110] It does not follow at all, however, that it is no longer relevant to consider the chances that WP would have obtained the mandates. The evaluation of that chance is part of the process of the quantification of damages. It would be wrong in principle to treat the conclusion on causation as if it meant that the chances of obtaining some part of the mandate were 100%. The judge was correct to reflect his view of the chances of WP obtaining the mandate in his quantification of damages.”

113. Causation under the relevant head of damage depended on the hypothesis that had there been no negligence the claimant would have (a) opened a branch in the United States and (b) gone on to obtain profitable business with Nomura there. The two were not to be run together. The first depended on the claimant's own actions and therefore that part of the counterfactual had to be established on the balance of probabilities. The second depended on the actions of Nomura and there was no certainty Nomura would have traded with the claimant. The likelihood was found to be 60%, so the valuation of the hypothetical profit which would have flowed from trade with Nomura – the valuation of the beneficial outcome – was discounted by 40%.
114. In *Perry v Raleys Solicitors* [2019] UKSC 5, Lord Briggs JSC (with whom Baroness Hale PSC and Lords Wilson, Hodge and Lloyd-Jones JJSC agreed) highlighted the need to distinguish events in a no breach counterfactual. The claimant, a retired miner, had instructed the defendant solicitors in relation to his claim for an award under a government scheme for compensating miners who had developed a condition called “vibration white finger”. There were two categories of award. The claimant claimed that due to the solicitors' failure to give him proper advice he had lost the chance to claim the more advantageous award. The Supreme Court held that to the extent that causation depended on what the claimant would have done, this had to be proved on the balance of probabilities. To the extent that it depended on what others would have done, it would be determined on a loss of a chance evaluation. Lord Briggs explained this by reference to *Allied Maples*:

“[21] ... Allied Maples had made a corporate takeover of assets and businesses within the Gillow group of companies, during which it was negligently advised by the defendant solicitors in relation to seeking protection against contingent liabilities of subsidiaries within the vendor's group. Allied Maples would have been better off, competently advised, if, but only if: (a) it had raised the matter with

Gillow and sought improved warranties and (b) Gillow had responded by providing them. The Court of Appeal held that Allied Maples had to prove point (a) on a balance of probabilities, but that point (b) should be assessed upon the basis of loss of the chance that Gillow would have responded favourably. The Court of Appeal (Stuart-Smith, Hobhouse and Millett LJ) were unanimous in that statement of legal principle, although they differed as to the outcome of its application to the facts. It was later approved by the House of Lords in *Gregg v Scott* [2005] 2 AC 176, at para 11 by Lord Nichols of Birkenhead and para 83 by Lord Hoffmann.”

115. Thus, the Supreme Court underlined a distinction also drawn by the Court of Appeal in *Wellesley*. Where, to establish causation, the innocent party relies on a chain of events in the no breach (or no tort) counterfactual, i.e. events which would cumulatively have resulted in the innocent party obtaining the beneficial outcome, those events must be separately identified and assessed. Only events which would have depended, in whole or in part, on actions of one or more third parties fall to be assessed according to the principles applied to the loss of a chance. Only in relation to such an event will the court decide, on the balance of probabilities, whether there would have been a significant *chance* of that event occurring.
116. I speak of one or more third parties in the preceding paragraph because although in *Allied Maples* Stuart-Smith LJ referred to a third party, singular, subsequently judgments have assumed that this includes the plural. See, for example, the Court of Appeal in *Vasiliou* at [20] and the Supreme Court in *Perry* at [20]:

“To the extent that the supposed beneficial outcome depends on what others would have done, this depends upon a loss of chance evaluation.”

#### Summary on the loss of a chance

117. The loss of a chance approach to the assessment of damages for breach of contract applies to a claim in which the claimant’s case on causation depends on the hypothetical conduct of one or more third parties, with or without the claimant, if there had been no breach of contract, i.e. in the no breach counterfactual.
118. According to that approach, the head of damage is the loss of the chance which the claimant had to attain a beneficial outcome, i.e. to obtain a benefit or avoid a loss. The claimant must prove, on the balance of probability, that the breach of contract caused the loss of that chance – not that it caused the loss of the beneficial outcome itself. If proved, and provided the chance was substantial and not merely speculative, the court will go on to quantify the value of the chance lost and thus the damage suffered. Quantification will involve the valuation of the beneficial outcome and the application of a discount commensurate with the likelihood that the chance would have led to the beneficial outcome.

119. Where the claimant relies on more than one hypothetical event in a no breach counterfactual to establish causation, the events in the chain must be separately assessed. Only an event which involves the actions of one or more third parties is to be assessed by reference to a chance – so that the assessment becomes whether on the balance of probability there would have been a significant *chance* of that event occurring.
120. Subject to a qualification, the foregoing loss of a chance approach must be adopted when causation depends in whole or in part on the hypothetical action of one or more third parties; it is not optional.
121. The qualification is that if on the evidence there is a 100% likelihood that the breach of contract has caused the claimant to be deprived of the beneficial outcome, the net effect will be that the damage, i.e. the value of the hypothetical beneficial outcome, can be quantified in the usual way. That is because the value of the chance is the same as the value of the beneficial outcome.

### **The witnesses**

122. On behalf of SEL I heard oral evidence from Mr Prescott, Dr Gardiner and Paul Crowhurst, who is the President of Bardac Corporation, SEL's most important customer.
123. I think that Mr Prescott did his best to give honest answers to all the questions put to him. However, he was highly invested in the outcome of this inquiry and I cannot exclude the possibility that his recollection of some of the events covered may have adapted over time to be consistent with SEL's claim to damages. I think that the assumptions Mr Prescott made in support of his quantification of the loss suffered by SEL were astonishingly over-optimistic. I have little confidence in them as I will explain below. I have the impression that Mr Prescott was given free rein to devise those assumptions as he saw fit without much if any critical scrutiny being applied to them before the trial.
124. I am sure that Dr Gardiner was trying to give accurate answers, although again they may sometimes have been dependent on a recollection of events influenced by the issues at stake. Dr Gardiner properly made concessions as to the limit of his knowledge on technical matters where it was appropriate to do so.
125. Mr Crowhurst was a very good witness. He and Bardac have no direct interest in the outcome of this inquiry and I think this was reflected in the directness and clarity of the answers he gave.
126. On behalf of the defendants there was written and oral evidence from Dr Potamianos and from John Goodwin, who is the sole director of Drives and Automation Limited, a customer of SEL's.
127. Like Mr Prescott and Dr Gardiner, perhaps more so, Dr Potamianos has an obvious interest in the outcome of this inquiry. I had the impression that this

may sometimes have coloured his recollection of events. Dr Potamianos on the whole gave clear answers, which was helpful.

128. Mr Goodwin gave brief evidence. I don't doubt that it was both honest and accurate.
129. Mr Riordan submitted that it was highly significant that there was no evidence from Dr Fells. SEL did not say that he was unavailable, just that Dr Gardiner could cover what he knew. Dr Gardiner himself said that SEL wanted Dr Fells to focus his time on the software. Dr Fells was indeed a key figure in the relevant history. It was he who carried out the work on the v.6.11 source code. It was he whom Dr Potamianos accused of carrying out actions that a competent computer engineer should not have done and that possibility was sometimes relevant.
130. Not calling Dr Fells was a matter for SEL and it is true that Dr Gardiner was in large part able to explain the work done by Dr Fells. But as Dr Gardiner admitted, he did not have the technical expertise of either Dr Fells or Dr Potamianos. Occasionally that meant that the only qualified evidence I had on a matter came from Dr Potamianos.

### **Findings of fact**

#### *The date from which BDL was in breach of contract in relation to PL/X*

131. It was common ground that the date on which SEL is entitled to say that it first suffered loss from BDL's breach of contract in relation to PL/X software was the date on which Dr Potamianos first acted in breach by refusing to supply the v.6.13 source code.
132. From around June 2014, when SEL issued a press release announcing that Mr Keen and Dr Gardiner had been appointed joint managing directors of SEL, there was an increasing lack of trust between Dr Potamianos and his colleagues at SEL, in particular Mr Prescott. Neither Dr Potamianos nor Mr Prescott was entirely happy about the behaviour of the other but it in my view could not be said that in 2014 BDL was yet in breach of contract.
133. Dr Gardiner's evidence was that in a meeting on 15 July 2014 he asked Dr Potamianos for the source code and Dr Potamianos' answer was evasive. Dr Potamianos denied this. The note of the meeting indicates that the request was in the context of a consensus among all present (the others were Mr Prescott and Mr Keen) there was an over-concentration of knowledge about SEL's software in Dr Potamianos. Mr Keen and Mr Prescott

“... said it was a major concern for them in case anything happened to make Aris unavailable. However it was agreed that this risk had been carried for 15 years already. Aris said that all source files are on the system but maybe the server was not the appropriate environment to setup a system capable of generating a HEX file. That needed to be looked at by employing another PC or even, indeed, trying it on the server to see if it is possible.”



