



New South Wales Court of Appeal

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Tyco Australia Pty. Ltd. v. Optus Networks Pty. Ltd. & Ors. [2004] NSWCA 333 (20 September 2004)

Last Updated: 23 September 2004

NEW SOUTH WALES COURT OF APPEAL

CITATION: Tyco Australia Pty. Ltd. v. Optus Networks Pty. Ltd. & Ors. [\[2004\] NSWCA 333](#)

FILE NUMBER(S):

40422/02

HEARING DATE(S): 19, 20, 21, 23, 27 and 28 April 2004

JUDGMENT DATE: 20/09/2004

PARTIES:

Tyco Australia Pty. Ltd. - appellant

Optus Networks Pty. Ltd. - 1st respondent

Optus Systems Pty. Ltd. - 2nd respondent

Optus Mobile Pty. Ltd. - 3rd respondent

Optus Vision Pty. Ltd. - 4th respondent

Optus Communications Pty. Ltd. - 5th respondent

Leighton Contractors Pty. Ltd. - 6th respondent

NDY Management Pty. Ltd. t/as Norman, Disney & Young - 7th respondent

Emae Pty. Ltd. - 8th respondent

The Workcover Authority of NSW - 9th respondent

ACN 001 452 106 Pty. Ltd. (In Liq) formerly known as Metropolitan Engineering & Fabrications Pty. Ltd. - 10th respondent

JUDGMENT OF: Handley JA Giles JA Hodgson JA

LOWER COURT JURISDICTION: Supreme Court - Equity Division

LOWER COURT FILE NUMBER(S): SC 55059/97

LOWER COURT JUDICIAL OFFICER: Hunter J

COUNSEL:

Mr. N.C. Hutley SC with Mr. J.R.J. Lockhart for appellant

Mr. P.H. Greenwood SC with Mr. S.W. Climpson for respondents

SOLICITORS:

Deacons, Sydney for appellant

Minter Ellison, Sydney for 1st-5th respondent

Moray & Agnew, Sydney for 6th respondent

Colin Biggers & Paisley, Sydney for 7th respondent

Allens Arthur Robinson, Sydney for 8th respondent

Phillips Fox, Sydney for 9th respondent

Howaths Sydney Partnership, Sydney for 10 respondent

CATCHWORDS:

DAMAGES - General principles - Measure of damages - Benefits to plaintiff as a result of expenditure incurred in consequence of defendant's conduct - Whether collateral - Whether deductions from damages appropriate - Quantification of amount of such deductions - Onus and standard of proof.

LEGISLATION CITED:

DECISION:

Short Minutes to be brought in.

JUDGMENT:

IN THE SUPREME COURT

OF NEW SOUTH WALES

COURT OF APPEAL

CA 40422/02

SC 55059/97

HANDLEY JA

GILES JA

HODGSON JA

Monday 20 September 2004

TYCO AUSTRALIA PTY. LTD. V. OPTUS NETWORKS PTY. LTD & ORS.

Judgment

1 **HANDLEY JA:**

GENERAL

This appeal, which is concerned only with questions of damages, interest and costs, arises from a disaster at Optus' Data Processing Centre at Rosebery (Rosebery) in the early hours of 3 January 1997. The centre which was some 350 square metres in area (red 4/956 para 1104) contained computer equipment of vital importance to Optus housed in 180 cabinets which comprised 70 different computer systems used for 83 business applications (blue 4/1500). It was protected from the risk of fire by an Inergen fire suppression system supplied and installed by Tyco. The system when manually activated would release an inert gas.

2 The system incorporated a heat exchanger and when installed in 1994 its gas pipes should have been bone dry. Instead a substantial quantity of water was left in those pipes which caused extensive corrosion. When the system was activated on 3 January in response to a fire alarm rusty water was sprayed on the computers. This created significant risks of malfunction and breakdown which would have had serious consequences for Optus.

3 Optus brought proceedings in the Construction and Engineering list against Tyco and other defendants which generated a multiplicity of cross-claims. After a lengthy trial lasting for months Hunter J gave judgment against Tyco for damages assessed at \$27,245,890.77 plus interest and disposed of the other claims and cross-claims. Tyco has appealed on issues relating to damages and costs and Optus has cross-appealed on an issue relating to interest. No other party has appealed.

4 Immediately after the casualty Optus commenced a recovery program (the Data Centre Recovery Program: DCRP). This involved the acquisition of additional computer equipment (the pool kit equipment) which was installed in new Data Processing Centres at Castle Hill and Blacktown. Computer applications were then migrated (transferred) from contaminated equipment at Rosebery to clean equipment at one of the other centres and the contaminated equipment was released for cleaning. There were 17 cleaning cycles, one every two weeks, each of which involved 10 machines. The equipment, when cleaned, was installed at either Castle Hill or Blacktown and further computer applications were migrated from Rosebery to that equipment releasing more contaminated equipment for cleaning and so the process went on. The DCRP lasted from February 1997 until March 1998.

5 At the end of the program Optus had functioning Data Centres at Castle Hill and Blacktown, a clean but empty Data Centre at Rosebery and surplus computer equipment both contaminated and cleaned (the left over equipment). This was listed in the DCRP stock list (blue 10/3849) that was prepared in part by Mr Lister (blue 4/1494). The contaminated equipment was judged to be not worth cleaning. It was valueless and can be ignored.

6 The left over equipment was compared with the equipment acquired under the DCRP in use at Castle Hill and Blacktown and equivalent equipment was identified. Leftover equipment was considered equivalent if it was functionally equivalent and could be substituted for equipment in the pool kit (black 5/1945, 1951). The two groups of equipment were listed on an exhibit known as the Equivalence Spread Sheet (ESS). Optus spent a total of \$11,961,246 on acquiring the pool kit equipment. \$7,713,082 was spent on equipment for which there were equivalents in the left over equipment. The Judge accepted the evidence of Mr Keaveny, who was called by Optus, that the equivalent left over equipment, if bought second hand in an arms length transaction at the end of the DCRP, would have cost Optus only \$2,745,900. The Judge awarded Optus \$11,961,246 as the cost of the pool kit equipment after some modest adjustments in favour of Tyco, and deducted \$2,745,900 for the value of the equivalent left over equipment. This award has been challenged on a number of grounds. Optus was also awarded the costs of cleaning the contaminated equipment, installing acquired and cleaned equipment at Castle Hill and Blacktown, and migrating computer applications to that equipment. The awards in respect of those costs were not challenged.

7 The Judge awarded Optus the cost of cleaning Rosebery, together with the cost of converting its Blacktown property into a first class Data Centre. The award for the cost of cleaning Rosebery was not challenged but the award of \$3,295,792 for the upgrade of Blacktown was (T 23/4/04 279-80).

8 The final issue on damages concerned an alleged saving by Optus on its expenditure on a Business Recovery Program it was negotiating with Digital at the time of the casualty. This would have entitled it to the use of computer equipment in a suitable Data Centre as a backup facility in the event of a disaster at Rosebery. In July 1997 Optus gave Digital three months notice to terminate this arrangement. Tyco claimed that Optus was able to dispense with this arrangement because of its decision, flowing from the casualty, to convert Blacktown to a first class Data Centre. It claimed that Optus saved at least \$327,000 by cancelling this program and that this saving should be deducted from its damages.

POOL KIT EQUIPMENT: TYCO'S FIRST SUBMISSION

9 Tyco's first point was that the cost of \$11,961,246 incurred by Optus in acquiring the pool kit equipment was not recoverable because Optus acquired capital assets worth what it paid for them. Accordingly it was submitted Optus had

not suffered a loss and was not entitled to recover this cost as part of its damages.

10 As Tyco emphasised this money was not spent to replace chattels which had been lost or destroyed. The contaminated equipment was repaired by being cleaned. Optus lost the use of the contaminated equipment for a time but when cleaned the equipment was useable and most of it was used again. So in the result, it was submitted, Optus finished up with additional capital assets which Tyco has had to pay for under the judgment as well as the cost of cleaning the contaminated equipment, including the left over equipment.

11 The original DCRP envisaged that computer applications migrated to Castle Hill and Blacktown would be migrated back to the original equipment at Rosebery. This would have released the pool kit equipment for sale or other uses. Optus decided not to undertake this process because of the disruption, cost and risks. The Judge found that this was a reasonable decision that saved substantial migration costs. Optus therefore kept and used the pool kit equipment at Castle Hill and Blacktown but found itself with surplus leftover equipment. This was used by Optus for various purposes such as its Year 2000 (Y2K) compliance program and other testing purposes, but in the main not for purposes which Optus classified as production.

12 Tyco's primary submission was that Optus had failed to prove any loss arising from the acquisition of the pool kit equipment because it continued to use it, as well as the bulk of the original equipment, including the equivalent leftover equipment. Its alternative submission was that the only loss suffered by Optus was an acceleration cost caused by its need to purchase the pool kit equipment sooner than would otherwise have been the case.

13 These submissions depended on evidence that Optus used the leftover equipment in its business. Since Optus had additional business assets it was said that in the result this part of the award left it better off. This was said to be contrary to the principle that the purpose of an award of damages is to restore the injured party, so far as money can, to the position it was in before the wrong. Mr Hutley SC for Tyco emphasised that expenditure for the acquisition of an asset is not proof of loss where the asset did not replace one that had been lost or destroyed. It was therefore said that Optus had failed to prove any loss in respect of the cost of acquiring the pool kit equipment.

14 Mr Hutley also submitted that no issue of betterment, strictly speaking, arose where Optus finished up with additional assets, rather than with a better or newer asset to replace one that had been lost or destroyed.

15 In answer Mr Greenwood SC for Optus relied on the Judge's finding, which has not been challenged, that it was cheaper for Optus to acquire the pool kit equipment by purchase than by lease. Optus also spent \$685,436 in leasing other equipment under the DCRP and this cost was not challenged. The Judge found that the pool kit equipment was originally acquired as a temporary measure.

16 Optus quarantined the DCRP from its general business operations. When in the course of the DCRP Optus saw a need for bigger, better or more efficient equipment steps were taken to identify the extra cost which was then excluded from the DCRP and its claim against Tyco. This was documented in contemporaneous evaluation summaries.

17 The pool kit equipment was not available for general use in Optus' business until the end of the DCRP. On the most favourable view for Tyco this equipment was purchased before it was otherwise required. In these circumstances proof of purchase was evidence of loss.

18 The validity of Optus' claim to recover the cost of the pool kit equipment with an allowance for the value of the equivalent leftover equipment may be tested by comparing it with similar claims. If Optus, acting reasonably, had leased the pool kit equipment, migrated all applications back to its cleaned original equipment, and returned the leased equipment its claim to recover the leasing charges would have been unanswerable.

19 Common situations indistinguishable in principle occur when the owner of a motor vehicle or ship damaged in a collision hires another vehicle or charters another ship while his own is being repaired. Another common situation indistinguishable from the above is where the owner or lessee of premises obtains temporary accommodation while his own premises are repaired or rebuilt.

20 The position would have been the same in principle if Optus, acting reasonably, had migrated all applications back to its original equipment and sold the pool kit equipment. In such a case the claim for the cost of the pool kit equipment less its resale value would also have been unanswerable.

21 The actual claim allowed by Hunter J is indistinguishable in principle. Instead of migrating computer applications back to the original equipment and releasing the pool kit equipment Optus identified the equivalent leftover equipment that could have received such migrations. Instead of selling the equivalent leftover equipment which would not have realised its true value, Optus deducted that value from its damages claim.

22 The Judge found that the value of the leftover equivalent equipment equated in substance with the value, at the end of the DCRP, of the pool kit equipment (judgment paras 1504-5). This finding, surprising at first sight, was based on evidence from Mr Cearn of Optus, which the Judge accepted, that newer computer equipment that has been used does not have a higher value than older used equipment within the same model number (paras 1484-5, blue 2/616) and that computer equipment has an extended working life, governed not by its age but by its capacity to satisfy the demands placed on it by Optus (blue 2/615). The Judge also found that there had been some improvement in the standard of the pool kit equipment over the leftover equivalent equipment, but realistically it could not be measured (para 1469). On the evidence there was no basis for a finding of betterment. These findings were not challenged.

23 Tyco relied strongly on the evidence that Optus' business was growing rapidly during this period. Its budgeted capital expenditure for the second half of the 1996-7 financial year was \$397 million (para 1478) and during the recovery period Optus was acquiring additional computers at the rate of four a month (black 3/929).

24 The Judge said that a considerable amount of time and resources had been devoted to an attempt to link Optus' growth requirements with the acquisition of the pool kit equipment but the exercise had failed (para 1462). He found that the evidence did not justify a finding that the retained pool equipment would in any event have been acquired by Optus, having regard to its business growth, at some identifiable future time (para 1469).

25 The Optus business plans for 1996-7 were in evidence (paras 1470, 1477) and the Judge said the opportunity was there, if it was the fact, to show that the purchase of the pool kit equipment was provided for in a business plan of Optus or was later incorporated into one. This was not established (para 1470). He said that Tyco had not identified projects in those plans at the time of the casualty or later and compared the types of equipment required with the pool kit equipment acquired under the DCRP (para 1479).

26 For these reasons Tyco's first submission must be rejected.

POOL KIT EQUIPMENT: TYCO'S SECOND SUBMISSION

27 Tyco had an alternative submission based on the later use of the leftover equivalent equipment. The evidence of this use was far from complete, and Mr Hutley submitted that, as a result, inferences should be drawn against Optus. It seems that if this submission were fully accepted the damages would be reduced not by \$2,745,900 for the value of the leftover equivalent equipment, but by \$7,710,491 for the cost of acquiring pool kit equipment equivalent to that leftover equipment subject to an allowance for acceleration (para 1475 para 10.2).

28 On 18 February 1998 Mr Barents of Optus wrote to ExCEL which was supervising the DCRP in the interests of the insurer (10/3714). The letter (quoted by the Judge para 1500) explored the options for the leftover equivalent equipment and concluded:

"Optus can acquire, clean and reuse this equipment ... We need to determine the course of actions as soon as possible because there [are] a number of current projects awaiting decision on the hardware acquisition. For the projects like Y2000 the time frame for the hardware acquisition is crucial and price can change drastically." (emphasis supplied)

Mr Barents said (black 4/1397P-R) that as late as 16 February Optus had no plans for the use of the leftover equivalent equipment, and he expected it would be surplus to requirements (black 4/1360).

29 A further letter (quoted by the Judge para 1502) was written by Mr Sahgal of Optus to ExCEL on 31 March (10/3840) which stated:

"OPTUS wishes to utilise the equipment described in the enclosed schedule for the Year 2000 compliance project. This schedule contains:

- An itemised list of all the hardware requested for redeployment
- Serial number of all components
- Valuation of each item, as valued by the two vendors Australian Data Solutions and GE Capital

The equipment is a subset of the ... leftover pool equipment ... In accordance with the agreed process, I request concurrence from ExCEL on the use of this hardware. I am looking to get agreement on using this hardware by close of business on 2/4/98, so as not to impact the Year 2000 compliance project milestones." (emphasis supplied)

30 Neither Optus nor Tyco tendered the documents relating to the "current projects" referred to in the letter of 18 February 1998 or "the Year 2000 Compliance project" referred to in the letter of 31 March. If such documents were not discovered Tyco seems to have made no attempt to obtain them.

31 The schedule which accompanied the letter of 31 March (blue 10/3842-6) prepared by Mr Quodling and Mr Lister from Optus (blue 3/908) listed seven cabinets and their contents with their valuations.

32 In his March 2000 statement (3/907) Mr Quodling listed in a schedule to paragraph 10 (909-10) (the March 2000 list) the leftover equivalent equipment used by Optus by mid-1998 either for the Y2K project or for general production. Mr Quodling was not certain whether other identified items had been used for general production or merely kept in storage.