134. Dr Potamianos' comment as there recorded does not seem to me to have been either evasive or to have amounted to a refusal to make source code available.
135. Shortly before this meeting, on 25 June 2014, the source code for v.6.11 was created by Dr Potamianos. During the latter half of 2014 he worked on v.6.12 and v.6.13. Firmware with the object code of v.6.13 was available to SEL and products using it were supplied to customers from January 2015.
136. SEL's primary case is that all work done by Dr Potamianos on PL/X after the completion of v.6.11, beginning in around the latter half of June 2014, was done on his own machines and was password protected by him. Therefore, SEL argued, from June 2014 SEL did not have access to post v.6.11 source code and from that date Dr Potamianos was in breach of contract.
137. I disagree. Dr Potamianos' choice of computer on which to work and his use of password protection was not by itself a breach of contract. In my view a breach could occur only when Dr Potamianos was asked to provide source code to SEL and either he refused to do so or he acted in a manner which could only be reasonably interpreted as a refusal. SEL had traded for many years without, it seems, much of a thought about access to source codes. The minutes of the meeting on 15 July 2014 are not consistent with Dr Potamianos being in breach at this point.
138. I pause here to introduce a figure who played a minor but relevant part in events: Stephanie Macdonald. Martlet Audit Limited, part of The Martlet Partnership LLP ("Martlet") was an accountancy business which provided services to SEL between October 2007 and May 2016. David Macdonald, the founder and director of Martlet, and his wife Stephanie were the individuals who provided the services. Mr Macdonald was the accountant to SEL from 1987 to April 2017 and the accountant to SRL from 2012 to April 2017. Mrs Macdonald worked as an accountant and house manager for SRL until May 2016.
139. By way of a secondary argument, SEL relied on paragraphs 37 to 58 of Mr Spearman's judgment, contending that in those paragraphs there was a finding that Dr Potamianos was in breach from January or February 2015. That is not how I read those paragraphs. In them Mr Spearman recorded the relevant events of the meeting of 15 July 2014 (see above) and thereafter the division of SEL officers into two camps with Dr Potamianos and Mrs Macdonald on one side, Mr Prescott, Mr Keen and Dr Gardiner on the other. Mr Spearman noted serious accusations from each side, attempts at reconciliation and on 9 January 2015 Mr Prescott's termination of Mrs Macdonald's employment with SRL. (Mrs Macdonald was later reinstated and remained with SRL until May 2016.) Dr Potamianos did not take Mrs Macdonald's dismissal well, telling Mr Prescott that he had acted in an irresponsible and unfair manner.
140. Mr Spearman neither recorded a request for source code on behalf of SEL in his judgment, nor, it follows, a refusal from Dr Potamianos.
141. At a meeting on 28 January 2015 between Dr Potamianos and Mr Prescott, Dr Potamianos said that he did not trust Dr Gardiner with access to a compilable

version of the PL/X software because he was a security risk and also stated that the software needed debugging before it could be compiled. In cross-examination Dr Potamianos expanded on this, saying that at the meeting he had given two fundamental reasons for his lack of trust in Dr Gardiner, neither of which had been recorded by Mr Prescott in his notes of the meeting. The reasons were that that Dr Gardiner had been falsely stating, behind Dr Potamianos' back, that Dr Potamianos was retiring and also that he went along with a premature announcement of his and Mr Keen's appointments as directors. Dr Potamianos denied the suggestion put to him that these were excuses for his refusal to hand over the PL/X software to SEL. I accept Dr Potamianos' evidence on this. The records of meetings around this time were kept by Mr Prescott and were quite detailed. I think that if there had been a clear request for the source code from the directors of SEL to Dr Potamianos, that would have been recorded. I also take the view that Mr Prescott's note of the meeting of 28 January 2015 probably records accurately that software security for SEL had to be safeguarded and that this was a matter for further discussion:

“This leaves us with the task of getting round this whilst at the same time providing software security for SE.

Something that needs more discussion.”

142. Mr Prescott's idea of software security is stated in more detail later in his note of the meeting:

“3) Ed [Prescott] wants a route map to software security.

The route discussed is work to remove known bug. Edit commentary. Place compilable code in secure place. Then recruit engineer for transfer. I am not clear whether this is agreed.”

143. There was another meeting on 3 February 2015 between Mr Prescott and Dr Potamianos. Under the topic “Ed [Prescott] wants a route map to software security” the minute, written by Mr Prescott, states:

“The route discussed is work to remove known bug. Edit commentary. Place compilable code in secure place. Then recruit engineer for transfer. I am not clear whether this is agreed.”

144. Also in evidence were minutes of what were termed “Cobra2” meetings, that is to say meetings in principle open for attendance by all the officers of SEL. The notes of Cobra2 meetings were taken by Dr Gardiner. Mr Prescott sometimes attended the meetings, Dr Potamianos generally did not. The minutes suggest that Dr Potamianos did not carry out any significant work on either the PL/X or JLX software from about February 2015. Those of the 11 February 2015 meeting stated:

“Jim [Lock] reported that the problem of armature fuse blowing has been contained by issuing version 6.13 firmware. This is not a long

term fix as v6.13 has its own problems (particularly with transitioning into standby field) although these are considered less significant.

Timescales for implementing a full corrective action are unknown at present as Aris [Potamianos] has been unable to commit to working on the problem.

More than 600 v6.13 drives have been shipped but realistically the number of units exposed to this issue will be far fewer as 50Hz applications do not appear to be affected.”

145. On 20 February 2015 Mr Lock drew up a manuscript list of 17 or possibly 18 improvements to the PL/X software that he thought were needed (apparently subsequently updated with further suggested improvements on 10 August 2015 and again on 20 April 2016). The first iteration, or something like it, was shown to Dr Potamianos. Cobra2 minutes of 11 March 2015 record:

“Jim has drafted a list of improvements for the PL/X and JL/X firmware but Aris has given no commitment as to when he will be able to action these.”

146. As 2015 progressed relations between Dr Potamianos and his colleagues continued to sour. By April 2015 at the latest, Dr Potamianos’ colleagues knew that he was not working on PL/X and were unhappy about it. This emerges from Cobra2 meetings throughout 2015.

147. Nonetheless, on 10 November 2015 BDL – in effect Dr Potamianos – entered into a third contract for services with SEL. This suggests that SEL did not in November 2015 regard Dr Potamianos as being in breach of contract. While SEL’s view is not determinative, it is clear that all sides expected Dr Potamianos’s relationship with SEL to continue and the renewed contract suggests an expectation that disagreements could be resolved. I do not believe that matters had reached a head with regard to SEL’s access to source code by 10 November 2015. As noted in the meeting of 15 July 2014, SEL had successfully traded for 15 years without the need for anyone other than Dr Potamianos to access source code; its lack of access was not an obstruction to continued trading provided the relationship between Dr Potamianos and SEL continued more or less as it had previously done.

148. On 13 November 2015 Mr Prescott sent Mr Macdonald an email with a memo setting out in detail Mr Prescott’s view of SEL’s prospects and problems. Attached to the email was a memorandum dated November 2015 written by Mr Prescott and headed “Current situation with SE. Problems that need a solution”. I will set out large sections of it because it seems to me to provide a reliable contemporaneous account of Mr Prescott’s view of relevant matters in mid-November 2015. He began with an overview outlining SEL’s position in the market, how it had grown and its ability to compete with large corporations. The memo continued under a subheading “Product”:

“Elephant in the room is software and the PLX product range which is the main earner.

...

There are known bugs and published functions not working correctly in the current software. Also there is weakness in the method for upgrading the software on the customer's site.

These are not materially affecting sales but need to be fixed.

The JLX (Slip ring motor drive) is hampered in sales because it hasn't got a slick menu for the user. Plus the default configuration should be improved.”

149. The next sub-heading was “Source code for the PLX that belongs to SE is not available to it and no one apart from Aris knows where it is.” Mr Prescott said:

“This to me is the single biggest threat. Aris is refusing to hand over the source code because there is no shareholder agreement. There is no shareholder agreement because Aris does not agree that my 60% should allow me to appoint 3 directors and his 40% only 2. (This was intrinsic in the original agreement). So now we have to rely on the articles.

There is no ongoing program of product improvement for the software and hasn't been for a year at this date. This is because of the fact that Aris does not seem inclined to participate at this time.

The PLX is the mainstay of sales and without solving the above issues there is no long term future for SE.

Without Aris available for whatever reason to further develop the software then the PLX is not a product we can build our future on as the software platform is not stable. This makes debugging and development difficult, if not impossible. Without knowing the status of the source code and documentation it is hard to assess the development effort required to create a robust and reliable platform but in the worst case it is likely to mean a complete code re-write. This is a formidable task (multiple man years). We need to make a product that as well as fulfilling the performance requirements of a modern, reliable DC motor controller, must be field upgradeable with modern comms interfaces (Ethernet, USB, Bluetooth) and a user-friendly configuration tool.

On top of this we would be instantly exposed with any field problem involving the software and unable to solve it without access to the source code.

It has always been the case that Aris is the only person able to support the PLX software and we have been running the risk of his illness or death during this time and been fortunate. At least then he was committed to the same goals.