33 In his April 2001 statement (blue 3/919) Mr Quodling said that he and Mr Lister prepared the DCRP stock list (10/3849).

34 In April 2001 Mr Quodling prepared three Schedules:

A Leftover equivalent equipment cleaned and used by Optus (11/4004).

B Leftover equivalent equipment cleaned and stored but not used (11/4005).

C Leftover equipment cleaned and stored but not used (which had no equivalents in the pool kit equipment) (11/4006).

35 He said that these schedules identified the position when he left Optus in mid-1998. To his knowledge none of the equipment in Schedules B and C had been used at that time (920).

36 Mr Quodling said that when preparing his April 2001 statement he went through the DCRP stock list to check whether the March 2000 list was complete. He identified three additional items, cabinets 75, 807 and part of cabinet 8, that were used by Optus for general production. They are included in Schedule A (11/4004) and can be identified by the absence of a cross reference in the right hand column. This shows that part of cabinet 8 was incorporated into cabinet 657 (11/4004). Presumably this means that additional equipment from cabinet 8 was later incorporated in cabinet 657 because the schedule to his March 2000 statement (909) showed that two star coupler panels from cabinet 8 had already been incorporated in cabinet 657.

37 Mr Quodling also identified the items in para 10(h), (i) and (j) in the March 2000 list as having no equivalents in the pool kit equipment (921). He said that they may have been used for general production or may have remained in storage (910, para 12(b)). They are included in Schedule C (4006) and can be identified by the presence of a cross reference in the right hand column. Thus Schedule C contained at least three items that may have been used by mid-1998.

38 Schedule A comprised 19 cabinets and their contents. Four were included in the schedule to the letter of 31 March 1998 [paras 29-31]. Thus cabinet 2 type V7000 containing Vax 7830 in that 1998 schedule appears to be identical with cabinet 2 in Schedule A. Cabinets 70, 657 and 798 also to appear to be common to both schedules (herein the four cabinets). The next three items on the 31 March 1998 schedule (3845) DCRP STCA41/STCA42, DRCP TCCA22, and DCRP TCCA40 appear to be identical with the items on Schedule C identified by the initials (h), (i) and (j) in the right hand column (4006). The last item on the 31 March 1998 schedule (3846) appears to be identical with the item on Schedule B identified by the initial (k) in the second column from the right (4005). The items in the 31 March 1998 schedule included in Schedules B and C were valued by GE Capital at \$6216.

39 The disk drives (k) listed in the left hand column of the March 2000 list (909) that had either been used for general production or remained in storage (910, para 12(b)) are listed on Schedule B opposite the initial (k) in the second column from the right. Thus Schedule B contained at least one item that may have been used by mid-1998.

40 Mr Quodling also said that "key components" of items (b), (d), (f), (m) and (r) in the March 2000 list were removed as they were required for other configurations (910). There was no evidence of their value. Paragraph 12(b) of his 2000 statement is ambiguous. It is not clear whether the uses referred to of items (b), (d), (f), (m) and (r) involved the "key components", or "the remainder of each cabinet" or both or whether the "key components" and "the other configurations" were used for production and the remainder of the cabinets for the Y2K project and "general" production. These ambiguities were not resolved at the trial.

41 At the trial Optus was required to produce its records relating to the use of the left over equipment after the end of the DCRP. On 22 April 2001 its solicitors sent the solicitors for Tyco a document described as the Recent Use Schedule (the R U Schedule) (11/4007). Counsel for Optus described this in Court as follows:

"That document essentially identifies the current status of each of the relevant cabinets. It does not provide a history of what has happened to these cabinets from March 1998 to date. The reason for that is that the database that is maintained does not show a history of what has happened to these cabinets. The best that can be done from the database, I am instructed, is to draw a picture of what has happened over the last nine months, but beyond that, I am instructed, the exercise of trying to piece together what has happened to these [cabinets] over a longer period of time is a massive job and would involve the necessity of interviewing staff and is not an exercise that is able to be satisfied by the production of documents." (T 23/4/01, 2221-2)

42 The evidence does not disclose who prepared this Schedule. It was not prepared by Mr Quodling (black 3/1130). Mr Barents disclaimed any first hand knowledge of the subject matter (black 4/1385-7, 1389, 1391, 1394, 1398, 1400, 1401, 1404).

43 A comparison of the R U Schedule with the March 2000 list (3/909) and Schedules A, B and C of April 2001 (11/4004-6) shows the following similarities and differences working down the R U Schedule:

(a) Cabinet CAB 001 (left hand column R U Schedule) corresponded to cabinet 1 (left hand column) in the March 2000 list but was not in Schedule A.

(b) Cabinet CAB 002 (R U Schedule) corresponded to cabinet 2 (March 2000 list) (see in node column CV 0020) and was the top item in Schedule B.

(c) Cabinet CAB 045 (R U Schedule) was not included in the March 2000 list but was in Schedule A as cabinet 75 (left hand column).

(d) Cabinet CAB 061 (R U Schedule) was not included in the March 2000 list or in Schedules A, B or C.

(e) Cabinet CAB C070 (R U Schedule) was included as cabinet 70 in the March 2000 list but not in Schedules A, B or C.

(f) Cabinet CAB C073 (R U Schedule) was not included in the March 2000 list or in Schedules A, B or C.

(g) Cabinet CAB C526 (R U Schedule) was included as cabinet 526 in the March 2000 list but not in Schedules A, B or C.

(h) Cabinet CAB C657 (R U Schedule) was included as cabinet 657 in the March 2000 list and in Schedule A as cabinets 8 and 657 (left hand column).

(i) Cabinet CAB 797 (R U Schedule) was included as cabinet 797 in the March 2000 list but not in Schedules A, B or C.

(j) Cabinet CAB 798 (R U Schedule) was included as cabinet 2 (CV 0020) in the March 2000 list but not in Schedules A, B or C.

(k) Cabinet CAB 807 (R U Schedule) (storage SW 800) was not included in the March 2000 list but was in Schedule A as cabinet 530 (left hand column) shown as type SW 800 in the next column being used with cabinet 75 in the same schedule.

(l) Cabinet CAB 809 (R U Schedule) was not included in the March 2000 list or in Schedules A, B or C.

(m) Cabinet CAB 812 (R U Schedule) was included as cabinet 14 in the March 2000 list but was not in Schedules A, B or C.

(n) Cabinet CAB 813 (R U Schedule) was included as cabinet 155 in the March 2000 list but was not in Schedules A, B or C.

44 The schedule to the March 1998 letter [paras 29-31] listed the four cabinets [para 38] and the March 2000 list showed that they had been used on the Y2K project or, in the case of cabinet 798, either for that project or for general production [para 32]. The four cabinets were also in Schedule A [para 38]. Part of cabinet 8 was also incorporated into cabinet 657 [para 36]. The R U Schedule (11/4008) included the four cabinets.

45 The nature and extent of the use of the four cabinets recorded in the R U Schedule and the identity of the equivalents in the ESS (10/3781) were:

Schedule A	R U Schedule	Description	Status	ESS
Cabinet 2	CAB 002 (node CV 0020)	Systems (4)	3 decommissioned 1 testing (provider)	Cabinet 18
Cabinet 70	CAB070 (node CV 0020)	Systems (2)	Production, test (mobile billing and deployment, mobile reporting environment)	Cabinet 34
Cabinet 657	CAB657 (nodes CA0310, CA4740, Part CV0120, CV0170, Cabinet 8 CV0020, CV0700)	Star couplers (25)	Production (various)	Cabinet 657 is shown as part of the DCRP pool kit (10/3782)
[para 36]				
Cabinet 798	CAB798 (node CV 0020)	Storage (4)	3 decommissioned 1 testing (provider)	Cabinets 801, 695

Mr Barents was not able to answer questions about the later use of Cabinets 2 and 70 from his own knowledge (black 4/1398, 1399, 1404).

46 Cabinet 657 was shown in the ESS (10/3782) and on one page of the Cabinet Breakdown List (10/3786) as purchased under the DCRP as a star coupler cabinet. This appears to be inconsistent with the DCRP stock list (10/3802) which shows that this cabinet was cleaned, and Schedule A which includes this cabinet (11/4004). The reference in Schedule A to cabinet 657 has a cross reference (e) in the right hand column to the March 2000 list (3/909) so it is possible that Schedule A was only intended to include the star coupler panels shown in that list. Another page of the Cabinet Breakdown List (10/3788) shows that leftover cabinets 21, 25, 61 and 460 had been consolidated and given "new cabinet number" 657 so there is an apparent inconsistency between the ESS and p 3786 of the Cabinet Breakdown List on the one hand and p 3788 of the Cabinet Breakdown List, p 3802 of the DCRP stock list, Schedule A and the R U Schedule on the other.

47 The Court asked the parties by memorandum dated 22 June whether the apparent inconsistencies referred to above were resolved by other evidence. Counsel for Optus provided a detailed response which established that in some places a reference to cabinet 657 is a reference to the cabinet alone, and in others it is a reference to the equipment housed in it.

48 Cabinet 657 was purchased empty under the DCRP for \$13,639, with empty cabinets 21, 25, 61 and 460 its leftover equivalents. Star couplers that had formerly been housed in cabinets 8, 21, 25, 61 and 460 were rehoused in cabinet 657. These star couplers were cleaned and leftover until incorporated in cabinet 657 and used in this cabinet for the Y2K project.

49 Accordingly the new cabinet must be ignored for present purposes, but the star couplers purchased under the DCRP which were equivalent to the star couplers in cabinets 8, 21, 25, 61 and 460 later used in cabinet 657 remain relevant. Subsequent references to the four cabinets are to be understood as a reference, in relation to cabinet 657, to the leftover star couplers incorporated in it and not to cabinet 657 itself.

50 It is not easy to evaluate all this evidence. Cabinet 2 contained four systems, but three had been decommissioned and one was used for testing. How significant was the latter? What percentage of its capacity was being used or was on back up? Although the word "decommissioned" would suggest that the cabinet had been stripped of some or all of its working parts, its meaning in this context is that some application for which it had been used had been withdrawn. If an application was shown on the R U Schedule the equipment had been used for that purpose. (Transcript 23/4/01 2222-3 attached to Tyco's four-page submission on appeal headed "Issues as to onus, the continuing use of leftover equipment and acceleration were raised below"). Optus operated its computer systems below 100% of their capacity (Cearns blue 2/766C-E), and planned that its capacity utilisation should not exceed 80% (766-7).

51 The ESS disclosed (second column from right) the use then being made of the DCRP equipment in the pool kit but it is not possible from this document to compare the former uses of the leftover equipment with the current use of their equivalents. The Court was not referred to any evidence where this exercise was undertaken.

52 The position in relation to the four cabinets therefore is that on 31 March 1998 Optus wanted to use them for its Y2K project. The March 2000 list and Schedule A disclose that they had been used for that project before June 1998. Mr Quodling said that equipment committed to the Y2K project was used "extensively" (black 3/1121D), until the end of that project (1121Q), not necessarily on a day to day basis (1120Y). The project concluded in March 2000 but the four cabinets were still being used in the period covered by the R U Schedule. There is no evidence that they were used during the gap and there is only limited evidence of the extent of their use during the period covered by the R U Schedule. On the other hand there is no evidence that they had not been substantially used during the gap and in the period covered by the R U Schedule. Mr Quodling had no knowledge of the use of any of these cabinets after the end of the Y2K project (black 3/1130, 1130-1).

53 The Judge said that just because the leftover equipment was used it did not follow that the equivalent equipment would have been acquired in any event (para 1479). This must be correct because that inference must depend on the nature and extent of that use. Minor and desultory use would not be enough. The Judge said that the decision not to re-migrate computer applications to the leftover equipment did not indicate that the pool kit equipment would have been acquired in any event (para 1513(c)). This is also correct. The decision to avoid the costs and risks of re-migration was eminently reasonable and cannot directly support that inference. Again this must depend on the nature and extent of the use of the leftover equipment.

54 His Honour also said (para 1516) that: "it would be unsafe ... to infer from the Optus use of some left-over equipment for its Y2K testing that the equipment was required for that purpose and that the equivalent pool kit would have been required by Optus by mid-1998, as suggested on behalf of Tyco". Again everything must depend on the nature and extent of that use.

55 The Judge said that the ESS showed a rough approximation between the pool kit equipment and its left over equivalents (para 1469), but added that: "the evidence does not justify a finding that the retained pool equipment would have been ... acquired by Optus, having regard to its business growth, at some identifiable future time" (emphasis supplied). It is not clear that Tyco ever attempted to establish that, as at January 1997, particular items of pool kit equipment would have been acquired by Optus at some identifiable time. His Honour referred to this topic again in para 1510 but the submissions quoted from Tyco's final address refer to an acceleration cost "calculated on the assumption that, in the absence of the incident, the plaintiffs would have purchased the equipment by 30 June 1998". This was said by Tyco to be appropriate because use of equivalent leftover equipment for Y2K testing had begun by that time (para 1510(e)).

56 His Honour rejected Tyco's acceleration case. In para 1513(a) he said that: "there is no evidence to justify a finding ... that any of the items of equipment in the [ESS] would have been acquired by Optus as part of its business plan at any identifiable point in the future" (emphasis supplied). However Tyco's argument was that the pool kit equipment would have been acquired to meet the needs that were satisfied by the equivalent leftover equipment. Any finding as to what would have happened but for the casualty involved hypothetical past events and the Court can do no more than assess the degree of probability that these would have occurred. See *Malec v J C Hutton Pty Ltd* (1990) 169 CLR 638, 639-40, 643. Tyco had no need to establish that as at January 1997 any item of pool kit equipment would have been acquired at "an identifiable time" or as part of an Optus business plan.

57 The Judge's repeated statements that Tyco had some onus to establish an acquisition at an identifiable time involved error. Tyco's selection of 30 June 1998 as the basis of its calculation of the acceleration cost was merely indicative, and did not require it to prove that purchases would necessarily have occurred by that date or even that there was a good chance of this. Moreover there was evidence, referred to by the Judge [paras 28-9], but apparently overlooked on this issue, that in March 1998 Optus had a definite and immediate need for additional equipment for its Y2K program which would have to be met by acquisitions if it could not use leftover equipment.

58 The judge said (para 1518) that the contents of the R U Schedule did not materially assist Tyco's case that any of the pool kit equipment would have been acquired by Optus as part of its business growth plan but gave no reasons. Evidence of use during the nine months up to April 2001, by itself, would have established little. It does not follow that this use, linked with earlier use, does not support Tyco's case.

59 His Honour said (para 1518) that if anything was to be drawn from the use by Optus of leftover equipment it had to be extracted from the ESS (10/3781). This showed the applications for which the pool kit equipment was being used but contained no information about the earlier or later uses of the leftover equipment. I fail to see how the ESS can assist either party on the subsequent use issue. The information in the ESS would have been the same even if the leftover equipment had never been used.

60 His Honour continued (para 1518) and said that the usage of leftover equipment in the R U Schedule which had no pool kit equipment equivalents "does little to assist me in reaching a conclusion that Optus would have required its pool kit equipment, independently of the casualty by mid-1998". The suggested date cannot be fatal as I have already

observed. However what is far more important is that all the equipment in Schedule A and the R U Schedule is included in the ESS.

61 Reference has already been made [para 26] to the fact that Optus' business plans for 1996-7 were in evidence and that Tyco did not attempt to establish that any of the pool kit equipment would have been acquired under those plans.