Aris does not seem to appreciate the risk that this is currently subjecting SE to. If he does then he is prepared to accept it, but I would not put myself in his position as it affects our heirs.

In summary, the PLX in its current form is a barrier to growth. If we push the existing product into more territories and applications then we risk exposing its shortcomings to a wider audience, exacerbating the technical support overhead and doing reputational damage that will be difficult to reverse.

...

In conjunction with Mark I have assessed what resource we would need to replace Aris. It requires 2 high level engineers with complimentary skills. Engineer 1. Understanding the physics of motor control with coding ability. Engineer 2. Specialise in coding with comms experience. Combined cost estimate £100K. We have identified a potential candidate for E1.

The 2 engineers would have to be under the direction of Mark. However Aris has told me that he would refuse to train Mark. This presents a further difficulty.

I was lucky to find Aris in 1998 in that he had the skills of E1 plus E2 plus the experience of designing the 590 series.

It was for this reason that when the opportunity arose with DVDW buyback I facilitated Aris becoming a significant shareholder in 2007 because I wanted ongoing security of software.”

150. The memo continued by discussing other potential weaknesses in SEL and its product range.
151. In the passage in which Mr Prescott said that the PL/X source code was not available to SEL and that Dr Potamianos was refusing to hand it over because no shareholder agreement had been reached, the shareholding referred to was in SEL’s parent, SRL. However it is not clear what Mr Prescott meant by Dr Potamianos’ refusal to hand over the source code. The only such refusal before November 2015 mentioned in Mr Prescott’s evidence was described in his third witness statement. There Mr Prescott discussed a meeting with Dr Potamianos in late January 2015 at which, Mr Prescott said, Dr Potamianos told him that he had hidden the source code. (Dr Potamianos denied saying this.) The alleged hiding does not seem to have been connected with any discussion about a shareholder agreement; that came later in 2015. Even if Dr Potamianos had said in November 2015 that one route he could take in future should the shareholder dispute not be resolved would be to refuse access to the source code, and he may have played that card, such a statement would not by itself have been a breach of contract. At most it was an indication that he was minded to act in breach of contract sometime in the future if certain events did or did not happen. SEL could have brought matters to a head by insisting on

access to the source code right away but I do not think that was done in or before November 2015.

152. Also, the suggestion of Dr Potamianos' refusing to supply the source code in November 2015 does not fit with BDL entering into a new contract with SEL on 10 November 2015. I think that at this stage all concerned still believed that they could settle their differences and smooth over any problems.
153. In my view Dr Potamianos' refusal to supply the PL/X source code came in January 2016. An email dated 16 January 2016 from Mr Prescott to Dr Potamianos refers to a meeting earlier in January 2016. Dr Potamianos said that it took place on 8 January. The email records Mr Prescott as having asked where the PL/X was and Dr Potamianos as having said that it was hidden in his personal domain on his Sprint machine. The email also records Dr Potamianos as having said that he alone would decide if and when the source code was made available to SEL and that might be one or even two years. In a reply dated 18 January 2016 Dr Potamianos denied that Mr Prescott's account was accurate. However, it is not necessary for me to explore this further. The defendants formally acknowledged that BDL was first in breach of contract regarding the PL/X source code on 8 January 2016. I accept that as the correct date.
154. None of the documents referring to SEL's increasing concerns about the PL/X source code say much about the JL/X source code. It was put to Dr Potamianos that when he and Mr Prescott were discussing source code, both of them understood that this meant both PL/X and JL/X. Dr Potamianos replied that he did not think that this was correct because JL/X was much less commercially significant, but it was not unreasonable to think that Mr Prescott had JL/X also in mind.
155. On 3 June 2016 Mr Lock sent an email to Dr Potamianos asking for the JL/X source code. On the same day Dr Potamianos refused to supply it. That is the earliest at which the refusal is proved. However, for reasons to be discussed below, the later date for the JL/X source code makes little practical difference.
156. My discussion below regarding lack of access to source code will therefore be confined to the PL/X source code unless I state otherwise.

*SEL's improvement project from January 2016 to the present*

157. I turn next to what SEL has done between January 2016 and the present.
158. On 22 January 2016 Dr Fells was interviewed and offered the job of working on the PL/X source code for SEL. BDL argued that it is significant that Dr Fells' contract was with Sameaim, Mr Prescott's service company, submitting that Dr Fells' work for SEL was being hidden from Dr Potamianos. That may have been the case, but it seems to me to matter little now. Dr Fells started work on 3 February 2016.
159. Dr Potamianos said that when he was asked for the PL/X source code on 8 January 2016, he told Mr Prescott that it was on BDL's private partition on

SEL's server. That is not consistent with Mr Prescott's record of the meeting in his email of 16 January 2016 (see above) in which Dr Potamianos is recorded as having said that he may not make the source code available for one or two years. On 6, 19 and again on 23 February 2016, Mr Prescott asked Dr Potamianos by email for the PL/X source code. If Dr Potamianos were right in his recollection of what he had said on 8 January 2016, one would have expected increasingly exasperated answers to the effect that Mr Prescott had already been told. Instead, Dr Potamianos either avoided answering or did not respond to the email at all.

160. I find that in January and February 2016 Dr Potamianos was doing what he could to avoid SEL having access to the PL/X source code.
161. But I think it makes no difference. Dr Gardiner already knew where v.6.11 was likely to be. Dr Gardiner's evidence was that he had asked Dr Potamianos for the source code at an SEL managers' meeting on 15 July 2014 and had been told by Dr Potamianos that it was on the SEL system, without saying where. Dr Gardiner said that he had looked for the source code without success. In cross-examination he conceded that he had not had access to Dr Potamianos' partition and felt uncomfortable asking for permission. I infer that Dr Gardiner thought that a likely place to find software created by Dr Potamianos was on Dr Potamianos' partition of the server. On 26 May 2016 Dr Gardiner asked the IT administrator at SEL (not Dr Potamianos) for permission to gain access to that partition. On 27 May 2016 Dr Gardiner found what is now agreed to be v.6.11 of the source code. On 2 June 2016 Dr Fells started work on v.6.11.
162. There seems to me to have been no good reason for the delay in finding v.6.11. In cross-examination Dr Gardiner did not provide a convincing answer to the suggestion that permission from the IT administrator to access Dr Potamianos' partition could have been sought in January 2016. My impression is that there was no sense of urgency at SEL during the first part of 2016 in seeking to find v.6.11.
163. There was a meeting between Dr Gardiner and Dr Fells on 10 June 2016, in which they discussed the way forward for SEL now that they had what they (correctly) believed to be v.6.11 of the PL/X source code. Their discussion is evidenced by an exchange of emails between 11 and 13 June 2016:
  - (1) Dr Fells had attempted to compile v.6.11 but did not have the appropriate (C30) licensed compiler available.
  - (2) Dr Gardiner believed that there was limited value in compiling v.6.11 because all they would learn was that all the files were there and they perhaps knew that anyway.
  - (3) Dr Gardiner thought that there had been fundamental changes from v.6.11 to v.6.13. Dr Fells' understanding was that these were mainly about timing, scheduling and interrupt priorities.

- (4) Dr Gardiner agreed with Dr Fells' that a long-term solution was to re-write the code from scratch, but this was not feasible without a software specification or any helpful documentation. It would be too time consuming.
  - (5) Dr Fells' preferred course was to build the v.6.11 code into a well commented 'C' code compiled under MPLAB X and XC16 compiler, done line-by-line or module-by-module, producing a specification/software description in the process. Dr Gardiner agreed, considering it the best and perhaps only way forward.
  - (6) Their hope was that improvements to the structure of the source code could be made as this re-building was done.
  - (7) Dr Fells expected that the re-building would probably take a year and maybe longer.
  - (8) Hiring a software engineer to help Dr Fells was of marginal benefit at that stage, but would be revisited.
164. Despite the tone of the exchanges between Dr Gardiner and Dr Fells, Dr Fells answered to Dr Gardiner who, as between them, took the decisions on priorities and direction.
165. Three significant points emerge from their discussions. First, Dr Fells would not try to re-create the source code for v.6.13. Secondly, he would re-write the v.6.11 source code using C code, a high-level programming code. Thirdly, he would make improvements to v.6.11 along the way.
166. In cross-examination Dr Gardiner accepted that converting v.6.11 into C code was by itself going to involve a very substantial re-writing of v.6.11. He confirmed that no engineer other than Dr Fells was recruited to carry out the work on v.6.11.
167. Dr Gardiner said that it took Dr Fells until late 2016 just to compile the v.6.11 source code because he did not have access to the compiler that Dr Potamianos had used, namely C30. Dr Gardiner did not provide a convincing answer in cross-examination when it was pointed out that C30 was stored on SEL's server and that it had been the only compiler used by SEL for several years. It seems to me likely that the time taken to compile was due to the decision in June to re-write v.6.11 so that, among other things, it could be compiled under MPLAB X and XC16 compiler. Alternatively, this is further evidence of a lack of urgency.
168. Dr Gardiner also said that they had doubts as to which version of PL/X they had, but in cross-examination accepted that it was now known to be v.6.11, i.e. the exact version released to Bardac in 2014.
169. Dr Fells compiled v.6.11 on 11 November 2016. Dr Gardiner said that it still did not work correctly, but after modification it was released for testing on 16 January 2017 as "v.6.11.01".



170. On 16 March 2017 Dr Gardiner made a presentation to SEL entitled “Product Roadmap”. It provides an updated insight into SEL’s ideas as to the way forward with PL/X and the instructions that were being given to Dr Fells. A slide headed “PL/X State of Play” stated

- “• v6.13 has been shipping for 3 years+
  - Stable with only minor bugs
  - No source code available
- V6.11.01 currently under test
  - Based on ‘v6.11’ source code
  - Functionality close to v6.13
  - No AnyBus Interface
- 50+ bugs/issues (likely common with v6.13)”

171. This shows that SEL was continuing to sell drives using v.6.13 object code and found the software to be stable with only minor bugs. Dr Gardiner was of the view that the functionality of v.6.11 was close to that of v.6.13, that it had many bugs but these were probably to be found in v.6.13 as well and, as he had already observed, they were minor.

172. Dr Gardiner identified four ways forward. The first was to do nothing, i.e. continue to use products with the v.6.13 object code in the firmware, although adding an Ethernet/USB on the DriveWeb port and improving the configuration tool. The second was to develop a “v.6.13+”, i.e. v.6.13 with improvements, based on Dr Fells’ v.6.11.01. The third and fourth involved the rewriting of PL/X from scratch, seeking to provide major improvements for the third option and even more radical improvements for the fourth. The slide for the second option was:

- “• **Scope**
  - Develop 6.13+ based on v6.11.01
    - Tidy code
    - Fix bugs
    - Add boot loader for field upgrade
  - Ethernet and new configuration tool as per option #1
  - DriveWeb for automation
- **Risks**

- Few enhancements for users
  - **Benefits**
    - Maintainable code
    - Low resource requirements
    - No CAPEX”
173. The risks identified by Dr Gardiner for options 3 and 4 were, respectively, “long” and “extended” development time. The benefits for each included “Step change in customer offering”,
174. Dr Gardiner’s evidence on what SEL then did was sparse. However there is no doubt that Dr Fells embarked on a major project to remove bugs from v.6.11 and make improvements to it. It is possible to measure the scale of the project by the fact that it is still continuing. In the meantime and up to the present SEL has continued to sell products using v.6.13 firmware.
175. In October 2018 SEL received the source code for v.6.13. SEL has not used v.6.13 as a base for further work. It is to be inferred that SEL did not believe that its commercial interests were best served by switching Dr Fells’ focus to v.6.13 to remove bugs and to use it as a base for improvements. So far as bugs were concerned this does not come as a surprise. V.6.13 has served SEL very well since its launch in January 2015 and up to the present date. To the extent that v.6.13 has bugs, SEL and its customers have evidently had no trouble in coping with them. With regard to a base for potential improvements, it is to be inferred that SEL took the decision in late 2018 that the version Dr Fells was working on at that time, developed from v.6.11.01, was the better bet.
176. By the time of the trial, Dr Fells had progressed to his v.6.24 of the PL/X source code. Save for a trial with one customer in November 2019, drives with v.6.24 firmware have not been released. The trial with that customer was not a success. In cross-examination Mr Prescott said that there was a bug which was being investigated and so there had not been a general release and there will not be until a more satisfactory version has been created. In the meantime the workhorse v.6.13 will continue in use.

### **The no breach counterfactual**

177. For reasons discussed above it is necessary for me to compare two counterfactuals. In the first, the no breach counterfactual, BDL was not in breach of contract because Dr Potamianos supplied SEL with the v.6.13 source code in January 2016. SEL instructed Dr Fells to use that source code as a starting point from which to develop new improved software.
178. I must assume that when SEL hypothetically obtained the v.6.13 source code in January 2016, Dr Potamianos would have acted in good faith by answering the minimum of questions to enable Dr Fells to make efficient use of the source code, see *Durham Tees Valley Airport*, cited above.

*What SEL would have done with the v.6.13 source code*

179. A question arising from the no breach counterfactual is what Dr Fells would have done with the source code once SEL received it in January 2016.
180. It is clear from what SEL actually did (a) upon finding the v.6.11 source code in June 2016 and (b) upon receiving Dr Potamianos' v.6.13 source code in October 2018 that SEL was determined upon an ambitious project of improvement to create much better software. In the meantime, drives have been sold using the tried and trusted v.6.13 software without any modification.
181. I take the view that SEL's priorities in the real events of June 2016 and October 2018 would have been reflected in the no breach counterfactual. Once Dr Fells hypothetically began work in earnest on v.6.13, he would have used that source code as the starting point for an ambitious improvement project. He would have re-written it line by line, or module by module, into C code, attempting to enhance the performance of the software along the way and making the source code compatible with a preferred compiler. In the meantime, products would have been sold, as before, using v.6.13 firmware.

*The date on which SEL would have begun its improvement project*

182. A second question is when Dr Fells would have started work in earnest on v.6.13. I doubt that he would have begun promptly in early February 2016 given the lack of any sense of urgency about amending the PL/X software concerned in the real history of early 2016. This may have been because SEL knew that the v.6.13 firmware could be used for some time yet and wanted to take time to consider its options. I think that in the no breach counterfactual Dr Fells would probably have started the improvement project in June 2016, i.e. at the time when, in the real history, he was finally given permission to look in Dr Potamianos' domain on the SEL server for v.6.11 and started work on it.

**The mitigation counterfactual**

183. The second counterfactual is the mitigation counterfactual. In this, BDL was in breach; SEL did not receive the v.6.13 source code from BDL until October 2018 and in the meantime took actions in mitigation.
184. Actions by SEL in the real history which were collateral to mitigating the harm must be excluded from the mitigation counterfactual. This counterfactual is relevant to heads of damage in respect of which delay is alleged to have caused the damage.
185. The exclusion of SEL's collateral actions means that the counterfactual has particular features. First, Dr Fells was heavily criticised by Dr Potamianos for lacking competence in his work on v.6.11. If it is correct to say that Dr Fells carried out any actions which a notional computer engineer of average competence would not have carried out in the same circumstances, whether as the only way forward or as one of several alternative reasonable ways forward, or if Dr Fells failed to do something which the notional engineer *would*

undoubtedly have done in the same circumstances, such actions or failures to act by Dr Fells wasted time. They were therefore collateral to the mitigation of any harm caused by delay. Dr Fells' actions or inactions which wasted time are excluded from the mitigation counterfactual by having the improvement project conducted by the notional engineer.

186. Secondly, the task of the notional engineer in this counterfactual did not include the re-creation of the v.6.13 source code in every detail. That may have taken an almost indefinite amount of time. It would have been a pointless goal in the context of constructing the relevant yardstick. The hypothetical task was to create a version of PL/X which was functionally equivalent to v.6.13, i.e. which, when compiled, could be used to make drives which, from a commercial standpoint, had no significant difference in performance when compared to drives with v.6.13 firmware.
187. Thirdly, SEL's delay in the real history in beginning work on v.6.11 was collateral to mitigating the harm caused by the breach and so is to be excluded from this counterfactual. In the real history Dr Fells was hired in January 2016 and started to work for SEL in February 2016 but he was not given access to the v.6.11 source code until June 2016. In this counterfactual it is assumed that the notional engineer would have been hired at the same time and would have begun work on the creation of the functional equivalent of v.6.13 in February 2016, without SEL's delay.

*Time taken by the notional engineer to create a functional equivalent of v.6.13*

188. Dr Potamianos' evidence was that the source code for PL/X contains about 44,000 lines of code of which 139 lines differ as between v.6.11 and v.6.13. He said that it took him two and a half months to go from v.6.11 to v.6.13. While that is true in a sense, in fact they were created seven months apart. The reason was that the immediate successor to v.6.11 was v.6.12 which had a serious bug, causing drives using that software to blow fuses in the plants in which they were used. Dr Potamianos went back to v.6.11 and then in two and a half months created v.6.13. V.6.12 turned out to be an unfortunate detour.
189. Dr Potamianos said that a competent firmware engineer, starting with the v.6.11 source code would have been able to create v.6.13 in 3 months, in effect allowing a further 2 weeks over the time taken by Dr Potamianos himself after the v.6.12 detour, although apparently not all Dr Potamianos' time was spent purely on programming.
190. Dr Fells had the technical experience to provide an estimate, but he gave no evidence. Dr Gardiner rightly pointed out that however modest the differences between v.6.11 and v.6.13, SEL did not know what they were. Nor would the notional engineer.
191. Dr Fells never tried to create a functional equivalent of v.6.13 from v.6.11 so there is no way of knowing how long it would have taken him. Dr Potamianos took seven months to go from the real v.6.11 to the real v6.13 including the v.6.12 detour. In my view, the notional engineer probably would not have made exactly the same mistake as Dr Potamianos but I think I must assume

that he or she would have made one or more mistakes having a broadly similar consequence in time wasted.