62 The Optus business plans for 1997-8 and 1998-9 were not in evidence but correspondence [paras 28-9] in February and March 1998 showed that Optus then had projects which called for the acquisition of additional computer hardware. The documents evidencing those projects were not tendered. Mr Barents said that business plans were prepared by the "business owners" and submitted to a review board. He was not involved in this process (black 4/1395).

63 This correspondence established that Optus thought these needs could be met by using leftover equipment. Both parties elected to leave the matter there and each now asserts that the other had the evidentiary onus of taking the matter further and should suffer the adverse inference.

64 In my judgment this correspondence established prima facie that the equipment there identified or something like it would have been acquired by Optus in any event. Optus did purchase a number of small systems for its Y2K project as well (Lister black 5/1970). It does not matter for present purposes whether or not the Y2K project was already part of its business plans.

65 The Judge said that the leftover equipment was used "as a matter of convenience and not of necessity" (para 1514). There was no direct oral evidence of this, but Optus relied heavily on the evidence of Mr Barents that he expected that this equipment would be surplus to Optus' requirements (blue 3/1185-9, black 4/1360). However Mr Barents said that one of the options facing Optus at the end of the DCRP was to "clean and reuse the kit on other projects" (3/1186). This in some measure was done, and the Court's task is to evaluate the significance of what was done.

66 Equipment described as used for "production" was used by Optus in its revenue generating operations. Equipment used for test and development programs was generally small in comparison with equipment used for production (blue 2/606). However Mr Cearn said (blue 2/606) that test and development kit was important to Optus and it could not have abandoned these programs without serious impact on its business (blue 2/763). It would lose substantial revenue if it was unable to keep pace with the rapidly growing and demanding market place. Mr Lister said (black 5/1969) that developers and testers require access to their systems without significant interruptions.

67 His Honour referred (para 1515) to evidence from Mr Cearn (blue 2/759) that "by and large" Optus needed, for its Y2K purposes, a machine of the same functionality, but not necessarily the same power or performance, as its production machines. He said in a passage quoted by the Judge:

"You could do it on a smaller box as long as it ran the same operating system and the same microcode, of course, as the production box."

68 Mr Cearn said that, subject to technical issues, Optus would not necessarily have needed an alpha server 8000 series to do Y2K project [work] in relation to applications that use an 8000 machine (red page 1161E-G emphasis supplied). This answer does not greatly assist Optus because its evidence did not deal with the requirements of its Y2K program as a whole. Although one could use a machine of lesser power to test a more powerful machine, to complete the entire program in time may have required more such machines or more powerful machines. A contemporary document referred to "the timing constraints imposed by the Year 2000 Compliance Project" (10/3711-13). The equipment committed to this project was used "extensively" until the end of February 2000 (T 21/4/04 p 166) and was available for use at all times if required (Quodling 3/1121 and para 48). Mr Quodling did not suggest that there was substantial unused capacity.

69 Mr Cearn's answer also left open the possibility that if Optus had not used leftover equipment it would have acquired machines with more capacity than was needed for the Y2K project because it could use them later for production. This may have been cheaper in the long run. The documents relating to the Y2K project referred to in the correspondence of February and March 1998 may have clarified this.

70 At the time of the casualty there were a substantial number of cabinets at Rosebery with limited computing capacity that were being used for testing, development and pre-production purposes which were not suitable for production (blue 2/759-60, 762-3, statement of Mr Cearn of 8 February 2001). This evidence identified by way of example 15 cabinets in use for non-production purposes. There was no evidence that identified all cabinets then used for such purposes.

71 Mr Cearn gave the computing, memory, and disc capacities of the cabinets he mentioned which were being used for non-production purposes and compared them with corresponding cabinets then being used for production to establish that the former were not suitable for such use.

72 For example Mr Cearns said (blue 2/759-60):

"(a) STCV19 (cabinet 43) and STCV34 (cabinet 177) were test/development and pre-production systems with combined relative computing capacity of 1292, 1280Mb of memory and 92Gb disc. The production environment ran on four computer systems STCV18 (cabinet 74), STCV20 (cabinet 72), STCV48 (cabinet 2) and STCA35 (cabinet 139) with a total relative computing capacity of 5636, 7168Mb of memory and 812Gb of disc".

73 He also gave detailed evidence about the importance for Optus of the availability of equipment for non-production purposes (2/762-3):

"(a) ... cabinet C176 was a training system for the GSMIS application ... This cabinet could not be released without impacting GSMIS application enhancement release schedules. Cabinet 177 was a GSMIS application pre-production system which could not be released without impact to GSMIS release schedules.

(b) Cabinet 34 (STCA32) was a test and development system for six fixed and mobile applications. This system was also used by Optus Vision for test and development of enhancements to Optus' Integrated Fault Management System ... Cabinet 175 (STCA15) was in use as a development computer for the customer facing portion of the Optus GSMIS system. Both these systems could not be released for periods of 7-12 months without significantly impacting Optus' ability to remain competitive in the market place".

74 The Court may infer that he could have given similar evidence about the capacity of the four cabinets and their uses at the time of the casualty and since. This may have established that the three shown in the R U Schedule as used for testing purposes were substantially underused and thus used only as a matter of convenience. However it may have established the existence of needs that would otherwise have been met by the purchase of additional cabinets with less capacity or perhaps that they were being used within the period covered by the R U Schedule to their normal working capacity. Mr Lister had no first hand knowledge of the extent of use of any of the cabinets in relation to their capacity (black 5/1953P-R). He assumed that this was known to Mr Sahgal (black 5/1976B-C).

75 The point was crystallised during the hearing by the following exchange (T 23/4/04 p 236):

"GILES JA: Can I just try and bring this to a concrete illustration. If one takes cabinet one on this list used for non-production according to the recent use schedule, is your point that cabinet one may well have had a capacity of 200 gigabytes --

GREENWOOD: Yes.

GILES JA: -- but the non-production use might have been something quite capable of being met by a computer with two gigabytes and therefore --

GREENWOOD: Illustrates it was surplus to needs. It wasn't going to be bought new in any event.

GILES JA: We don't know of course."

76 The trial Judge referred, by way of comparison, to what happened in the Tandem recovery program (para 1516). The Tandem room of about 50 square metres (red 5/956) adjoined the Centre at Rosebery and contained a Tandem mainframe computer and associated hardware used for EFTPOS transactions which was also contaminated.

77 The principal evidence about this Tandem system was given by Ms Gunasekera (blue 4/1256 & foll). Optus decided, on the recommendation of the manufacturer, to have it replaced rather than cleaned, but the EFTPOS network access controllers were cleaned and not replaced (blue 4/1261). The options were explored and the Judge's award for the cost of re-establishing the Tandem system was not challenged.

78 Ms Gunasekera gave evidence about the Y2K testing program for the Tandem system. She submitted a paper dated 9 April 1998 [exhibit 2.085] on this subject [black 5/1789 & foll] which was acted on. The program involved the cleaning and reconfiguration of a contaminated Tandem K10006 computer for use in that project. This was cheaper than acquiring a new K1002 unit (4/1271).

79 The Y2K project for the Tandem system lasted six months and finished in December 1998 (black 5/1795). Optus had not used the cleaned K10006 equipment for any other purpose before Ms Gunasekera left the company in September 1999 (blue 4/1271). Her then superior, Mr Harrison, had been transferred to other duties within Optus late in 1998 (black 5/1771) and ceased to be involved with the Tandem system. The evidence did not reveal what, if any, use was made of

this equipment after September 1999.

80 The use of this leftover unit for a specific and limited purpose for only six months between April 1998 and September 1999, in the absence of other evidence, does not support an inference that an equivalent unit would have been acquired by Optus in any event. The evidence of both Mr Harrison (4/1255) and Ms Gunasekera (4/1273-4) was that if the incident had not occurred Optus would have acquired a used K1000 system for the Tandem Y2K project at substantially the same cost (1274) so there was no saving.

81 Ms Gunasekera said that equipment for use in the Y2K program did not have to be as powerful as the equipment used for production purposes (black 5/1794). However her evidence and that of Mr Harrison made it clear that but for the casualty Optus would have acquired equipment for its Tandem Y2K program.

82 The position in relation to the Tandem equipment was not left to inference. Optus called its two most relevant executives and tendered the contemporary reports and submissions of Ms Gunasekera. It established that the leftover Tandem equipment was used for Y2K testing as a matter of convenience. The direct evidence relating to this Y2K project provides no basis for drawing inferences favourable to Optus in relation to other Y2K projects where Optus did not call direct evidence.

83 Indeed the opposite is the case. Optus called the witnesses who made the decisions about the Tandem Y2K program to prove what it would have done if leftover equipment had not been available. The Court should infer that comparable evidence was available to Optus in relation to its other Y2K programs. However no one was called by Optus to say how, but for the availability of leftover equipment, it would have met the needs for computer capacity for which leftover equipment was used. Its failure to call that evidence supports a *Jones v Dunkel* inference that it would not have assisted its case.

84 His Honour said (para 1462) that "the evidence did not disclose that the business requirements of Optus, in any particular way, called for the acquisition of the equipment in the pool" other than for the DCRP. This is correct but the issue is whether the evidence disclosed that, after the DCRP, the business requirements of Optus would have called for the acquisition of pool kit equipment with equivalents in the leftover equipment. The letters of February and March 1998 disclosed that the business requirements of Optus "called for" the acquisition of the four cabinets [paras 28-9] and his Honour appears to have overlooked this.

85 The facts relating to Optus' Y2K projects and its other equipment needs were peculiarly within its knowledge. In *Blatch v Archer* (1774) 1 Cowp 63, 65 [98 ER 969] Lord Mansfield said that "all evidence is to be weighed according to the proof which it was in the power of one side to have produced, and in the power of the other to have contradicted". If Optus wished to establish that the items of leftover equipment used for that project or other purposes were used only "as a matter of convenience" it should have called that evidence.

86 The Judge said (para 1476) that it was not put to any Optus witness that any particular computer acquired under the DCRP would have been acquired by Optus in any event. Apart from Mr Harrison and Ms Gunasekera Optus did not call the persons, referred to as the "business owners" or the resource management group, who were directly involved in such decisions. See Cearn's (black 1/142, 148), Barents (black 4/1288, 1394-5) and Lister (black 5/1975-7). Other persons responsible during this period for decisions or recommendations for the acquisition of additional computer equipment included Steve Symms, Rahul Sahgal and Giro Villano (blue 2/765Q-X, 772O-R). Mr Barents said that he was the risk manager of Optus, responsible for assessing the risks it faced, and developing the programs and policies to manage or eliminate those risks. He was also responsible for the administration of claims by and against the organisation. He reported to the finance director (black 4/1288-9).

87 Mr Barents said that Mr Sahgal was the configuration controller for the DCRP project responsible for the migration of applications and the acquisition of hardware for both that project and also generally for the resource management group (black 1/133-4). Mr Lister said that Rahul Sahgal had the ultimate say in what was purchased and what was not (black 5/1966-7, 1970O-R, 1976). It was his function to inform himself of the state of utilisation of cabinets in the data centre (5/1976). Mr Cearn's said that Mr Sahgal's role was to identify the need and the resource management group translated that into the computer power required (black 1/153, blue 2/675). Mr Cearn's said on 8/3/01 (black 1/134) that to his knowledge Mr Sahgal was then in England somewhere. He did not elaborate and the Court does not know whether he was there temporarily for Optus or on holidays, or had left Optus and was working for another employer. In a case involving a claim of this size it cannot reasonably be thought that this evidence explains why Mr Sahgal was not called by Optus. There seems to be no evidence about the availability of Mr Symms and Mr Villano.

88 The relevant documents may have been discovered but there is no evidence of this and the Court cannot infer that they were. Counsel for Tyco and other defendants may have had no material dealing with the present issue with which to cross-examine the witnesses who were called. In any event Tyco sought to make a case based on circumstantial evidence.

89 The determination of what computer equipment (if any) would have been acquired by Optus, if the casualty had not occurred, involved an inquiry into hypothetical past events. The Court can consider the probabilities before the casualty, and any plans Optus had for the acquisition of additional computer equipment. However the inquiry is not restricted to facts in existence at the date of the casualty. The Court can also look at subsequent events such as the use of leftover equipment. Indeed as Latham CJ said in *Willis v The Commonwealth* (1946) [73 CLR 105](#), 109: "where actual facts are known, speculation as to the probability of those facts occurring is surely an unnecessary second-best". See also per Dixon J at 116. This question had been considered in *In Re Bradberry* [1943] Ch 35 where Uthwatt J said at 45:

"A principle is to be drawn from these authorities ... that where facts are available they are to be preferred to prophecies."

90 Thus evidence of the subsequent use of leftover equipment was capable of identifying the kinds of equipment Optus would have acquired in any event.

91 There are gaps and uncertainties in the evidence about the duration, extent and significance of such use [paras 45-52]. In these circumstances the Court should apply the presumptions of retrospective and prospective continuance (*Cloverdell Lumber Co Pty Ltd v Abbott* (1924) [34 CLR 122](#), 237-8; [Evidence Act 1995 s 9\(2\)\(b\)](#)) to fill the time gap in the evidence about the use of the four cabinets [para 52]. The Court should infer that they were in more or less regular use from April 1998 until the trial.

92 Optus produced the Cabinet Breakdown List (10/3784 & foll). This included a list of the cabinets cleaned and moved, and a list of the cabinets purchased under the DCRP. It also included a list (3787) of 6 "end of life cabinets", and of 14 "life cycle replacement cabinets" (3788). The latter were cabinets acquired under the life cycle replacement program (blue 4/1496). It appears the former were scrapped but the latter were consolidated into 7 cabinets. Optus did not have a formal replacement strategy or upgrade cycle (Cearns blue 2/615, black 1/205).

93 The Cabinet Breakdown List contained a list headed "Consolidation of cabinets" of 22 cabinets which were consolidated into 17 (10/3788-9). This showed that former cabinets 21, 25, 61 and 460 had been incorporated into cabinet 657, one of the four cabinets. Cabinet 21 was later included, as to half, in Schedule B (11/4005), suggesting that only half of its contents were incorporated in Cabinet 657. On the other hand the Cabinet Breakdown List (10/3788) suggests that the whole of cabinet 21 had been consolidated into Cabinet 657.

94 Mr Sahgal's letter of 31 March 1998 to ExCEL [para 29] attached a document headed "DCRP Pool Kit Process" (10/3841). This was a later version of a document approved by Mr Barents the same day (10/3838). The former relevantly stated:

"Purpose

The purpose of this document is to define a process that will allow the leftover pool of equipment from the DCRP project to be utilised by current Optus projects. This needs to be done in a manner that does not compromise the insurance claim/legal proceedings ... The intention is also to ensure that any kit redeployed can be effectively tracked in the future.

Process for utilising already cleaned kit

1 ...

2 Ensure all pool kit is clearly identified by serial numbers at PCB level and location. This has been ensured by the issuing of a specific change request asking data centre to record these serial numbers.

3 Identify what cleaned gear from the pool is required for a specific Optus project. Make a list of this with dollar values ... and submit to ExCEL (copies to Peter Cearns, Greg Sarich, Peter Berents). Await concurrence from ExCEL. **Tim Cousins** to keep Cunningham's and Minter Ellison updated on concurrences and progress.

4 Upon receiving concurrence issue a change request for having the gear reconfigured according to the required configuration. At all stages of use of the equipment by Optus to ensure strict records are kept of any PCB or other equipment changes that occur after the initial acceptance by Optus of the DCRP equipment. Digital to ensure that the current monthly auditing of equipment includes the DCRP equipment for this redeployed process and that their report has a separate and specific category for easy identification and external auditing.

5 Ask operations financial controller to make a note of the fact that this kit has been utilised and to make some provision for it in the project financials."