192. Assessing this as best I can, I find that the notional engineer would have taken the seven months it took Dr Potamianos to go from v.6.11 to v.6.13, plus a further two months to take account of his or her having none of the long experience of PL/X which Dr Potamianos had, making a total of nine months.
193. I have found that the notional engineer would have started in February 2016, so he or she would have created a functional equivalent to v.6.13 by November 2016.

*What SEL would have done with functional equivalent of v.6.13*

194. For the reasons I have given in relation to the no breach counterfactual, I take the view that in the mitigation counterfactual SEL's overriding goal would have been to carry out the improvement project as it did in the real history. Once SEL obtained the functional equivalent in November 2016 the notional engineer would have been instructed to use it as the basis for pursuing SEL's improvement project.
195. There is no reason to suppose that the notional engineer would have delayed in starting the improvement project once the functional equivalent of v.6.13 had been found, so the project would have started in November 2016.

### **The heads of claim at the trial**

196. By the time of the trial the heads of claim had been amended from those pleaded. No objection was taken and I will deal with them in the order presented.
197. There is a convenient coincidence of dates. SEL's financial year runs from 1 November to 31 October. The v.6.13 source code was delivered up on 11 October 2018 and the Points of Claim were served in November 2018 (marking the point at which claims to past damages are distinguished from claims to future damages). By agreement, in the claim and in argument it was convenient to use years running from 1 November to 31 October. Reference to the year 2017, for instance, means the year from 1 November 2016 to 31 October 2017.
198. The first head of claim is numbered 1(a)(ii) because head 1(a)(i) is no longer pursued.

### **Head 1(a)(ii) – Intel boards supplied to Bardac**

199. Bardac is by some margin SEL's best customer. The figures for the share of SEL's annual turnover and the proportion of SEL's annual sales accounted for by sales of PL/X products to Bardac were in evidence but at SEL's request they are not made public here.
200. Some of Bardac's customers encountered difficulties with SEL's PL/X products on Microchip boards in the form of fuses blowing. SEL says that it

was unable to resolve the difficulties without the source code for the v.6.13 software. SEL was instead obliged to provide Bardac with 43 Intel boards free of charge. Loading the firmware onto Intel boards cured the problem. The loss claimed is £4,542.

201. In his written evidence Mr Prescott said that the problem of fuses blowing was associated with v.6.11 and v.6.12. In cross-examination he accepted that the problem lay in v.6.12, the problem which led Dr Potamianos to abandon v.6.12 and create v.6.13 instead.
202. By the time of Dr Potamianos' breach of contract SEL's drives were using v.6.13 firmware which had first been released in January 2015. The problems with v.6.12 must have happened at least a year before the breach of contract and could not have been caused by SEL's subsequent lack of access to the v.6.13 or even the v.6.12 source code. I award nothing under this head.

Head 1(b)(i) – Bardac's loss of sales because of problems with PL/X

203. Mr Prescott explained SEL's case under this head as having arisen from bugs in SEL's v.6.13 PL/X drives which caused Bardac and therefore SEL to lose sales. Mr Prescott said that if SEL had had access to v.6.13, the problems would have been solved in a timely manner and the sales would not have been lost. Mr Prescott estimated SEL's loss of profit for the period November 2016 to October 2018 at £42,308.
204. Mr Crowhurst of Bardac gave more informed evidence about this. He agreed with Mr Prescott to the extent that Bardac had lost sales of PL/X products due to bugs and other problems with SEL's software. He provided a table headed "Bardac's impact assessment as at October 2018" setting out the problems as encountered by ten of Bardac's customers. The customers and the end-users to whom those customers sell drives were identified by name. At SEL's request I will refer to them as Customers 1 to 10, corresponding with the order in which they appear in Mr Crowhurst's table, and I will identify the end-users by letters.
205. The problems found by Customers 1 to 3 significantly pre-dated Dr Potamianos' breach in January 2016, having occurred in 2013 or 2014. They were cured by Bardac at its own expense. SEL's having access to the source code of v.6.11, v.6.12 or v.6.13 in January 2016 could have made no difference.
206. The problems found by Customer 6 started in 2014 and were dealt with by Bardac. Customer 6's end users were said to be satisfied for the time being. No date is given for the bugs found by Customers 8 and 9 in the table, but they too were dealt with by Bardac at its own expense. There was therefore no proved causal connection between these bugs and BDL's breach in January 2016 on that basis alone. Customer 8 has an end-user A which suffered field supply issues but Mr Crowhurst was unable to say whether this was due to a problem with hardware or software. He also said that Customer 8 remained a committed Bardac customer and end-user A has resumed purchases from Customer 8. Mr Crowhurst's comment in his table regarding Customer 9 was

that Bardac had neither lost the business of Customer 9 nor, indirectly, that of its end-user.

207. Mr Crowhurst was cross-examined about the four other Bardac customers in the table: 4, 5, 7 and 10. He conceded that the problem with the products sold to Customers 4 and 5 may have been concerned with the hardware, not the software, he could not tell. Dr Potamianos, who has the expertise to know, said that hardware was the cause of the problem. Customer 4 has stopped buying DC drives from Bardac but continues to buy AC drives. Mr Crowhurst was unable to say whether this switch was for an unrelated commercial reason. The difficulties with some of the products sold to Customer 7, those sold in 2014 by Customer 7 to its end-user B, significantly predate Dr Potamianos' breach and were dealt with by Bardac at its own expense. In cross-examination Mr Crowhurst agreed that the problem end-user B had was due to the hardware. Otherwise, another of Customer 7's end-users, C, had a one-off issue in 2016 or 2017, which Bardac was able to fix. Mr Crowhurst said that Customer 7 remains a very committed customer of Bardac's for both DC and AC drives.
208. The last of Bardac's customers in the table, Customer 10, was said to have suffered field issues and blowing fuses during 2017 and 2018. The cause has not been diagnosed and so may not be connected with software. The only tangible loss identified was a cost to Bardac. In his table Mr Crowhurst speculated that Bardac might not get an order in the future for twelve PL/X units from Customer 10 but the loss has not yet eventuated and if ever it does, its distance in time from 2018 will cast doubt on causation.
209. This is an *Allied Maples* head of claim because it depends in part on what Bardac, a third party, and indeed Bardac's customers, would have done if the bugs had first been fixed by SEL with access to the v.6.13 source code.
210. SEL's case on causation depends on a chain of three hypothetical events in the no breach counterfactual which cumulatively would have enabled SEL to attain the beneficial outcome, i.e. to avoid losing sales. The first is that with access to v.6.13 from January 2016 SEL would in good time have been able to fix the bugs in a manner which would have made a positive difference to Bardac's customers. The second is that Bardac's customers would in consequence have maintained the level of their orders to Bardac. The third is that in further consequence Bardac would have maintained the level of its orders to SEL. Only the second and third fall to be evaluated by reference to the loss of chance. On the safe assumption that a sale by Bardac meant a sale by SEL, they can be treated as a single event.
211. On the evidence, I need consider only the issue arising from the first event. It is whether, on the balance of probabilities, access to v.6.13 (or any other version of the PL/X source code) from January 2016 would have resulted in SEL fixing bugs such that SEL's work would have had the potential to make a positive difference to Bardac's end customers. That cannot have been the case in relation to bugs which either (a) arose significantly before January 2016 and were fixed by Bardac or (b) were not shown by SEL to be software related.

All bugs identified by Mr Crowhurst fell under either (a) or (b). Causation has not been established in respect of any lost sales by Bardac,

212. I make no award under this head.

Head 1(b)(ii) – Head 1(b)(i) projected forward to 2019-2023

213. Mr Prescott said that the customers referred to in Mr Crowhurst's table were considered by Bardac in October 2018 to have been lost permanently. He calculated the loss of profit to SEL due to the loss of sales to those end customers.

214. The first point to note is that Mr Crowhurst did not say that all the customers in his table had been lost permanently. In fact, Mr Crowhurst expressly stated in his table that there had been no serious risk of loss of sales to four of the ten customers. In any event, for all ten customers SEL's case rests on BDL having caused the loss of sales under head 1(b)(i) and on the same cause continuing to have an adverse impact on future sales.

215. Since there was no causation established under head 1(b)(i) there can be none under this head. I make no award.

Head 1(b)(iii) – Head 1(b)(i) extrapolated for other customers

216. SEL assumed that it had lost sales to customers other than Bardac because of problems with PL/X products relied on under head 1(b)(i). Mr Prescott extrapolated his calculation for loss of sales to Bardac to loss of sales to other customers using the respective proportions of total sales to Bardac and other customers.

217. It does not necessarily follow that because SEL has suffered no relevant loss in relation to sales to Bardac the same must be true in relation to sales to other customers. In his third witness statement Mr Prescott gave some very general evidence about problems said to have been encountered by end users who did not buy from Bardac. But there was no exploration of these because SEL elected to tie its claim under this head to head 1(b)(i). Since I made no award under head 1(b)(i), I make no award under this head either.

Head 1(b)(iv) – Head 1(b)(iii) projected forward to 2023

218. Similarly, there can be no award under this head.

Head 1(b)(v) – Loss of sales in 2019-23 caused by delay in improvement of PL/X

219. This is one of the two major heads of loss claimed. Mr Prescott assumed that if there had there been no breach of contract it would have taken SEL three years from gaining access to the v.6.13 source code until it was able sufficiently to update the PL/X software by introducing the features necessary to keep its PL/X products competitive in the marketplace. No basis for three years was given. Among his further assumptions were growth in the market for drives of 3% per annum, the launch of a new product range by the end of October 2018 and sales growth in each of the years 2019-23 of 5%, 10%, 25%,



45% and 85% respectively. (The compound growth would be spectacular.) He then compared this with no work being possible until the source code was received in October 2018, delaying launch of the new drives until October 2021. Mr Prescott identified an assumed profit margin on the revenue lost which I have been asked to keep confidential. From all of this Mr Prescott calculated a net loss of profit and thus damage totalling £2,258,048 in his witness statement, later reduced to £2,068,866.

220. Mr Prescott referred to a launch date in October 2018 if there had been no breach of contract because he assumed that SEL would have received the v.6.13 source code in October 2015 and then taken 3 years in updating the source code. I think it makes no difference, but I will take Mr Prescott's dates for starting and ending the improvement project as January 2016 and January 2019 respectively, based on my finding that the breach of contract was in January 2016.
221. It is not in doubt that the direct cause of the delay to the prospective launch of SEL's new drives has been the delay in completion of SEL's improvement project. SEL's answer is that it had to embark on that project by way of mitigation once the v.6.13 source code was made unavailable to it. SEL could not reasonably have avoided carrying out this project and so BDL must be held to be responsible for the loss caused by it.
222. I accept that once BDL was in breach of his contract in January 2016, SEL had to do something about it. It was entitled to mitigate the harm caused by its lack of access to the v.6.13 source code. But SEL elected to go a good deal further than that. The work done by Dr Fells from June 2016 onwards may have been in part directed at re-creating a source code that was as marketable as v.6.13, but it was and continues to be much more substantially concerned with producing software in a more useful form and with better functionality. I take the view that to the extent that Dr Fells' work has been directed to the latter goal, that work has been collateral to acts done in mitigation of the harm caused by BDL's breach of contract. It may have been commercially a reasonable way to go, I state no view, but that is by the way. The time taken on the improvement project, in so far as it did not overlap the creation of a functional equivalent to the v.6.13 source code, cannot of itself be relied on to support a claim to damage caused by delay.
223. On the other hand, I accept that if delay to the start of SEL's improvement project, caused by the breach of contract, thereby caused delay to the conclusion of the project and thus to the launch of new drives, that may in principle be relevant to causation in respect of this head of damage. I have found that in the no breach counterfactual SEL's project would have started in June 2016. In the mitigation counterfactual it would have started in November 2016. The breach of contract thus caused a five month delay in the start of the improvement project. But if, as Dr Potamianos alleges, Dr Fells wasted time during the conduct of the improvement project, that time must be deducted when assessing its completion date in the mitigation counterfactual. If Dr Fells wasted five months or more, that breaks the chain of causation between the breach of contract and delay to the launch of SEL's new drives.

224. To accommodate that possibility and to exclude any time wasted, the work on the improvement project is taken to have been carried out in the mitigation counterfactual by the notional engineer. This is not strictly an issue of mitigation but it is convenient to maintain the services of the notional engineer in the counterfactual in order to assess this aspect of causation.
225. The damage suffered by SEL under head 1(b)(v) is represented by difference in its financial position as between the no breach counterfactual and the mitigation counterfactual at the end of each of the years 2019-23.
226. So far as 2019 is concerned, the answer is clear: there would have been no difference. In both counterfactuals SEL would have sold products using the same v.6.13 software throughout 2019, as it did in reality.
227. The position is less certain with regard to the years 2020-23. This head of claim is a claim to the loss of a chance since it depends in part on whether SEL's customers will in the future purchase more drives upon being offered SEL's improved products.
228. In considering causation, I must separately identify the hypothetical events in the no breach counterfactual which would result in the beneficial outcome, i.e. greater profit in each of the years 2020-23.
229. The first event is that SEL will launch new drives before October 2023. If it does not, the years 2020-23 will be like 2019. The second is that access to the v.6.13 source code in January 2016 would have led to the launch of the new drives sooner than would have been the case without access until October 2018. The third is that the earlier launch would have resulted in an increase in SEL's sales in each of the years 2020-23 due to customers' enthusiasm for the new drives. Only the third event gives rise to an issue to be assessed by reference to the loss of a chance.
230. I think that on the balance of probability the first event will occur.
231. The second event gives rise to the following issue: on the balance of probability would access to v.6.13 in January 2016 have resulted in an earlier launch of SEL's new drives, assumed to happen immediately after SEL's improvement project is finally completed?
232. The answer lies in a comparison between the no breach counterfactual and the mitigation counterfactual. As I have said, the breach of contract caused five months delay in the start of the improvement project but it does not follow that it caused the same or any delay to the conclusion of the project. That depends on a comparison between time taken on the project by Dr Fells and time taken by the notional engineer.
233. In June 2016 Dr Fells thought that SEL's improvement project, or something like it, would take about a year. It is still not complete. Dr Potamianos' criticism of Dr Fells' work included criticism of his work done on the improvement project as understood by Dr Potamianos from documents disclosed by SEL. It was put to Dr Potamianos more than once in cross-

examination that Dr Fells is a highly competent engineer but Dr Potamianos was having none of it. He explained, by reference to specific aspects of Dr Fells' work put to him, why he took his critical view. Dr Fells was not called as a witness so he was neither able to justify what he did nor to defend himself generally.

234. I doubt that Dr Fells' lacked competence to the extent suggested by Dr Potamianos. However in the end I was persuaded by Dr Potamianos that Dr Fells had made critical errors causing time to be wasted. Dr Gardiner in cross-examination did not persuade me otherwise. It is to be assumed that the notional engineer would not have made those errors. I was also persuaded that there were enough of them for me to reach the conclusion that in the no breach counterfactual Dr Fells would complete the improvement project no sooner than would the notional engineer in the mitigation counterfactual. BDL's breach of contract has not in my view caused any delay to the future launch of SEL's new drives.
235. It follows that the breach of contract has not caused any loss under this head.
236. If I am wrong about that, if in truth Dr Fells was every bit as competent as the notional engineer if not more so, it would follow that the breach of contract has caused five months delay in the launch of SEL's new drives. With that possibility in mind, I will consider the third event in the chain. It gives rise to this question: will five months delay in SEL's anticipated launch of its new drives cause SEL to lose the *chance* of increased sales and consequent profits in each or any of the years 2020-23?
237. I think that on the balance of probabilities such a delay will cause the loss of those chances and that the chances are significant. I therefore turn to quantification. SEL has advanced its case under this head on the false premise that the breach of contract put its PL/X improvement project back by three years. If that were the only issue, SEL's claim would be susceptible of a mathematical adjustment. However, its case is also based on assumptions of market growth, of truly spectacular sales growth and of profit margins which are not supported save by the assertion of Mr Prescott. I have no doubt that the values of the chances are smaller than Mr Prescott's evidence suggests but SEL has provided no basis on which I can assess their value including, as part of that assessment, the size of the chances. Just to begin with, I do not know what the accurate figures for market growth, sales growth and profit margins are.
238. A party claiming damages may put its case as high as it pleases but there is a potential trap: if the court does not accept the basis on which that case is put, there may be no evidence on which the court can realistically estimate the loss suffered, in this case taking the form of the value of chances lost. In my view, SEL has fallen into that trap.
239. There are good reasons to suppose that I should not take at face value Mr Prescott's evidence about the effect of SEL's anticipated improvements to the PL/X software on its prospective sales. Sales by SEL of PL/X products have remained consistent since 2016 despite the alleged increasing lack of

competitiveness of v.6.13 over that time. John Goodwin, sole director of a customer of SEL's, said that for a vast majority of customers the features of one manufacturer's DC drives as against those of another is not important when choosing between them because the products offered, including those of SEL, all have the required features to satisfy 90% of general applications. Differences tend to be of significance for very specialist uses only. I have no reason to doubt that evidence and I accept it.

240. As I have mentioned, the defendants are entitled to point to the contraction of the global economy following the covid-19 outbreak which may or may not have a prolonged effect on the appetite for drives on the part of SEL's customers around the world. Other imponderables are whether those customers will be enthused by the performance of the new drives when they finally have experience of them, or by the prices which SEL chooses to charge for the drives.
241. In my view it is entirely possible, in fact probable, that if all the relevant evidence were available, it would turn out that the value of the chances lost (not their size, which I have found to be significant) is negligible.
242. However, little evidence is available. I must have in mind the ruling by the House of Lords in *Jackson v Royal Bank of Scotland plc* (cited above) that the question whether any loss has been sustained may on the facts have become too speculative to permit the making of any award. I must also keep in mind that any evidential difficulties which SEL may have had do not entitle it to a free ride, see *Marathon Asset Management*, cited above. In my opinion, SEL's claim under this head is too speculative.
243. I also take the view that irrespective of the value of the chances, the claim under this head is too remote. I do not believe that when BDL entered into the 2000 Contract with SEL, BDL assumed responsibility for a decline in SEL's profits between five and eight years after a breach of contract in the form of a refusal to supply the latest version of the PL/X source code.
244. As Toulson LJ stated in *Siemens* (see above), I must consider the nature of the contract against its commercial background. Mr Spearman held that the purpose of the 2000 Agreement was to replicate an employer/employee relationship using service companies. The only mention of liability in the contract is in clauses which allocate legal risk in respect of public liability and professional indemnity to BDL and which require BDL to maintain insurance cover. In my view BDL as quasi employee would not have further assumed the risk in issue, particularly not a risk associated with hypothetical profits five to eight years after a breach of contract.
245. I make no award under this head.