95 If this process had been followed the resulting records would have established exactly what use was made of each item of leftover equipment between that date and the trial. The statement by counsel for Optus about the R U Schedule [para 41] establishes that this process was not followed at all or not for very long.

96 A court assessing damages is entitled to draw inferences against a party "whose actions have made an accurate determination ... problematic": see *L J P Investments Pty Ltd v Howard Chia Investments Pty Ltd* (1990) 24 NSWLR 499, 508 and *Houghton v Immer (No 155) Pty Ltd* (1997) 44 NSWLR 46, 59; *Murphy v Overton Investments Pty Ltd* (2004) 78 ALJR 324, 337. In those cases the principle was invoked in favour of the plaintiff against the wrongdoer, and the High Court applied the principle where the defendant's wrong itself had made quantification difficult. In my judgment the principle also applies to a plaintiff with the onus of proof whose acts and omissions have made an accurate determination problematic.

97 Accordingly the gaps and uncertainties in the evidence about the extent and significance of the use of the four cabinets during the period covered by the R U Schedule should be resolved against Optus. The facts were peculiarly within its knowledge, and Tyco tendered the only records Optus produced. Optus did not call the person or persons who produced the schedule and there was nothing more that Tyco could do. In these circumstances the Court should find that Optus would have purchased the equivalents of the four cabinets in any event.

98 The March 2000 list (3/909-10) contained another 10 cabinets which were not in the schedule to the letter of 31 March 1998 (cabinets 1, 14, 160, 154, 73, 155, 158, 526, 531 and 797). These were shown (910) as having been used for the Y2K project or general production. All 10 were in Schedule A and six, cabinets 1, 14, 73, 155, 526 and 797 (the six cabinets), were in the R U Schedule.

99 The evidence in relation to the first five was that by mid-1998 they had been used for the Y2K project and a fair reading of Mr Quodling's evidence in relation to cabinet 797 was that it had been used either for that project or general production. The R U Schedule showed that five of the six had been used during the relevant period and gave some information about that use. There was no evidence that they had not been used more or less regularly during the gap.

100 The nature and extent of the use of the six cabinets recorded in the R U Schedule and the identity of its equivalents in the ESS were:

Schedule A	R U Schedule	Description	Status	ESS
Cabinet 1	CAB001	System	4 production "test" (various) (6 entries) 2 decommissioned	Cabinets 18, 20, 34, 38
Cabinet 14	CAB812 (see Schedule A third column on right against Cabinet 14)	Storage	3 production "test" (6 entries) (mobile billing and deployment system and various) 3 decommissioned	Cabinets 695, 800
Cabinet 73	CAB073	System	3 decommissioned (4 entries) 1 development "test" (mobile billing and deployment system)	Cabinet 48
Cabinet 155	CAB813 (see Schedule A third column on right against Cabinet 155)	Storage	4 production "test" (6 entries) (mobile billing and deployment system, integrated fault management system and various) 2 decommissioned	Cabinets 695, 801
Cabinet 526	CAB 526	Systems and storage	1 testing (3 entries) 1 production "test" (customer onboarding tool, and porting management system)	Cabinets 32, 104, 108

1 decommissioned

Cabinet CAB797 797	(blank)	(blank)	Cabinets 802, 803
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Mr Barents was not able to answer questions about the later use of Cabinets 1 and 73 from his own knowledge (black 4/1397, 1399, 1404).

101 Again it is difficult for this Court to evaluate all this evidence. Where a cabinet has been partly decommissioned the Court cannot assess the significance of the applications being used and those that had been decommissioned. The Court does not know what percentage of a cabinet's capacity was being used or was on back up [compare para 50].

102 Finally there is cabinet 797 included in the R U Schedule without other information. Should it have been excluded? Or was other information omitted in error? It seems that Optus did nothing to correct or complete the schedule and Tyco did not seek clarification. This cabinet was described as storage works in the March 2000 list, and in Schedule A.

103 There is no evidence in relation to the six cabinets, similar to that relating to the four cabinets, that the later uses were foreseen in March 1998. However the Court can prefer facts to the absence of prophecies.

104 The earlier reasoning leading to my finding in favour of Tyco in relation to the four cabinets applies equally to the six cabinets. The same reasoning also supports an inference that cabinet 797 was in more or less regular use during the period covered by the R U Schedule.

105 In these circumstances the Court should find that Optus would have purchased the equivalents of the six cabinets in any event.

106 Cabinet 75 and 807 (the two cabinets) were also in Schedule A and the R U Schedule. In 2001 Mr Quodling identified them as incorrectly omitted from the March 2000 list. They had been used by Optus for general production [para 36].

107 The nature and extent of their use recorded in the R U Schedule and the identity of the equivalents in the ESS were:

Schedule A	R U Schedule	Description	Status	ESS
Cabinet 75	CAB045 (CV0450) (see Schedule A third column on right against Cabinet 75)	System	Production (mobile billing and deployment system)	Cabinet 20
Cabinet 530	CAB807	Storage SW800	(blank)	Cabinet 802

(Cabinet 807, third column from right, said in fourth column from right to be used with BV0750, which the schedule said was Cabinet 75 formerly BV0750 which had become CV0450)

Mr Barents was not able to answer questions about the later use of Cabinet 75 from his own knowledge (black 4/1397, 1399, 1404).

108 Those cabinets were used for production prior to June 1998 and, as before, an inference should be drawn that this continued during the period covered by the R U Schedule.

109 The earlier reasoning leading to my finding in favour of Tyco in relation to the four cabinets applies equally to the two cabinets. In these circumstances the Court should find that Optus would have purchased the equivalents of the two cabinets in any event.

110 The remaining cabinets, 61, 154, 524, 809 and 8111, in the R U Schedule were not in Schedule A and there is no evidence that they were used by Optus prior to the nine month period covered by the former schedule. Cabinet 154 was used for a test and development system at the time of the casualty and it was described by Mr Cearns in his statement of

8 February 2001 (blue 2/760). The four cabinets, the six cabinets and the two cabinets were not mentioned in that statement.

111 Since those other cabinets had been used between April and June 1998 and presumptively thereafter, and these cabinets had not been used during that period, the presumption of retrospective continuance is not available in relation to these cabinets. There is no evidence that they had been used by Optus before the period covered by the R U Schedule. In these circumstances the inference is fairly open that this equipment was used during that period only as a matter of convenience. There is no reason to think that Tyco should receive any further credit for its value in addition to what it has already received based on the valuation of Mr Keaveny [para 6].

112 Giles JA states that the Judge was not favoured with the detailed analysis which I have undertaken. However the analysis falls squarely within submissions made to the Judge by Tyco, which, as was to be expected, were developed and elaborated upon before us. The analysis depends on the application of legal principles to complex facts and the inferences which can be drawn from them. No question of credibility arises, and these matters are squarely with the principles affirmed in *Warren v Coombes* (1979) [142 CLR 531](#).

113 Accordingly the appeal in respect of the four cabinets, the six cabinets and the two cabinets should succeed and the Court should find that Optus would have acquired the equivalents of these cabinets in any event at some time between April and June 1998. As a result of the casualty Optus acquired the equivalent pool kit equipment earlier than it otherwise would have and the measure of its damages may include the finance costs of this acceleration. There is evidence from which this might be calculated. There was evidence in general terms from Mr Lister that the cost of new computer equipment was constantly dropping during 1997 and 1998 (black 5/1591). Thus Optus may have paid more for the equivalent pool kit equipment when it was bought than they would have paid for the same equipment after April 1998. Tyco will also have to allow for the value of these cabinets as assessed by Mr Keaveny for which it has already been given credit. We were informed that we need not be concerned with the figures at this stage, and that the parties would endeavour to agree on quantum once the Court had decided the questions of principle.

114 The equipment in Schedule B, with limited exceptions, had not been used before Mr Quodling's departure in June 1998. Mr Theodossiou gave evidence by statement that in April 2001 this equipment was in storage at Castle Hill and he was not cross-examined. Most of this equipment is not included in the R U Schedule but DCRP CV0020 (the first item on Schedule B) is included as CAB002. There were four entries for this cabinet three of which are shown as decommissioned and the other is shown as being used for testing. There being no evidence that this item had been used earlier the inference is fairly open that it was used then as a matter of convenience. Again there is no reason to think that Tyco should receive any further credit for its value in addition to what it has already received based on the valuation of Mr Keaveny.

115 The other items in Schedule B that were used [paras 38-9] are of modest value and the inference is fairly open that they were used simply as a matter of convenience. The same reasoning applies to the items in Schedule C shown as having been used prior to the end of June 1998 [para 38], which were not in the R U Schedule. Tyco has received a credit for the second-hand value of the equipment in Schedules B and C [para 6]. In the case of these items in Schedules B and C it has not shown that it is entitled to a greater allowance.

POOL KIT EQUIPMENT: TYCO'S THIRD SUBMISSION

116 There were some items of pool kit equipment in the ESS (10/3781) shown as having no equivalent leftover equipment. There were other items of pool kit equipment not in the ESS which Mr Lister later identified as having equivalent leftover equipment (black 5/1944-5). Some but not all of the items for which there were no leftover equivalents were dealt with in paras 24-8 of Mr Ogbourne's report of 22 June 2001 (blue 3/960-3) which he prepared for Tyco. As a result of matters put to him in cross-examination or in correspondence he removed items from this list. The parties appear to be agreed that Optus paid \$577,400 for the remaining items.

117 As Optus continued to use this equipment after the DCRP Tyco submitted that the Court should infer that in any event Optus would have purchased it when it did and so had suffered no loss. Mr Hutley said that this equipment must represent increased capacity because at the time of the casualty the relevant operations were being conducted on what became the reconditioned pool kit equipment and the leftover equipment.

118 The Judge rejected these submissions. He said (para 1522) that Optus did not attempt to address directly the submissions made by Tyco based on Mr Ogbourne's evidence, and that "one simply does not know why it is that Optus has been unable to identify completely from its left-over equipment the comparable equipment in the pool kit". Nevertheless he declined to draw the inference that this equipment would have been acquired by Optus independently of the casualty. He came to this decision, as he said, (para 1523) "mainly for the reason that there was an extraordinary complexity involved in the migration and cleaning process which involved a multiplicity of applications being migrated and a multiplicity of changes in cabinet usage that defied a clear description".

119 The Judge's reasons for rejecting this part of Tyco's case cannot be supported. The complexity to which he referred did not prevent Optus preparing the Cabinet Breakdown List (10/3784) and matching in the ESS the bulk of its DCRP acquired equipment with equivalents in the leftover equipment. Nor did it prevent Mr Lister discovering omissions in the ESS and disclosing them to the Court. Moreover there was no direct evidence from Optus that the complexity of the migration process prevented it identifying equivalents for these items identified by Mr Ogbourne.

120 This complexity did not prevent the legal advisers for Optus and those assisting them identifying errors in Mr Ogbourne's original report of 22 June 2001 which were put to him in cross-examination and in the correspondence which became Schedule U to his Honour's judgment. These led him to make a number of adjustments but nothing further was put in respect of his revised figure. Optus did not call or perhaps recall the person or persons who identified the errors in Mr Ogbourne's report to explain why they had no other answers.

121 His Honour appears, with respect, to have overlooked the principle that where the facts are peculiarly within the knowledge of one party slight evidence from the other will throw an evidentiary onus on the first. This principle applies with special force in relation to the present issue because of the very complexity to which his Honour refers. Optus made no attempt to discharge this evidentiary onus.

122 Mr Greenwood presented a number of arguments in an attempt to rebut the inference Tyco sought to have drawn from Mr Ogbourne's evidence. He said that one or more old machines may have been doing some job at Rosebery but because of technical developments they could not be replaced by anything remotely equivalent. Instead they had to be replaced by a different machine to do the same work (T 21/4/04 p 150-1). Later he suggested (T 23/4/04 p 208) that a number of machines could have become redundant because they could be replaced by one machine without any functional equivalence. But that evidence was not given yet someone at Optus made those decisions. In fact one would think that leftover equipment that previously performed the same functions could have been identified as equivalent in those cases. Optus had a complete list of the cabinets at Rosebery at the time of the casualty and the applications being conducted on them and complete lists of the cabinets at Castle Hill and Blacktown and the applications on them.

123 The ESS demonstrates that this very exercise was undertaken. It lists 32 pool kit cabinets with 42 leftover equivalents. In some cases there was one on one equivalence but in others 2, 3, 4 or 5 leftover cabinets were identified as equivalent to one pool kit cabinet. In one case four pool kit cabinets were identified as equivalent to one left over cabinet. Relevant differences were noted in the right hand column.

124 There were duplications among the leftover equivalents. Cabinet 1 was shown as equivalent to three different cabinets in the pool kit equipment. Each of cabinets 14, 40, 155, 798, 797, 526, 531 and DCRP cabinet 795 spares in the leftover equipment were shown as equivalent to two different cabinets in the pool kit.

125 Presumably this means that some of the capacity in those leftover cabinets was judged equivalent to some of the capacity in the cabinets in the pool kit. The assessment of equivalence was indeed a complex exercise but evidently within the skills of Mr Lister and Mr Quodling.

126 Mr Greenwood emphasised that the DCRP undertaken under the close supervision of ExCEL would have prevented any equipment being purchased under it which was not equivalent to equipment damaged in the casualty. We were reminded of the Judge's findings in favour of Optus on this question. Prima facie the DCRP did exclude any element of betterment in the acquisition of pool kit equipment.

127 By way of example we were taken to the documents which evidenced the decision to purchase equipment for the migration of node STCV19 used for GSMIS development. Optus decided to replace some of the items in this configuration with new technology at its own expense but to replace others with existing technology. Only the latter were included in the DCRP and the claim against Tyco. The documents (bright blue 6/2086-97) establish the decision making process within Optus and the separation of the costs of the upgraded items from the DCRP and the claim against Tyco. It was common ground that at the time of the casualty Optus had no surplus capacity at Rosebery of any relevance to any issue in the case (T 27/4/04 323).

128 Nevertheless the fact that at the end of the DCRP Optus had equipment which cost \$577,400 which had no equivalents in the leftover equipment supports an inference that although the pool kit equipment and the cleaned equipment in use at Castle Hill and Blacktown were performing the same functions as before the items for which there were no equivalents represented an overall increase in capacity which Optus needed. Mr Ogbourne was not cross-examined to suggest that the DCRP had not brought about any increase in capacity and Optus did not call evidence to that effect.

129 In these circumstances this Court should infer that Optus would in any event have acquired the relevant items of pool kit equipment when and at the cost it did, and the amount of the judgment should be reduced accordingly. The Judge deducted \$97,497.07 for two AS 4100 cabinets (red 6/1283-5) and Tyco is not entitled to have this amount deducted a

second time.

POOL KIT EQUIPMENT: TYCO'S FOURTH SUBMISSION

130 The final issue concerns an amount of \$171,360 for the cost of new pool equipment which Tyco claims was replaced by Optus under its life cycle replacement program. In his oral evidence Mr Lister identified an additional storage works cabinet in the pool kit which had leftover equivalents (black 5/1944-5). He was not cross-examined about this.

131 Mr Ogbourne correctly understood that Mr Lister was referring to cabinet 54 replaced by equipment purchased under system index 241 (blue 11/4011-2). The documents recording the decision of Optus to replace this cabinet and the invoices appear in bright blue 6/2086-97. The solicitors for Optus stated (4012) that cabinet 54 in the DCRP stock list (10/3849) was leftover equipment equivalent to the new equipment which replaced it. On this basis the cost of the new equipment did not fall within the category covered by Tyco's third submission. Mr Ogbourne accepted this (11/4015-6, 4028, 4029) and so does Tyco.