*JL/X claims*

246. Heads 1(c) and 1(d)(i)-(iii) all turn on damage caused by SEL's inability to adapt its JL/X software to use in Microchip boards, as opposed to Intel boards which were more expensive and which Intel was ceasing to support. Under

Schedule 200815 to the 2000 Contract BDL was required to write software which enabled SEL to use its JL/X software on Microchip boards.

247. In its Particulars of Claim in this inquiry the only claim made by SEL in relation to JL/X software being inoperable on Microchip boards was that BDL had provided no usable object code which could be installed on the Microchip control board. The Particulars continued:

“77. Accordingly the claimant is entitled to repayment of sums paid to BDL in respect of [Schedule] 200815 ... , namely £42,000 + VAT...

78. Alternatively, the claimant is entitled to damages for BDL's failures to perform [Schedule 200815], ... which the claimant quantifies as the price agreed ... namely £42,000 +VAT ...”

248. SEL has not dropped this claim in respect of Schedule 200815; it appears as head 3 and is considered below. Heads 1(c) and 1(d)(i)-(iii) were not pleaded. No application was made to amend the Particulars of Claim. SEL acknowledged that there was a complete overlap between head 3 on the one hand and heads 1(c) and 1(d)(i)-(iii) on the other, but invited me to consider the latter first and if I were against SEL on those heads to consider head 3 instead. In the absence of any application to amend the pleading, I see no good reason to do that. Nonetheless, I will deal with heads 1(c) and (d)(i)-(iii).

Head 1(c) – Cost of fitting Intel boards to JL/X products

249. SEL's case is that lack of access to the v.6.13 source code meant that JL/X firmware could not be adapted to work using Microchip boards. SEL was obliged to buy more expensive Intel boards. The difference in cost is claimed: £4,522.
250. The unchallenged evidence of Dr Potamianos was that he had earlier built up a contingency stock of Intel boards. The boards used by SEL were part of that contingency stock, already bought and paid for before the breach. Dr Gardiner accepted in cross-examination that there was no shortage of Intel boards in 2016-18 and in fact no shortage until recently.

Head 1(d)(i) – Lost sale of JL/X drives to Fuji India

251. In June 2017 Mr Keen and Mr Levine of SEL visited Fuji India to discuss business opportunities. Mr Prescott said that at an internal SEL meeting in the same month it was agreed that SEL would not sell JL/X to Fuji for 12 months as this was a realistic time in which to recreate JL/X on a Microchip platform. In August 2017 Fuji India informed SEL of the opportunity to sell 150 JL/X drives for cranes. SEL declined the opportunity. In his evidence Mr Prescott blamed Dr Potamianos. What Mr Prescott had described as the “critical problem” in a meeting at the time, namely that the menu strings in the JL/X code required changing (which would allow the JL/X software to be used on the Microchip platform) had not been done by Dr Potamianos.

252. In February 2018 Mr Keen went to India to sign an agreement with Fuji, where he explained to Fuji that JL/X drives were not yet available. Despite this, in October 2018 Fuji said that they had another opportunity to sell at least 100 units to Tower Cranes. SEL had only just received the v.6.13 source code from BDL. Mr Prescott said that it would have been reckless not to check that the code was bug-free and so declined the opportunity.
253. SEL claims the loss of profit from the lost sales of 250 units to Fuji India caused by Dr Potamianos' failure to migrate JL/X to the Microchip board.
254. In an R&D meeting in January 2018 it was announced "JL/X strings complete". This was a reference to an amendment of the JL/X software strings so that the object code would function on Microchip boards. The problem had been solved very quickly by Dr Fells. SEL did not explain why the problem was not solved by Dr Fells sooner. Since February 2016 he had been available to carry out the task but he was not asked to do it until December 2017.
255. Mr Prescott admitted that even by the time of the trial SEL had still not exploited the opportunity to sell to Fuji India despite there having been no apparent barrier to JL/X sales since January 2018. He could not and did not suggest that SEL's current failure to sell to Fuji India is because of Dr Potamianos' breach of contract, so it is not obvious why the earlier opportunity to sell to Fuji was his fault. Mr Prescott had no convincing answer for this in cross-examination. He said that until SEL had working PL/X source code it was not possible to migrate the JL/X software to Microchip boards. It cannot have been the case that SEL required the v.6.13 source code to achieve this because the migration was achieved by Dr Fells in December 2017 to January 2018, before v.6.13 was delivered up to SEL. In a written submission after the trial, Mr Hicks argued:
- "SEL could only create code for JL/X which could be used on the Microchip platform once Dr Fells he had been able to create from the v6.11 of the PL/X code a version of code which was functionally equivalent to v6.13 of the PL/X code."
256. No reference to any evidence was given to support this and I am not aware of any apart from Mr Prescott's assertion. Mr Prescott was not a technical witness. Even if the assertion is correct, I have found that the notional engineer would have created a functional equivalent to v.6.13 in November 2016. If Dr Fells took longer, that is not something on which SEL can rely.
257. This is a claim to the loss of a chance. It is properly characterised as the loss of the chance to profit from the sale of 250 JL/X drives to Fuji India caused by BDL's failure to amend the JL/X software to make it compatible with Microchip boards. Looking at causation, the first event in the no breach counterfactual is Dr Potamianos migrating JL/X to the Microchip board by August 2017, thereby making the product available for sale to Fuji. It raises the question whether, on the balance of probability, Dr Potamianos' failure to perform this task caused that lack of availability of the product in August 2017.

258. Dr Fells could have amended the software in 2017 and enabled the sales of JL/X drives to Fuji. The loss of the chance was not caused by Dr Potamianos and thus BDL. I make no award under this head.

*Head 1(d(ii) – Other lost sales of JL/X drives 2016-2018*

259. In July 2015 Lars-Tuve Hansson, who had previously worked in the slip ring motor division of one of SEL's competitors, the Swedish-Swiss multinational ABB, suggested a market which might be met by SEL's JL/X drives, namely AC drives for shipyard cranes. In an email of 2 October 2015 SEL informed Mr Hansson that it could not proceed.
260. Mr Prescott said that although Dr Potamianos was due to migrate JL/X to the new Microchip processor by the end of 31 October 2015 under Schedule 200815, SEL knew that he had downed tools. That anticipated failure by Dr Potamianos (and through him, BDL) to comply with Schedule 200815 led SEL to step away from Mr Hansson's proposal. To save face with Mr Hansson, Mr Keen blamed environmental concerns in an email of 2 October 2015. Relying on Mr Hansson's estimate of sales, Mr Prescott calculated SEL's loss at £633,321 for the years 2016-18.
261. Mr Keen's email did indeed mention environmental concerns and also that SEL was too small to progress the JL/X project. He further said in the email that SEL had to focus its efforts on PL/X. Dr Potamianos was not consulted about Mr Hansson's proposal or told of any urgency in the work to migrate JL/X to the Microchip board. Dr Potamianos' evidence was that he was informed by Mr Lock in the second half of 2018 that SEL had decided not to proceed with Mr Hansson's proposals because of stringent environmental, hardware and testing requirements.
262. Mr Prescott was cross-examined about SEL's environmental concerns in 2015. He admitted that Mr Hansson's proposal would have required substantial hardware and certification work. He said that this did not prevent SEL from putting its foot in the market and getting going. I find that an odd answer.
263. In order for SEL to be able to respond positively in October 2015 to Mr Hansson's proposal it would have been necessary for SEL to have been in a position (a) to carry out substantial work on the hardware and (b) to obtain the necessary environmental certification. It was common ground that SEL had a small team and that its profits overwhelmingly came from PL/X products. In the years since JL/X products were first sold, the sales of those products made up 1% of SEL's total sales. I find the reasons for not going ahead with the project given by Mr Keen in his email of 2 October 2015 convincing. I think he was being truthful.
264. The first event in the no breach counterfactual is Dr Potamianos migrating JL/X to the Microchip board by 2 October 2015 or shortly thereafter. Dr Potamianos was not asked to do this. The second event is SEL then carrying out the necessary work on the hardware and doing enough other work to obtain an environmental certificate. The second event gives rise to the question whether, on the balance of probability, the work on the hardware and

on obtaining an environmental certificate would have been done by SEL in time to follow up on Mr Hansson's proposal. I find that the answer is no. Causation has not been established. I make no award under this head.