132 Tyco took the present point for the first time in its written submissions of 10 May 2004, lodged since the hearing. The Cabinet Breakdown List includes cabinet 54 STCV19 in the list of life cycle replacements (blue 10/3788) and cabinets 113 and 806 BV1310 are shown as its replacements. Cabinet 54 was left over and never cleaned. Tyco's submission is that this cabinet would have been replaced anyway apart from the casualty, and Optus was not entitled to recover the cost of replacement.

133 Although this submission is supported by the Cabinet Breakdown List it is inconsistent with the evaluation summary and its supporting documents (10/3847, bright blue 6/2090). The latter clearly state that the storage works acquired to replace the cabinet identified by Mr Ogbourne as cabinet 54, were purchased under the DCRP as part of the pool kit equipment. Other equipment identified in the same documents was replaced by Optus at its own expense because of its outdated technology, but cabinet 54 was not. Mr Ogbourne accepted in correspondence that cabinet 54 formed part of the equivalent leftover equipment and he was not recalled.

134 This submission is contrary to Mr Lister's evidence that the storage works identified as cabinet 54 had equivalents in the pool kit equipment. If he had been confronted with the apparent contradiction between the Breakdown List and Optus' primary documents he may have had a complete answer. Optus has not had an opportunity to explain this apparent contradiction and Tyco's fourth submission must therefore be rejected.

BLACKTOWN UPGRADE EXPENDITURE

135 At the end of the DCRP in March 1998 Optus had first class data centres at Castle Hill (350m²) and Blacktown (190m²) and a clean but empty first class data centre (350m²) at Rosebery. The 180 cabinets that had been at Rosebery were then at Castle Hill (110 plus) and Blacktown (60 plus) (red 4/1112). In February 1999 Optus decided (11/4043-50) to use Rosebery as the site for its new Information Technology or Internet Protocol centre (IP centre). By the end of March it had identified further work which had to be done to make it suitable for this purpose (10/3953-7). Its use as an IP centre began soon afterwards. Rosebery filled fairly quickly (black 2/730, 5/1772, blue 10/3957). Optus then acquired an additional 160m² of space at St Kilda (black 3/1150), and at the time of the trial was acquiring further space in Ultimo (blue 2/670, black 4/1575).

136 Optus recovered from Tyco the costs it incurred in migrating its computer applications from Rosebery to its other data centres and the cost of cleaning Rosebery. These parts of the judgment were not in dispute. It was also awarded \$3,590,785 for the cost of converting the first floor at Blacktown to a first class data centre. The items and their cost were summarised by the Judge (para 1526). They included items 15.1, 15.4, 17.7 and 18.1 costing \$294,993 which Mr Hutley accepted before us were acquired to enable the migration to occur and were no longer needed (T 23/4/04 p 279-80). His challenge was limited to the remaining items which cost \$3,295,792.

137 Optus owned the Rosebery and Castle Hill sites before the casualty and was in the process of establishing a first class data centre on the latter. It made no claim for this. At the time Optus Vision, which owned the Blacktown site, was a partly owned subsidiary of Optus Networks but in April 1997 the rest of the shares were acquired and Optus Vision became a wholly owned subsidiary. Blacktown then became available to the Optus Group. Optus made no claim for the cost of acquiring these shares.

138 Blacktown contained a telephone exchange with telephony switching and transmission equipment (blue 2/683-5). There was also a small data centre (black 3/854-5, 11/4235 & foll), which Optus initially intended would be closed and its equipment moved to Castle Hill (blue 3/890). It had power systems, UPS (uninterrupted power supply), one back up diesel generator, air conditioning and a power switchboard (red para 1571).

139 The original DCRP envisaged the use of a data centre owned by Digital at Homebush. Applications were to be migrated from Rosebery to Homebush initially onto equipment acquired under the plan and later onto original equipment that had been cleaned. When Castle Hill was ready equipment could be sent there from Homebush and cleaned equipment could be sent to both data centres to receive further migrations from Rosebery.

140 After all contaminated equipment had been cleaned the plan called for applications on newly acquired equipment to be migrated back to cleaned equipment at Rosebery so that the data centre there could be re-established. Optus envisaged that additional equipment would only be acquired on a temporary basis, with leasing as the preferred option. Its aim was, at the end of the program, to have its original equipment back in operation at its two centres with its critical systems split between the two to reduce its business disruption risks (blue 2/608, 11/4338).

141 The availability of Blacktown led to major changes. In April 1997 Optus decided to use Blacktown instead of Homebush for the initial migrations because cost and risk would be reduced if cabinets and applications stayed at Blacktown. This would avoid migrations from Homebush and Castle Hill back into Rosebery (para 1170(g)), and the associated costs and business disruption.

142 Blacktown had to be substantially upgraded before it could be used for this purpose and Optus incurred this expenditure in the course of installing the necessary infrastructure (para 1526, Cearn's black 2/734-7). It brought Blacktown to the level that existed at Rosebery prior to the casualty (para 1555).

143 The Judge found that the outstanding shares in Optus Vision had not been acquired to obtain control of Blacktown, and that the decision to use it which saved several million dollars in the recovery program (paras 1536, 1541) was not taken for the purpose of acquiring an additional data centre.

144 In his view Optus should be seen as having recovered from the casualty by reinstating its cleaned equipment at Castle Hill and Blacktown instead of Rosebery. These expenses were therefore "part of the true cost of migration of the applications to Blacktown as the alternate site" (paras 1542, 1544).

145 Evidence called for Optus established that the choice of Blacktown as its second data centre was a direct result of the casualty (Cearn's blue 2/609, 628-30, 632, 638). The Judge implicitly accepted this evidence (para 1548), and Tyco relied on it in this part of its appeal.

146 The Judge held (paras 1534, 1564) that the availability of Rosebery for use by Optus as an IP centre was the product of its expenditure on the acquisition and development of Castle Hill and the acquisition of Blacktown through Optus Vision.

147 Tyco advanced two principal arguments against the allowance of this expenditure as part of Optus' damages. The first was that Optus had not suffered any loss as a result of this expenditure because it acquired the capital assets which made Blacktown a first class data centre (black 4/1234-5). The centre was fully used and Mr Bayley said Optus could look forward confidently to using it for up to a decade (black 3/906). Because Blacktown was used Rosebery remained empty. Once cleaned it was available for use and was later used by Optus for its IP centre. The expenditure produced a double benefit for Optus in the upgrading of Blacktown and the release of Rosebery. On no basis therefore, it was said, could this expenditure be proof of loss.

148 The alternative argument, based on the evidence and valuation of Mr Lonergan, was that this expenditure enabled Optus to secure a valuable benefit in the form of the unused data centre at Rosebery. If this had not been available Optus would have acquired an equivalent data centre by purchase or lease or constructed one itself. He estimated that one way or another the cost at the time of acquiring a data centre with 350m² of usable space in Sydney would have been of the order of \$5 million. This then was the value to Optus of having Rosebery available. Tyco contended that this amount, after deducting \$296,000 (10/3952) for the cost of making Rosebery suitable for an IP centre, should be deducted from the damages awarded to Optus. Tyco sought to deduct either the capital expenditure at Blacktown or the value of the benefit but not both.

149 Tyco's second argument was that Optus had received this benefit as a direct result of the casualty and its value should be deducted. It was based on the principle that a benefit which accrues to the wronged party as a result of steps taken in mitigation of damage should be deducted unless the benefit was collateral. The principle was recognised in *British Westinghouse Electric and Manufacturing Company v Underground Electric Railways Company of London* [1912] AC 673.

150 There is no need to deal with all the interesting legal and factual arguments advanced on this part of Tyco's appeal because the second argument fails for at least one very good reason. Mr Lonergan valued a fully equipped data centre including the value of the space as well as the infrastructure. However Optus acquired its sites at Castle Hill, Blacktown and Rosebery before or independently of the casualty. In particular Blacktown was not acquired by Optus in the course

of mitigating its damage.

151 The benefits accruing to Optus through ownership of these sites were entirely collateral to the damage it suffered and the steps it took in mitigation. Having paid for the space at these sites from its own resources it should not have to pay for Rosebery a second time as a component of Mr Lonergan's valuation.

152 Optus' ownership of these sites was a necessary condition for the accrual of this benefit but ownership without more was not enough. In my judgment the real effective and proximate cause of Rosebery becoming available to Optus was the upgrading of Blacktown. This was both necessary and sufficient for the accrual of the benefit. In so far as this represented the value of the space at Rosebery, that too was not acquired by Optus in the course of mitigating its damages. It already owned the space. The claim based on Mr Lonergan's valuation must be rejected.

153 The first argument for Optus was that it had paid through the damages award for the upgrade of Blacktown, the migration of computer applications to Blacktown and Castle Hill and the cleaning of Rosebery. This was not expenditure incurred in simply making good its loss and damage because it also freed up Rosebery for other uses. Most of that expenditure had to be incurred in any event, and is no longer in dispute, but the cost of upgrading Blacktown that remains in dispute was incurred in acquiring additional capital assets and therefore did not represent a loss. The data centre at Rosebery was not destroyed but only damaged. Once cleaned it was as valuable as it had been before the casualty. This expenditure at Blacktown gave Optus a capital asset there which it did not own before the casualty in addition to those it already owned.

154 The Judge rejected this argument on a number of grounds. He said it was wrong to treat Optus as having provided itself with a new data centre at the expense of the defendant and wrong to treat Rosebery as something in the nature of a benefit (para 1531). He did not give any reasons for the latter view. He probably intended to find that it was not a relevant benefit, that is one that Optus had to account for. He added that the costs of the availability of Rosebery were to be found in the establishment of a data centre at Castle Hill and the acquisition of Optus Vision (para 1532). He also said that "Optus was not left with an improved data centre [viz at Blacktown] ... What Optus was left with after completion of the recovery program was a data centre which had previously operated at Rosebery but ... was [now] located at Blacktown and Castle Hill" (para 1533).

155 He later returned to this theme (para 1564) and said that to the extent that the exercise left the Rosebery centre available for use by Optus "that was a function of the acquisition by Optus of Castle Hill, in the first place, and then Blacktown".

156 The Judge was clearly correct in holding that Rosebery became available for other uses because Optus had acquired the sites at Castle Hill and Blacktown. However, with respect, his analysis was seriously incomplete. When Blacktown was acquired it was not a first class data centre available for immediate use by Optus as such. If it had been Tyco would not have been entitled to any reduction in the judgment, but at the same time would not have been liable for these costs. At this point the Judge omitted from his analysis any reference to the cost of upgrading Blacktown.

157 Furthermore in my judgment the Judge was plainly wrong when he said (para 1533) that "at the completion of the recovery program Optus was not left with an improved data centre" but with "a data centre which had previously operated at Rosebery ... but following the [casualty] was located at Blacktown and Castle Hill". If one simply focussed on Blacktown it is clear beyond argument that Optus was left with an improved data centre. It had been upgraded by the expenditure of \$3,295,792 on permanent infrastructure. The Judge's statement was true only in the sense that Blacktown was not in quality "an improved data centre" because it had been upgraded to the same level as Rosebery (Cousins blue 3/1115-6, black 4/1235-6).

158 The Judge found that at the end of the recovery program Optus was left with the data centre that had previously operated at Rosebery but was then at Castle Hill and Blacktown (para 1533). Again with respect this was only partially accurate and was manifestly not a complete and accurate statement of the position. The Judge understated the position to the point of misdescription because Optus was also left with an empty data centre. The Rosebery site with the necessary infrastructure was available, after minor expenditure, for use as an IP centre.

159 The Judge characterised the expenditure as part of the true cost of migrating applications to Blacktown as the alternate site (para 1544). He said that the expenditure was incurred as part of the cost saving strategy employed by Optus and as part of a program to re-establish part of its former data centre at Blacktown to the level that existed before the casualty (para 1548).

160 It will be necessary in due course to consider some of the items of expenditure in greater detail. At this point it is sufficient to say that while the expenditure had to be incurred before Optus would or could migrate applications from Rosebery to Blacktown, it was not a "true cost of the migration" because the infrastructure remained in place as an essential part of a first class data centre of the required standard. The true costs of the migration were those incurred

during the operation which conferred no other or continuing benefit on Optus. An example of this type of expenditure given by Giles JA during argument was the cost of hiring trucks to take cabinets to Blacktown to receive applications being migrated from Rosebery.

161 The fact that the subject expenditure was incurred as part of a cost saving strategy undertaken by Optus to mitigate its damage cannot be decisive. It is well established, as I hope to demonstrate, that a wronged party must bring to account in the assessment of its damages the results of steps taken in mitigation which reduced its damage. The fact that this expenditure at Blacktown was intended to re-establish part of the data centre formerly at Rosebery shows that Optus did not seek or obtain any betterment in terms of quality. The fact that its former data centre, in terms of the operating computer systems, was re-established at Castle Hill and Blacktown without any betterment in terms of quality cannot negative the fact that Optus was inevitably left with an empty data centre at Rosebery with the necessary infrastructure in place.

162 The decisive consideration in the Judge's view was that the April strategy was a cost savings exercise undertaken by Optus to mitigate its damage which resulted in Optus having "no more than the data centre reinstated to the level that ... existed prior to the [casualty] at a cost less than that of returning to the Rosebery centre" (para 1555, see also paras 1548, 1563). The Judge also said (para 1564) that to the extent that the program left the Rosebery centre available for use by Optus this was a function of the acquisition of Castle Hill and Blacktown. The reasoning in these paragraphs added nothing to his Honour's reasoning in earlier paragraphs which has already been considered.

163 In my judgment this expenditure on Blacktown, to the extent to which it was incurred in upgrading the site to a level that made it suitable for use by Optus as a data centre, was beneficial expenditure on the acquisition of capital assets. Optus received full value for this expenditure both at Blacktown and Rosebery and in this respect failed to prove that it had suffered a loss. In 1999 Optus had no unused space at Castle Hill or Blacktown (black 1/116, 120, blue 11/4358).

164 Rosebery remained idle after the end of the DCRP until Optus had work done after March 1999 to make it suitable for use as an IP centre. Its use for that purpose began soon afterwards. Thus as a result of the casualty and the DCRP Optus, for 12 months or more, had a valuable asset for which it had no use. Some allowance for this might have been made but Optus did not lead any evidence to enable this to be quantified and did not rely on it in argument.

165 Optus did argue that the cost of some of the items which made up the sum of \$3,295,792 for which Tyco sought credit should be characterised as costs of the migration in the strict sense and allowed as part of its damages on that basis. The case for Optus on these was outlined in detail in Annexure C to its written submissions (orange 121-137).

166 The first of these items was the gigaswitch which cost \$296,301. This was said to be a cost of the migration to Blacktown because this could not occur until such an item was installed. While this is correct it is not the whole story. A gigaswitch is an essential feature of a data centre (Cearns black 2/735, 736, 737), and the one at Blacktown provided network connectivity with Castle Hill and Rosebery (Cearns blue 2/683), which had their own gigaswitches. It also provided additional networking capacity within Blacktown which was needed to accommodate the additional computer systems installed there under the DCRP (black 2/735). The cost of the gigaswitch was not just a cost of the migration, although it had to be installed before this could occur. It was part of the permanent infrastructure of a data centre of the required standard and as such its cost was properly included in the cost of upgrading Blacktown. The FDDI/10 base T-Hubs are in the same position.

167 The additional diesel generator, the additional UPS system, and the redundant (ie back up) sub-station were essential features of a first class data centre of the required standard. If the external power supply failed for any reason the UPS would automatically maintain power supply initially from storage batteries and then from a diesel generator. There was a second or back up (redundant) generator in case the first failed. The same level of infrastructure existed at Rosebery and Castle Hill.

168 Mr Greenwood raised a further objection. He submitted that the benefit Optus derived from this expenditure was not the new infrastructure at Blacktown but the corresponding "leftover" infrastructure at Rosebery. Thus in the case of the new gigaswitch purchased for Blacktown the benefit, he submitted, was the leftover gigaswitch at Rosebery. In my view this analysis at a micro level is not appropriate. Optus did more than simply acquire items of new equipment. The effect of this expenditure was to upgrade Blacktown to the level of a first class data centre. Each item of expenditure contributed to this result and each was necessary to achieve it. Optus was not left with detached infrastructure equipment at Rosebery but with an empty data centre and the necessary infrastructure in place. The submission that the relevant benefit was the corresponding individual items at Rosebery must be rejected.

169 Accordingly the appropriate deduction from the damages in respect of the costs of upgrading Blacktown is \$3,295,792 and to this extent the appeal must be allowed.

BUSINESS RECOVERY SERVICES

170 The next issue in the appeal is Tyco's claim that the damages should be reduced because of the benefit Optus received as a result of the casualty when it cancelled arrangements with Digital for the supply of business recovery services and saved the costs it otherwise would have incurred. Immediately before the casualty Optus had been working on a Business Recovery Strategy which would enable it, in the event of some disaster, to maintain its critical applications and re-establish its core business with a minimum of delay and disruption. Digital was to provide the services to be available for this purpose under a contract with Optus. Optus had been working on its Business Recovery Plan since some date in 1994 or possibly earlier and its first draft plan was dated 7 October 1994 (blue 5/1969). The last edition before the casualty, the thirteenth, dated 19 December 1996, comprised 364 pages (blue 6/2351-7/2715).

171 The draft plan was outlined in the "Statement of Work to Optus Systems Pty Ltd for Operations Management Services" (the Statement of Work), a document prepared by Digital and submitted to Optus on 20 December 1996 (blue 7/2716-43). It too was a thirteenth draft. The plan comprised four groups of services (7/2724) but the only one which remains relevant is that for Business Recovery Services. These were said to provide for managing and keeping current the Optus Business Recovery strategy and plan. They were to begin on an agreed date in 1996 and continue for a period of two years ending on 30 June 1998 subject to automatic renewal for further terms of one year each (2724). The Statement of Work could be terminated for business reasons by Optus in whole or as to any group of services, by giving three months notice.

172 The services were defined in detail (7/2729) as comprising Business Recovery Plans, Supply of equipment in a disaster situation, and the Availability of Computer Room facilities for a disaster situation. The particular services relevant to the appeal concern the supply of equipment in a disaster situation. These services were defined as follows:

"Supply of equipment in a disaster situation:

Disaster Configurations consist of the basic system required by Optus to run critical applications in the event of a disaster. Disaster Configurations will be pre-agreed and detailed in writing between Digital and Optus.

Applications in Optus that will be catered for in a disaster will fall into two categories:

- (a) Current - Applications that will run on the latest/current platform available (Hardware and System Software)
- (b) Obsolete - Applications that will NOT run on the latest/current platform available

Digital will forward order and hold in inventory in Sydney, any agreed computer equipment for Disaster Recovery purposes to allow timely restoration of critical Optus Systems in the event of a disaster that fall into the "Current" category (a). Digital will provide this service at a cost of 13% per annum calculated on the Optus purchase price (at the time of initial stocking) of the goods. This charge does not include any installation, delivery or staging charges that will apply in the event of a declared disaster."

173 The plan also stated (7/2730):

"The specific configurations Optus requires to be held in stock and the commercial arrangement of this service (provide equipment in a disaster situation) have not been concluded other than agreement on the annual fee. Optus and Digital will finalise the "Business Recovery Services Configuration Details" document and have it included as part of this Statement of Work as soon as practical."

174 Agreement on the list of equipment had not been reached prior to the casualty and in the result was never reached. Negotiations on that matter had been going on for many months. Revision 1.4 of 5 March 1996 had proposed that Digital acquire equipment costing \$12 million at an annual cost of \$1.4 million (blue 6/2187). Version 2.2 of 23 October (blue 6/2260) was a smaller list at an annual cost of \$650,000 (black 2/697).

175 Further consideration by Optus and further negotiations resulted in Version 2.8 of 28 November 1996 (blue 6/2276) at an annual cost of \$460,000 (black 2/697). This was described by Mr Cearns in a document of 13 December 1996 prepared by Mr Leacock as "the base line we would go with" (blue 6/2344). However Mr Cearns did not agree that this meant it was the bottom line. It was a base line "we would go with" (black 2/700-1), meaning it was a starting point for calculations (black 2/704). This is confirmed by the existence of Version 2.10 dated 19 December which was the last before the casualty (blue 7/2438, black 2/701). Mr Cearns estimated that the cost of this version at the agreed rate of 13% would have been in the order of \$350,000 (black 2/702, 705). Mr Ogbourne costed this equipment at \$2,515,199 at an annual cost of \$326,975.

176 Further negotiations between Optus and Digital were suspended after the casualty. It is not clear that the Statement of Work was ever executed by Digital and Optus but in any event the arrangement for Business Recovery Services could

not have had contractual force because the parties did not reach final agreement on the list of equipment to be provided. On 28 July 1997 Optus gave three months written notice to Digital terminating any obligation with respect to Business Recovery Services. Digital did not contest the validity of the notice which took effect on 28 October. Any contract would otherwise have expired, in accordance with its terms, on 30 June 1998.

177 Optus did not have an established Business Recovery Plan for two to three years after the casualty (black 2/688, 690-1) and during that period did not incur the type of expense contemplated by the Statement of Work. As a result of the casualty and the move to Blacktown Optus decided that it needed a whole new rework of its Business Recovery Plan (black 2/690). The considerations which led Optus to use Blacktown instead of Homebush, and to cancel its arrangements with Digital, and some of the cost savings that would result were outlined in an internal memo of 28 July (11/4336, 4338) which was not finally signed off until 15 October.

178 Tyco's argument on this point was that as a result of the casualty Optus did not incur any expenditure for Business Recovery Services and the savings should be brought to account in reduction of its damages. Its case was that but for the casualty Optus, by the end of March 1997 at the latest, would have entered into a contract with Digital along the lines of the Statement of Work of 20 December, for the equipment listed in Version 2.10 of 19 December. It would therefore have incurred an annual cost of \$327,000 over a period of at least 15 months until 30 June 1998 when the contract would expire in accordance with its terms unless renewed. Thus the total saving over the 15 months was \$408,750.

179 Thus Tyco's case is that Optus mitigated its damage by not proceeding with its arrangements with Digital. Tyco therefore had the legal onus of proof. Since the inquiry involved what would otherwise have happened after 3 January 1997 but for the casualty this depended on the Court making an estimate of the likelihood that Optus would have settled on a list of the equipment it required and entered into a binding contract with Digital: *Malec v J C Hutton Pty Ltd* (1990) [169 CLR 638](#).

180 The critical evidence on this issue was that of Mr Cearns. He said that it would have taken at least three months to establish the plan because Digital would have to order and take delivery of the agreed equipment (black 2/697). He said that the final make up of the equipment was unknown but "would certainly have been less ... because I was driving costs lower" (2/698), and "the final strategy and the final costs were to be determined". He said that Optus had to assess whether the Plan was cost effective and he had no idea what the ultimate figure might have been (2/701). However "there was every intention to proceed with something" (2/702) and the costs "would have been possibly in the order of 350 [000], I don't know" (2/702).

181 The Business Recovery Plan and Statement of Work envisaged that in the event of a disaster suitable space owned by Digital at Homebush would be available under contract for use by Optus as an alternate data centre. The equipment which Digital had agreed to have available would be installed at that site and used by Optus.

182 In December 1996 Optus were not satisfied with the suitability of the space that Digital was to contract to keep available. An acceptance inspection on 9 December revealed a number of deficiencies. Eight of these were considered by Optus to be essential requirements which had to be completed prior to acceptance of the space. Another four were less important and could be completed within two months of acceptance. Written notice of these matters was given to Digital on 13 December (blue 6/2341).

183 A further inspection of the Homebush premises by Optus and Sedgwicks, its insurance brokers, on 23 December revealed that the majority of the issues raised following the inspection on 9 December had not been rectified (blue 7/2744). Sedgwicks also provided Optus with a lengthy written report the same day which catalogued additional deficiencies (blue 7/2745-55). These matters were the subject of an internal memo dated 24 December sent to Mr Cearns who was then on leave. This stated that Mr Brian Churchill from Sedgwicks "has also raised some more serious issues in particular as to the integrity of the fire suppression systems". It stated that the writer and Mr Berents had reviewed the contract documentation with Digital and that they "have some concerns in respect to indemnifications provided and overall we see that the risks associated with the site are real and could contribute to a major loss situation for Optus especially if the site was activated out of necessity ... In view of the Sedgwick report attached and our observations I suggest that there is still a long way to go before the site would meet basic risk prevention requirements" (7/2744).

184 The equipment which Digital was to have available for use by Optus in an emergency would have been warehoused in the meantime, but the Business Recovery Plan envisaged that the equipment could rapidly be installed at Homebush for use by Optus. Thus the contingencies involved not only the list of equipment but also the space in which it would be deployed. There were uncertainties as to whether and when Optus would accept the space at Homebush and whether and when it would agree on a list of equipment and enter into a contract.

185 The Optus memo of 28 July 1997 which supported the decision to abandon Homebush in favour of Blacktown identified cost savings at Homebush that would accrue. However in my judgment these must be balanced against the costs that would be incurred at Blacktown, and it was not established that any net benefit would accrue to Optus as a

result. In any event the costs at Blacktown have been considered in relation to the previous issue and there is a risk of double counting if the costs and benefits of the move are treated as relevant in the present context.

186 After Optus terminated its arrangements with Digital it engaged the firm of Bergman and Voysey to develop a revised Business Recovery Plan (black 3/824) and thus replaced some of the services which Digital would have provided. The services provided by Bergman and Voysey cost Optus in the order of \$160,000 (black 3/826). Optus did not make a claim against Tyco for the cost of redeveloping its Business Plan. Mr Cearns said that these costs were considerable (black 2/696), but apart from the fees paid to Bergman and Voysey they were not quantified.

187 The Judge rejected this claim on a number of grounds. He held that the expenditures avoided were collateral and not caused by the loss but were the result of an arrangement with its insurer which required Optus to revise its Business Recovery Plans, that this resulted in the engagement of Bergman and Voysey to develop a revised plan, and in the process Optus incurred considerable expenses not limited to the fees paid to those consultants (red para 1658).

188 Insurance arrangements by an injured party have traditionally been viewed as collateral. Their benefits do not have to be brought to account for the benefit of the wrongdoer even where the subrogation and indemnity principles do not apply: *Bradburn v Great Western Railway Co* (1874) LR 10 Ex 1. For the same reasons premiums saved following a casualty do not have to be brought to account either.

189 The Business Recovery Plan of Optus bears some analogy to casualty insurance. Such a plan with contractual effect would be a scheme established in advance to mitigate losses Optus would otherwise suffer as a result of a relevant casualty. Steps taken by an injured party which have the effect of mitigating its damage must be brought to account and in principle it makes no difference whether the arrangements made for that purpose pre-date or post-date the casualty unless the injured party would have received those benefits in any event.

190 This was the position in *The World Beauty* [1970] P 144 CA, 153-4 where the injured party did not have to bring to account the profits earned from the charter it had negotiated before the casualty because it would have earned them in any event. The present case is not covered by that decision because Digital would not have been obliged by its contract to deliver the equipment in any event, but only after a relevant casualty. In that respect the Business Recovery Plan resembles casualty insurance rather than the existing charter considered in *The World Beauty*.

191 In the ordinary course an enforceable Business Recovery Plan of the kind contemplated would enable Optus to obtain business interruption insurance at lower rates than would otherwise be available. Insurance arrangements of that kind are not directly relevant in the assessment of damages but in practice they will operate to mitigate the damages of the injured party. The decision in *The Liesbosch* [1933] AC 449 established that an injured party who could not afford to take necessary steps to mitigate its damage could not recover the additional losses that it suffered.

192 That much distinguished decision was effectively overruled in *Lagden v O'Connor* [2004] 1 AC 1067. As a result it is now clear that an injured party that can afford to take steps to mitigate its damage because it has business interruption insurance will recover less than an uninsured party in the same position who cannot afford to take such steps. Insurance has now become indirectly relevant where it facilitates mitigation.

193 This is not the present case. The arrangements with Digital did not enable Optus to mitigate its damage by avoiding or reducing the consequential losses it would otherwise have suffered. The benefit which Tyco seeks to have brought to account relates to the cost of its contractual arrangements to mitigate its losses, and not to those losses as such. In my judgment the cost and the direct effect of such arrangements remain collateral to the assessment of an injured party's damages. The Judge's decision to that effect should be affirmed.

194 The Judge also rejected this claim because he was not satisfied that any saving could be considered in isolation, without taking into account the considerable expenses Optus incurred in formulating a new business recovery plan (red para 1690). In the events that happened the incomplete arrangements with Digital did not help Optus to mitigate its damage. If they had done so the expenses previously incurred by Optus under the plan would have been ignored. If the wisdom of hindsight that led Optus to terminate its arrangements with Digital is seen as a benefit flowing from the casualty, that benefit resulted in costs as well as savings. I do not see how Tyco could possibly have been held liable for the costs of developing the new plan. However if it is entitled to the benefit of the costs saved I cannot see how the costs incurred can be ignored. The Judge's decision to that effect should be affirmed.

195 The arrangements with Digital that Optus terminated did not have contractual force, and the chance that they would otherwise have matured into a contract was subject to several contingencies. The Judge referred to these in some detail (red paras 1665-81). The principle that damages can be recovered for the loss of a chance is well established: *Chaplin v Hicks* [1911] 2 KB 786 CA; *Sellars v Adelaide Petroleum NL* (1994) 179 CLR 332. The plaintiff who has established a wrong is assisted in the assessment of damages for the loss of a chance by the principle referred to by Dixon and McTiernan JJ in *Fink v Fink* (1946) 74 CLR 127, 143:

"Where there has been an actual loss of some sort, the common law does not permit difficulties of estimating the loss in money to defeat the only remedy it provided for breach of contract, an award of damages."

196 The same principle applies of course to those torts, such as negligence, where proof of damage is required to complete the plaintiff's cause of action. These principles also find recognition in the line of authority which culminated in *Malec v J C Hutton Pty Ltd* (1990) [169 CLR 638](#) as it applies to both past and future hypothetical events. The two lines of authority were brought together in *Sellars v Adelaide Petroleum NL* (1994) [179 CLR 332](#), 349-355 which establishes that these principles are not confined to the assessment of damages for personal injuries but apply also to torts causing economic loss.

197 A defendant seeking to have its damages reduced because of a chance that the plaintiff derived a benefit from the wrong is not in this favoured position. In such a case, unlike the cases where a wronged plaintiff has lost the benefit of a chance, the Court does not have to do the best it can even if its verdict will really be a matter of guesswork: *Chaplin v Hicks* [1911] 2 KB 786 CA, 792.

198 The Judge held that the evidence did not justify a finding that costs would otherwise have been incurred at any particular level (red para 1690). This finding should also be affirmed. In my judgment the chance that Optus would otherwise have incurred expenditure which, in the result, it was able to avoid was too speculative when allowance is made for the expenses it did incur and the loss of the benefits it would have obtained from the expenditure it avoided, for any particular allowance to be made in reduction of its damages. The Judge's decision on this point should be affirmed.