Head 1(d)(iii) – Head 1(d)(ii) projected forward to 2019-2023

265. It follows that there is no award under this head either.

Head 2(i) and (ii) – Lost of convoyed sales with PL/X and JL/X drives

266. Given my findings above, I make no award under these heads.

Head 3 – Payment to BDL for performance of work in Schedule 200815

267. BDL was paid £42,000 by SEL under Schedule 200815 for Dr Potamianos' projected work on making the JL/X software compatible with Microchip boards. The work was not done and SEL seeks recovery of the sum claimed.

268. BDL argued that there was no legally valid basis for claiming this head of damage because of the way it was pleaded and that only nominal damages should be awarded. This is water under the bridge. In his judgment Mr Spearman said:

“[310] For these reasons, I hold that BDL failed to perform Schedule No 200815 or has otherwise acted in breach of that contract as alleged in paragraphs 72 to 74 of the Particulars of Claim, and that SEL is entitled to damages for breach of contract as a result.

[311] I am not dissuaded from reaching that conclusion by a further point that was taken by BDL and Dr Potamianos, namely that SEL's pleaded case, at paragraph 78 of the Particulars of Claim, quantifies the damages claimed as the price agreed under the Schedule, whereas damages should correspond to the loss (if any) resulting from the breach. Accordingly, BDL and Dr Potamianos submitted that SEL was in breach of its duty to plead a valid basis on which damages can be quantified, as a matter of fairness to them (see *Perestrello E Companhia Limitada v United Paint Co Ltd* [1969] 1 WLR 570, at 579-580), that in these circumstances only nominal damages should be awarded to SEL for any breach, and that there was no need for any subsequent trial on quantum.

[312] In my view, SEL's pleaded claim for damages notifies BDL and Dr Potamianos of the case that they have to meet. If they wanted to argue that this case is so misconceived that it could only properly result in an award of nominal damages even if SEL succeeds on the issue of liability, I consider that they could and should have raised that argument before the Order was made on the Case Management Conference on 8 November 2017. In that way, if the argument had been accepted, the time and costs that have been expended on the trial of liability under this heading could have been saved, on the footing that, generally speaking, a claimant does not come to court to obtain an



award of only nominal damages, and it will not generally accord with the overriding objective to order a trial in which such an award is the best that the claimant can expect to achieve. Having not taken the point at that stage, I consider that, in accordance with the Order that was made by Snowden J, quantum falls to be determined at a further trial.”

269. BDL had a further argument. It was that Dr Potamianos had done useful work on migrating JL/X to the Microchip platform, work from which SEL benefitted. The correct approach to damages was to compensate SEL for the time taken by Dr Fells to complete Dr Potamianos’ work: two weeks.
270. Mr Prescott accepted that in October 2015 Dr Potamianos had provided a new version of JL/X for use on a Microchip board, but he said that it was not complete. The value of the work done by Dr Potamianos was in dispute. SEL argued that because Dr Potamianos did not complete his work on migrating JL/X, it received nothing of commercial value from him.
271. Dr Gardiner said this in his fifth witness statement, on which he was not challenged:

“50. The specific JL/X source code files developed by Aris were not left by him on SEL's server. It was not possible for Dr Fells or I to know for certain what changes Aris had made to turn code found on the server into something suitable for the JL/X until the delivery up in October 2018 in addition to changing the menus. Dr Fells had to do a significant amount of ‘up front’ work to understand what the Intel version of the code did, but once he had done this Dr Fells was able to make some educated guesses, and as it turned out he was largely right. But he could not be 100% sure he was right until he saw the code which was delivered up. Functional changes which he correctly anticipated were to 7 files and related to something called PIN 98 (the details of which are not relevant for present purposes). When he compared the JL/X code which Aris delivered up with the V6.13 files Aris delivered up, he tells me could see that there were 2 more changes made which he had not anticipated:

a) The size of "ee\_row\_buffer" variable was changed. The reason for this change is not clear and whether it has any effect is not clear.

b) Changes relating to Voltage and current scaling in the file ‘mmi.c’.”

272. I understand Dr Gardiner to be saying that Dr Fells could not satisfactorily complete the migration of JL/X to Microchip boards until the delivery up of v.6.13 in October 2018. That cannot be right. He did it, apparently without difficulty, in December 2017 to January 2018. In a “Product Roadmap” dated December 2017, a presentation prepared for a meeting at SEL, it was stated “JL/X strings – 90% complete, requires menu changes – 2 weeks.” Mr Prescott’s written evidence was that Dr Fells worked on this issue on 5 and 6 December 2017 and “provided the solution”, although the “solution” cannot

have included completion of the task because it was not finished until January 2018. The task being “90% complete” some time in December 2017 probably reflects Dr Fells’ assessment of what Dr Potamianos had already done, having looked at the problem early in that month. Dr Fells needed 2 weeks to complete the migration.

273. It seems to me that SEL’s real loss under this head was the cost of having to complete a task which Dr Potamianos had largely done. I will assume that it took the 2 weeks of Dr Fells’ time estimated in December 2017 and therefore SEL is entitled to damages equal to the cost of that time.

*Head 4(a) – Cost of work done by Dr Fells*

274. Between February 2016 and the provision of the v.6.13 source code by BDL in October 2018, Dr Fells worked on the v.6.11 source code to make improvements. SEL says that Dr Fells’ time was wasted by BDL’s failure to provide v.6.13, save for 3 months from February 2016 during which, had Dr Fells had access to v.6.13, he would have needed to familiarise himself with that version before embarking on modifications. SEL claims the cost of Dr Fells’ time from May 2016 to September 2018, being £91,564.
275. Mr Prescott accepted in cross-examination that SEL could not claim for invoices raised by Dr Fells to SEL up to September 2016 because those had been borne by Sameaim.
276. BDL argued that about a year of Dr Fells’ invoices corresponded to work that SEL would have had to pay for in any event in training a new developer, i.e. the invoices up to and including that dated 5 March 2017. BDL further argued that it was being asked to pay for Dr Fells time spent on SEL’s improvement project.
277. I have found that it would have taken a notional engineer nine months to create a functional equivalent of v.6.13 from v.6.11. SEL is in principle entitled to the cost of nine months of Dr Fells’ time in carrying out the parallel task. Dr Fells started in June 2016, so this would correspond to the months June 2016 to February 2017 inclusive. However, it is common ground that the invoices raised up to September 2016 are to be excluded. I will allow five months of Dr Fells’ charging rate under this head.

*Heads 4(b)-(d) – Cost of work by Jim Lock, Jordan Kelly and rent*

278. Dr Fells was assisted by Jim Lock and Jordan Kelly. SEL claims the cost of their wasted time together with a notional cost of rent for their laboratory. The total claimed is £21,473.
279. In cross-examination Mr Prescott accepted that Mr Lock’s time was spent testing new source code. This is consistent with time spent largely on SEL’s improvement project. Mr Kelly was a new recruit. Mr Prescott said that he worked on providing test specifications for testing code generated by Dr Fells. I will award £2,000 for Mr Lock’s and Mr Kelly’s time.

280. I can see no basis for SEL claiming damages for its rent. and I make no award in respect of rent and related expenses.

*Heads 4(e)-(i) – Cost of management time wasted*

281. It is apparent from the notes of meetings that SEL's management grappled with the lack of access to the v.6.13 source code and what to do about it. In these sub-heads of claim this has been divided into time wasted by those attending internal meetings (head 4(e)), Mr Prescott and Mr Gardiner speaking to Dr Fells at his home (4(f)), Cobra2 meetings (4(g)), meetings with Bardac (4(h)) and communicating with customers other than Bardac (4)(h)). The total claimed is £13,533.

282. Mr Prescott gave evidence about these various heads. Management time was spent and I accept that part of it will have been spent on resolving how to deal with the lack of access to the v.6.13 source code. The meetings with Dr Fells are said to have been between 2016 and 2018 and the Cobra2 meetings relied on run from February 2015 until September 2018. I see no reason for SEL to claim management time after the time at which the notional engineer would have created a functional equivalent of v.6.13 in November 2016. I will award £2,250.

283. Mr Prescott's evidence was that Mr Bardwell Jones, the owner of Bardac was told about SEL's lack of access to the v.6.13 source code. I am not clear why. However, time was spent and I will award £1,000.

284. Mr Prescott's evidence about time spent with other customers refers to Mr Lock dealing with software problems, not time discussing SEL's lack of access to the source code. Any claim would fall under one of the earlier heads, but these have been rejected for the reasons I gave.

**Conclusion**

285. SEL is entitled to the cost of two weeks of Dr Fells' charging rate under head (3), five months of Dr Fells' charging rate under head 4(a), £2,000 for Mr Lock's and Mr Kelly's time under head 4(c) and £3,250 under heads 4(e)-(g).

**Interest**

286. I will award interest on damages at 2% above base rate. I will hear counsel on whether it is appropriate to allow for changes in base rate over the relevant period by adopting a single rate which approximates the variations (as suggested by SEL) and date or dates from which interest should run.