THE BULLOCK ORDER

199 Optus sued its head contractor Leighton Contractors Pty Ltd and its consultants Norman Disney & Young (NDY) as well as Tyco. It recovered against Leighton and Tyco which was ordered to indemnify Leighton. It failed against NDY and was ordered to pay its costs but his Honour made a *Bullock* order (*Bullock v The London General Omnibus Company* [1907] 1 KB 264 CA) against both Leighton and Tyco which obliged the latter to indemnify Optus against the party and party costs it was ordered to pay NDY.

200 Tyco was entitled to appeal against this order as of right despite [s 101\(2\)\(c\)](#) of the [Supreme Court Act 1970](#) because its appeal was not on costs only: *Wheeler v Somerfield* [1966] 2 QB 94 CA.

201 The Judge found that Optus acted reasonably in joining NDY but its decision to do so was not attributable to any conduct by Leighton or Tyco (red 6/1456 para 102). He held that a *Bullock* order could properly be made where a plaintiff had been induced by the conduct of an unsuccessful defendant to continue proceedings against a successful one. Both Tyco and Leighton brought cross-claims against NDY for contribution or indemnity which the Judge found were quite unmeritorious (red para 103).

202 The *Bullock* order was made because the Judge was satisfied that the unjustified pursuit of NDY by Leighton and Tyco played a significant role in inducing Optus to maintain its proceedings against that defendant. He said that it was not until the hearing was several months underway that Optus served a statement of expert evidence seeking to place responsibility on NDY (red para 104).

203 Mr Hutley submitted that the Judge erred both in fact and law. He erred in law because, on the authorities, the relevant time was the date of joinder of the successful defendant. He also erred in law, it was submitted, because there was no evidence that the conduct of Leighton and Tyco had induced Optus to continue its proceedings against NDY. The Judge erred in fact because Optus pursued its claim against NDY more actively than the Judge recognised. Accordingly Mr Hutley submitted Tyco's challenge satisfied the principles in *House v The King* (1936) [55 CLR 499](#), 504-5 and this Court should interfere.

204 The Judge quoted the well known summary of the relevant principles by Gibbs CJ in *Gould v Vaggelas* (1984) [157 CLR 215](#), 229-30 which included:

"... if nothing that the unsuccessful defendant has said or done has led the plaintiff to sue the other defendant, who ultimately was held not to be liable, it is difficult to see any reason why the unsuccessful defendant should be required to pay for the plaintiff's error or overcaution."

205 The Judge also quoted the statement of Giles JA in *Sved v Council of the Municipality of Woollahra* (1998) NSW ConvR 55-842 who emphasised the need to find:

"... some conduct of the unsuccessful defendant which made it proper that the successful defendant be joined or that the unsuccessful defendant should bear the costs of the successful defendant. Such conduct ... has been found in the

unsuccessful defendant telling the plaintiff in one way or another that it should look to the successful defendant for its remedy."

206 Both statements of principle focus on conduct which pre-dates the joinder of the successful defendant. Mr Hutley submitted that a *Bullock* order could only properly be made in such a case. Since I have been persuaded that the Judge made other errors which require this Court to re-exercise the discretion it is not necessary to decide that question.

207 The most important error made by the Judge was his finding that the conduct of Leighton and Tyco had induced Optus to maintain its proceedings against NDY. There was no evidence to support this finding. A finding of inducement may properly arise as a matter of inference from objective facts. A familiar example would be a denial of liability before action coupled with an express or implied assertion that another person was liable. There was no such conduct by Leighton or Tyco in this case and the Judge found that they were not responsible for Optus deciding to join NDY.

208 The original pleading filed by Optus on 17 November 1997 contained 14 pages of allegations against NDY (bright blue 3/908-22), and these were later amended. Leighton and Tyco cross-claimed against NDY in February and March 1998 (red 1/90, 165) and served expert reports in support of their cross-claims between 29 March 1999 (report of Mr Thomas filed for Tyco) and 18 November 1999 (second report of Professor Bremhorst filed for Leighton). Optus did not file its first expert report (by Mr Wyles) against NDY until 5 April 2000. The trial commenced on 12 February 2001 and on 3 April during the trial Optus filed a further expert report by Mr Wyles against NDY. It maintained this claim throughout the trial and Mr Greenwood supported it in final address.

209 After the delivery of judgment Optus filed the affidavit of David Goldstein of 15 May 2002 (blue 4/1503) in support of its application for consequential orders including a *Bullock* order in respect of the costs it was liable to pay NDY. The relevant paragraphs (1507-8) were directed to the conduct of Leighton and Tyco before the proceedings were commenced. Optus failed on this issue before the Judge but raised it again by a notice of contention. The point was that the denials of liability and other conduct of Leighton and Tyco after the casualty made it reasonable for Optus to commence proceedings against NDY.

210 The affidavit did not refer to any conduct by Leighton or Tyco after the proceedings were commenced. What is more important it did not claim that their later conduct had induced or influenced Optus and its legal advisers in maintaining the claim against NDY.

211 Optus' written submissions in support of the notice of contention summarise the evidence relating to the pre-casualty relationships and dealings between Leighton, Tyco and NDY. Material of that kind, without more, has not hitherto been considered a proper basis for a *Bullock* order. It fully supports the Judge's finding that Optus acted reasonably in joining NDY but this is only a necessary, and without more, not a sufficient condition for the making of a *Bullock* order. The attempt to support the Judge's order on the basis of the conduct of Leighton and Tyco before action fails.

212 Having joined NDY as a defendant Optus had a number of courses open to it. It lacked first hand knowledge of the precise acts and omissions which led to the casualty and the practical responsibilities of the parties directly involved. It could and did wait to see whether Leighton and Tyco blamed NDY for the casualty and it then had the opportunity of reviewing the evidence filed in support of their cross-claims. As against NDY Optus played a passive role until it filed the first statement of Mr Wyles on 5 April 2000, two years and five months after the proceedings commenced.

213 The costs incurred by NDY in resisting Optus' claim before that statement was filed would have been extremely modest. At that point Optus had the benefit of the evidence filed by Leighton and Tyco in support of their cross-claims and the evidence filed by NDY in answer. It had a number of courses open to it. It could have discontinued against NDY or elected to remain passive, allow Leighton and Tyco to fight the battle against NDY and be in a position to take advantage of any success they might achieve. Instead it decided to take an active role by filing expert evidence against NDY.

214 Optus maintained an active role until the end, filing further expert evidence and submitting during final addresses that it should recover against NDY. An overwhelming proportion of the costs incurred by NDY in resisting its claim were incurred during the trial mainly after the second statement of Mr Wyles was filed on 3 April 2001.

215 Mr Greenwood submitted that the trial Judge was in a position of great advantage in deciding a question such as this at the end of such a long trial. This is undoubtedly correct but the Judge has exposed his reasons and we cannot assume or infer that there were any other. If the reasons reveal material error then this Court must intervene. It is clear that the Judge overlooked the first statement of Mr Wyles filed before the trial when he said (red 6/1457 para 104) that it was not until the hearing was several months underway that Optus served a statement of expert evidence seeking to place responsibility upon NDY.

216 The Judge's exercise of discretion miscarried and this Court must re-exercise the discretion. With respect to the

Judge, having reviewed the chronology of relevant events in the proceedings against NDY before the trial I can see no proper basis for making a *Bullock* order against Leighton and Tyco for the costs Optus has been ordered to pay NDY. In particular there is no evidence that their conduct influenced or induced Optus or its legal advisers to continue its proceedings against NDY. The appeal in this respect must be allowed and the *Bullock* order against both Leighton and Tyco must be set aside. Leighton did not appeal against this order and is not a party to the appeal but SCR Pt 51 r 22(1) (a) and (b) enable this Court to set aside the *Bullock* order against it.

CROSS-APPEAL ON INTEREST

217 Optus has cross-appealed from the Judge's order that Tyco pay interest at Court rates on the principal verdict from 30 June 1998 and sought in lieu an order that pre-judgment interest run from 17 November 1997 when proceedings were commenced. The difference amounts to more than \$1m.

218 On 18 April 2002 the Judge's associate notified the parties by facsimile transmission that the Judge would deliver his reserved judgment on 24 April and outlined the principal orders that the Judge proposed to make. The plaintiff was directed to serve draft short minutes dealing with questions of interest and costs together with written submissions in support. Any party who contended that different orders should be made was to serve draft short minutes of those orders and written submissions in support.

219 Optus served short minutes and written submissions which sought pre-judgment interest from 17 November 1997. In its written submissions in answer Tyco pointed out that a significant proportion of Optus' expenditures listed by date of invoice only in ex 8.012 occurred after the proceedings were commenced and it submitted that interest should be calculated from the dates payments were made.

220 On 24 April the Judge heard submissions. He said that a cursory glance at ex 8.012 which ran to 41 pages with up to 27 invoices a page showed that "nothing like the amount awarded ... was incurred" before proceedings were commenced (black 6/2307). Mr Greenwood conceded that the date adopted by Optus was arbitrary, but said that a substantial quantity of equipment had been purchased by March 1997 and by the middle of 1997 another large quantity had been purchased. The Judge said that he was aware of this and Mr Greenwood then said that the November date was a mid point.

221 The Judge said that there was no justification for ordering that interest run on the whole of the judgment from November 1997 (6/2308). Mr Hutley repeated Tyco's submission that interest should run from the dates of payment but the Judge regarded this as unrealistic. He said that on a rough calculation based on ex 8.012, approximately half the invoices were before November/December 1997 and most of the balance were in 1998. He suggested that one way of dealing with interest "on a rough calculation basis" would be to allow interest from 30 June 1998. Neither counsel opposed this course and the Judge made that order.

222 After the lunch adjournment that day Mr Greenwood attempted to re-open the question of interest. He said that a "rough" examination of ex 8.012 showed that by 17 November 1997 Optus had received invoices in the order of \$18m out of a total of \$29m, and that invoices for only \$1.25m were received after 30 June 1998. He submitted that invoices for approximately \$15m or half the total expenditure had been received by August 1997, and allowing three months for payment this meant that half the total would have been paid by November. Without calling on Mr Hutley the Judge said that he would not re-visit the question.

223 [Section 94](#) of the [Supreme Court Act](#) confers a discretionary power to award pre-judgment interest. The discretion relates to the date or dates from which interest should accrue, the principal sum or sums on which it should be calculated, and the rate or rates at which it should be ordered. The High Court has supported a broad approach to the exercise of this discretion. In *Fire & All Risks Insurance Co Ltd v Callinan* (1978) [140 CLR 427](#), 432-3 the Court in its joint judgment said:

"... to arrive at an appropriate award of interest does not call for any nice apportionment of the various detriments into their pre-and post-trial segments, the process should not be permitted to assume an importance incommensurate with its relative effect upon the total sum for which judgment is given. Those passages from the authorities which the Full Court has cited and which refer to the matter being 'dealt with in quite a broad way'; 'broadly and without bothering about too exact calculations' ... sufficiently make this point."

224 See also *Cullen v Trappell* (1980) [146 CLR 1](#), 19 ("a rough and ready method"); and *M B P (SA) Pty Ltd v Gogic* (1991) [171 CLR 657](#), 664 ("a rough guide").

225 The dates of the invoices received by Optus provide an inadequate basis for an award of interest for past expenditure where the debts do not carry interest under the contracts. In principle the relevant date is when Optus paid the invoice but there is no evidence of when the invoices in ex 8.012 were actually paid. Nor is there general evidence of the terms of payment Optus accepted or the average delay between invoice and payment.

226 On the authorities the Judge was entitled to adopt a rough calculation that appeared to do justice between the parties. In doing so he made no error of principle. Both counsel acquiesced in the suggested date from which interest would run on the whole of the expenditure. Optus contends that the Judge's exercise of discretion miscarried and that this Court should intervene and fix another date. This was 17 November 1997, no other date was contended for.

227 On the oral submissions of the parties the Judge was entitled to exercise his discretion as he did initially in adopting 30 June 1998, and error has not been established. The application to re-open this decision later that day was not supported by additional evidence or by an argument that had not previously been considered. In those circumstances the Judge was not bound to re-open his decision.

228 Optus has not shown that 17 November 1997 was the correct date. It has not established that approximately half of its expenditure was incurred before that date and that its expenditures before and after that date were spread more or less evenly over approximately the same time periods. Although the Court could not be satisfied that 30 June 1998 was the correct date Optus has failed to establish either initial or subsequent error. In particular it has failed to establish that 17 November 1997 was the correct date. Accordingly the cross-appeal fails and should be dismissed with costs.

229 The Court should publish its reasons, and the parties should be directed to bring in short minutes before Hodgson JA at 9.30 am on 12 October 2004.

230 **GILES JA:** The detailed reasons of Handley JA, which I have had the privilege of reading in draft, enable me concisely to explain my conclusions in the appeal and cross-appeal.

231 For the reasons given by Handley JA (a) Optus' damages should not be reduced because of any saving from cancellation of the arrangements with Digital for the supply of business recovery services; (b) the appeal as to the Bullock order should succeed; and (c) the cross-appeal should fail. In what follows I address the appeal as to damages concerning the pool kit equipment and the upgrading of the Blacktown data processing centre.

The pool kit equipment

232 Optus spent \$11,961,246 acquiring the pool kit equipment. At the end of the DCRP it retained and used that equipment, and also had leftover equipment identified as functionally equivalent to pool kit equipment. The pool kit equipment to which the equivalent leftover equipment corresponded had cost \$7,713,082. Further pool kit equipment was identified which had cost \$587,400 (the amount was obscure and I take the figure used by Handley JA) for which there was no equivalent leftover equipment ("the further equipment"). The equivalent leftover equipment would have cost Optus \$2,745,900 to purchase second-hand. The purchase price was more than the price Optus would have received if it had sold that equipment second-hand, for reasons to do with vendor's disclosures and warranties.

233 I am not sure that Tyco put the bald submission that the \$11,961,246 spent on the pool kit equipment was not recoverable as damages at all because Optus acquired an asset, the pool kit equipment, worth what it paid. At least initially, its submission was that the expenditure of the \$11,961,246 did not of itself represent a loss to Optus, and that Optus had failed to prove the loss represented by a comparison between its position prior to the disaster and its position, having spent the money and acquired the equipment, at the end of the DCRP. The submission may then have changed to the bald submission.

234 To the extent made, the bald submission should not be upheld. It was accepted, at least on appeal, that Optus acted reasonably in purchasing the pool kit equipment, undertaking the serial migrations to that equipment, and leaving the computer applications on that equipment rather than migrating them back to the original equipment. The expenditure on the pool kit equipment was properly made in consequence of the disaster, and Tyco expressly eschewed any betterment in Optus ending up with the pool kit equipment in place of that part of the original equipment which it replaced. As Handley JA points out, if Optus had migrated the computer applications wholly back to the contaminated equipment once cleaned and then sold the pool kit equipment, its damages relevantly would have been the cost of the pool kit equipment less the amount obtained on its sale. That Optus obtained pool kit equipment worth \$11,961,246 in return for its expenditure of \$11,961,246, while correct although ignoring that the value of the pool kit equipment at the end of the DCRP was found to have been of the order of the \$2,745,900, is only part of the story in arriving at Optus' loss from the disaster. Betterment from retention of the pool kit equipment being eschewed, the question is how account is taken of the leftover equipment.

235 Tyco relied in particular on *IT Walker Holdings Ltd v Tuf Shoes Ltd* (1981) 2 NZLR 391. The purchaser claimed damages for delay in completion of the sale of a factory. During the delay it took a lease of other premises, acquiring lessee's chattels for \$12,000 and spending \$25,935.86 in fitting out. It was held that it was not entitled to these amounts as damages. Cooke J said (at 401) that a plaintiff does not prove loss merely by giving evidence of expenditure which has apparently produced a capital asset. McMullin and Mahon JJ referred (at 398 and 399 respectively) to the plaintiff acquiring an asset in return for its expenditure and failing to prove the residential value of the asset. The point of these

observations was that their Honours were not prepared to find that the lease with its chattels and fittings was of no value and the plaintiff had not led any evidence going to recovery its expenditure on the sale of the lease.

236 In *J & B Caldwell Ltd v Logan House Retirement Home Ltd* (1999) 2 NZLR 99 Fisher J regarded *IT Walker Holdings Ltd v Tuf Shoes Ltd* as establishing that where the defendant's wrong had not deprived the plaintiff of an asset the plaintiff's purchase of an additional asset did not in itself indicate a loss, and that it was for the plaintiff to rebut the inference that the expenditure had produced an asset of corresponding value whereby it was in no worse position. "Of itself" is important. The case does not support the bald submission.

237 Tyco's essential submission was that, in taking account of the equivalent leftover equipment, Optus had not proved that the benefit to it from continued ownership of that equipment was only the \$2,745,900. It accepted that, had Optus sold the equivalent leftover equipment, it would have been entitled to damages of \$11,961,246 less the amount obtained on its sale. Optus did not sell the equipment. It kept it and to some extent used it. Tyco said that the judge should have found that, if Optus had not had the equivalent leftover equipment for use in the manner and to the extent it was used, it would have spent the \$7,713,082 in acquiring functionally corresponding equipment, so that keeping the equivalent leftover equipment saved Optus \$7,713,082; or at least that Optus had not proved that the value to it of keeping the equivalent leftover equipment was less than the \$7,713,082. At most, it said, Optus' damages were the acceleration cost of acquiring the pool kit equipment to which the equivalent leftover equipment corresponded at an earlier time than would otherwise have been the case.

238 The submission as it evolved differed from the submission put to the judge, and initially put on appeal, which was that it should be inferred from Optus' use of the equivalent leftover equipment that the pool kit equipment to which that equipment corresponded would have been acquired by Optus in any event by mid-1998. It referred to acquisition of equipment corresponding to the equivalent leftover equipment rather than acquisition of the pool kit equipment, although in substance the concepts were the same in referring to equipment performing functions performed by the equivalent leftover equipment. The submission was not that Optus had failed to rebut an inference that its expenditure on the pool equipment had produced an asset of corresponding value, since it focussed on the equivalent leftover equipment. It was, however, founded on the fundamental proposition that the damages should put Optus in the same position as it would have been in had it not suffered the disaster at the hands of Tyco. Optus' damages as found were relevantly \$11,961,246 less \$2,745,900. The effect of Tyco's submission was that they should relevantly have been \$11,961,246 less \$7,713,082.

239 Some of the leftover equipment was contaminated and not worth cleaning, some had been scrapped or was of no use for other reasons. Subject to the further equipment, in a manner not really explained it was common ground that this took out of consideration expenditure on pool kit equipment beyond the expenditure of \$7,713,082 on pool kit equipment to which the equivalent leftover equipment corresponded, and left only the equivalent leftover equipment in issue.

240 The value to Optus of keeping the equivalent leftover equipment was a question of fact.

241 Optus did not use all the equivalent leftover equipment. The content of cabinets changed as equipment was shifted between cabinets, and pieces of equipment were combined with other equipment already owned by Optus. Optus used some of the equipment only for test purposes for its Y2K programme, and other of it for production. The equipment it used was not necessarily used continuously, when used for the Y2K programme but also when used for production. It may have been used as a matter of convenience in that, for example, a powerful item of equipment was used for a lowly purpose for which its power was unnecessary. Had Optus purchased equipment for the uses to which the equivalent leftover equipment was put, it may or may not have purchased new equipment as distinct from second-hand equipment: it preferred new equipment for critical applications because it could be more confident of the equipment's integrity, but that was not inflexible, and threw up what applications were critical.

242 All this made it impossible, in my opinion, to find as the past hypothetical that Optus would have spent the \$7,713,082 on equipment functionally corresponding to the equivalent leftover equipment. Whatever the value to Optus was, it was not \$7,713,082 or anything like that sum.

243 Optus arrived at the value by treating all the equivalent leftover equipment as if it was purchased second hand for use in its business, whether for use in the Y2K programme or for production. As I have indicated, the notional second hand purchase price was more than the price which would have been obtained on sale. This was apt to be an over-value so far as the equivalent leftover equipment was not used at all, was only used part of the time, or was used where less powerful equipment would have sufficed. It was apt to be an under-value so far as Optus would have purchased new rather than second-hand equipment.

244 It was common ground that the business of Optus was growing and it had requirements for further equipment, but the mere fact that Optus kept the equivalent leftover equipment and used it to the extent to which it did did not take the value to Optus beyond the \$2,745,900. The judge was satisfied that Optus' "allowance for leftover equipment as valued by Mr Keaveny is an appropriate one", meaning the \$2,745,900. In my opinion, Tyco's challenge to his finding of fact

should not be overturned.

245 With the utmost respect to Handley JA, I do not think that in the circumstances disclosed in the evidence any presumption of retrospective or prospective continuance of use should be applied to arrive at more or less regular use of the equivalent leftover equipment from April 1998 until the trial. The nature of the equipment and the use so far as it was used for the Y2K programme stand against the presumptions, and it was clear from the Recent Use Schedule that much of the equivalent leftover equipment was not used during its period it covered and that use of much of the equipment had ceased well prior to the trial. Nor, with respect, does it seem to me realistic that Optus should have been required to show with precision each use of each piece of equipment, sometimes shifting use, and what it would have done by way of acquiring equipment for each of the uses had it not had the equivalent leftover equipment. This would have been a massive task, and when Optus' conduct had from about early 1998 been moulded by the availability of equivalent leftover equipment, full and reliable assertions years later of what it would otherwise have done could not be expected.

246 Tyco was a wrongdoer, and on the questions of fact involved in valuing the benefit to Optus of keeping the equivalent leftover equipment could not insist on an unrealistic level of proof. The presumption against the wrongdoer in *Armory v Delamirie* (1722) 1 Sta 505; 93 ER 664 goes beyond where the wrong has positively made it difficult for the victim to prove its damages, and extends to where the wrong has thrust the victim into a difficult task of proving a past hypothetical: see generally Waddams, "*Damages: Assessment and Uncertainties*", (1998) 13 JCL 5L5, and in particular at 58 the dictum of Learned Hand J in *L Albert & Son v Armstrong Rubber Co* 178 F 2 d 182 (1949) at 189, speaking of proof of what would have been earned had a contract been performed, that "it is a common expedient, and a just one, in such situations to put the peril of the answer upon that party who by his wrong has made the issue relevant to the rights of the other".

247 The judge was not asked to trace cabinets and differentiate between them in the past hypothetical of acquisition by Optus of equipment corresponding to the equivalent leftover equipment. The submission to his Honour was that he should infer "that all that equipment which is referred to as being used in some way in the Recent Use Schedule was, by and large, generally applied by the plaintiffs to business uses after the beginning of the year 2000 project to the present day (or at least until April 2001)", and "that the DCRP newly purchased cabinets equivalent to such equipment would have been purchased by the plaintiffs regardless of the incident". The submission was framed as it was for Tyco's submission that the correct assessment of Optus' damages was the acceleration cost of purchasing that part of the pool kit equipment to which the equivalent leftover equipment corresponded. The judge declined so to infer, in my view correctly. He was then left with Optus' notional second-hand purchase price as a fair estimate, where precise proof was unrealistic, of the value to Optus of keeping and using the equivalent leftover equipment to the extent to which it was used. He was not favoured with the detailed analysis undertaken by Handley JA, and was left to estimate loss where actual loss had plainly been suffered (*Fink v Fink* (1946) [74 CLR 127](#) at 143). In my opinion, Tyco has not established error in the judge's satisfaction that the allowance of \$2,745,900 was appropriate.

248 Tyco's subsidiary submission concerned the further equipment. As pool kit equipment, Optus continued to use the further equipment. It was submitted that the judge should have found that Optus would have purchased the equipment to meet its expanding operations even if the disaster had not occurred, and that the cost of purchasing it should not form part of its damages. The reasoning in the submission differed from that in the submission as to the equivalent leftover equipment. The further equipment was not left over at the end of the DCRP, and no question of accounting for its value arose. The reasoning was that use of the further equipment without identification of corresponding equivalent leftover equipment showed that the further equipment fulfilled a need which Optus would have fulfilled quite apart from the disaster.

249 In my opinion, the submission should not be upheld. It was accepted that it was reasonable for Optus to acquire the pool kit equipment as part of the DCRP. Betterment was eschewed. It followed in my view, that the further equipment was properly purchased and retained, as part of the pool kit equipment, in order to receive and carry out the computer applications migrated to the pool kit equipment. The fact that no equivalent leftover equipment was identified corresponding with the further equipment did not mean that the further equipment was additional to that required for the DCRP: if it had been, the acquisition of the pool kit equipment would have gone beyond what was reasonable for Optus to have done. It meant only, as the judge said, that in the complexity of the exercise Optus had been unable to identify completely from its leftover equipment any equivalent equipment in the pool kit equipment. With the utmost respect to Handley JA, I consider that the judge was not in error.

250 I doubt that Tyco should be permitted to put what Handley JA describes as Tyco's fourth submission. It does not matter. For the reasons his Honour gives, the submission should not be upheld.

The upgrade of Blacktown

251 As part of the DCRP, it was reasonable for Optus to convert Blacktown to a class A data centre and leave the migrated applications at Blacktown. This was cheaper than reinstating Rosebery as the data centre and re-migrating the

applications to Rosebery. The \$3,295,792 was properly spent by Optus in mitigating its loss, and to the extent that Tyco put the bald submission that it was not recoverable as damages because Optus acquired an improved asset, the upgraded Blacktown, improved in worth by what it paid, the submission should not be upheld. Again, the improved asset is only part of the story, and as well Blacktown was not necessarily improved in worth to the extent of \$3,295,792. The question is how account is taken of the freeing-up of Rosebery.

252 Optus was left with Rosebery available as a class A data centre, although in considering the net benefit to Optus it lost the availability of Blacktown as a class B data centre. A benefit thereby accrued to Optus. Apart from the disaster, Optus would have had a class A data centre at Rosebery for its operations needing such a centre and a class B data centre for lesser operations at Blacktown. At the end of the DCRP it had two class A data centres. The value of the benefit was not the cost which would have been incurred by Optus in acquiring a class A data centre in Sydney at the time Rosebery became available following the migration to Blacktown. Optus already owned Rosebery, and was not to be required effectively to purchase it again. The value was the saving of the cost of setting up premises already owned as a data centre for the operations to which Optus put Rosebery after the DCRP, if those operations required a class A data centre.

253 I do not think that the freeing-up of Rosebery could be regarded as a collateral benefit. The adjective is traditional but uninformative, see *McGregor on Damages*, 17th ed esp at 7-092, and not greatly elucidated by other expressions of the obverse such as arising out of the transaction or arising out of the consequences of the breach (*British Westinghouse Electric and Manufacturing Co, Ltd v Underground Electric Railways Company of London Ltd* (1912) AC 673 at 688-90). It combines notions of causal significance and judgmental attribution of responsibility in law (positive or negative) for benefits and burdens consequent upon mitigating conduct. In *Naumann v Ford* (1985) 2 EGLR 70 at 74 it was asked "whether any benefit to the plaintiff could be said to relate sufficiently closely to a particular head of damage as to be appropriate to be set off against it", and in *Johns v Purnell* (1960) VR 208 at 211 it was said that the law "endeavoured to form a kind of moral judgment as to whether it is fair and reasonable that the defendant should have the advantage of something which has accrued to the plaintiff, by way of recoupment, or other benefit, as a result of the defendant's infringement of the plaintiff's rights". The freeing up of Rosebery was a direct consequence of the upgrading of Blacktown to a class A data centre in the course of the DCRP, part and parcel of the mitigating conduct. Subject to the question next asked, conformity with the fundamental proposition earlier mentioned and the principle that a benefit obtained as a result of reasonable steps to mitigate loss is to be brought to account in my judgment calls for Optus to account for any benefit from the substitution of Blacktown for Rosebery.

254 Did there come into play a qualification to the lastmentioned principle because, if Optus was to mitigate its loss, it had no choice but to accept the benefit: see *Lagden v O'Connor* (2003) 3 WLR 1571 at [28]-[34] per Lord Hope of Craighead? Optus did not specifically so argue, although I think something of that kind underlay its position that the freeing up of Rosebery was not a benefit to be brought to account. Any such qualification must be confined. It could not apply when conduct mitigating loss by \$10 brought a benefit of \$100. Lord Hope was speaking of situations where the victim could not recover expenditure in mitigation if the benefit was not brought to account, see [30]. That is not this case. Blacktown fortuitously became available, and was upgraded, and making it the substituted class A data centre was reasonable and mitigated Optus' loss. The expenditure can be recovered, but subject to the governing principle that the associated benefit is brought to account.

255 It was probably for Tyco to show the value to Optus of that benefit (see *The World Beauty* (1970) P 144 at 154, 158 in relation to the value to the plaintiff of the advancement of the charter of the damaged vessel; *Simonius Vischer & Co v Holt & Thompson* (1979) 2 NSWLR 322 at 361; *Monroe Schneider Associates (Inc) v No 1 Raberem Pty Ltd* (1991) 35 FLR 1 at 17). I do not think that the burden of proof is determinative in this case.

256 Whether the operations at Rosebery after the DCRP required a class A data centre or, as Mr Berents suggested, only a class B data centre, the value of the benefit was not that calculated by Mr Lonergan. His calculation was of the cost of acquiring a data centre, not the cost of setting up as a data centre premises already owned. However, there plainly was a benefit and if possible its value should be assessed. The judge did not make a finding on Mr Berents' suggestion, saying that it was not necessary to resolve the criticisms levelled by Tyco. The evidence is canvassed as part of schedule C to Tyco's written submissions and part of annexure D to Optus' written submissions. I agree with Hodgson JA, whose reasons I have also had the advantage of reading in draft, that the contemporary documents favour that Optus would have made its internet operations centre a class A data centre. I also agree that the cost of upgrading Blacktown is an available and appropriate measure of the saved cost of establishing such a data centre, and consider that it should be adopted as the value of the benefit to Optus.

257 **HODGSON JA:** The circumstances of this appeal and the issues raised by it are set out in the judgment of Handley JA. I will address the issues under the same headings as adopted by Handley JA.

POOL KIT EQUIPMENT: TYCO'S FIRST SUBMISSION

258 I agree with Handley JA that this submission should be rejected, for the reasons he gives.

POOL KIT EQUIPMENT: TYCO'S SECOND SUBMISSION

259 I agree with Handley JA that this submission should succeed in relation to the equipment identified by him as the four cabinets, the six cabinets and the two cabinets, and I agree in substance with his reasons.

260 Where it appears that a plaintiff may in some respects be better off as a result of expenditure it has incurred in consequence of a defendant's wrong or breach of contract, difficult questions can arise. This is particularly so where the plaintiff is left with an enduring asset that may be of greater value than an asset which had to be replaced because of the defendant's conduct. The basic principle is that the plaintiff is to be compensated for its loss, and no more, and there is no more particular statement of principle that will determine the result in all cases; but in my opinion, the authorities do support a number of subsidiary propositions.

261 First, if a plaintiff chooses to acquire a more valuable asset than that which had to be replaced, where the plaintiff could for a lesser expenditure have acquired an asset that would have been as satisfactory as that replaced, the plaintiff cannot recover more than that lesser expenditure: British Westinghouse Electric & Manufacturing Co. Ltd. v. Underground Electric Railways Co. of London Ltd. [1912] AC 673.

262 Second, even if there is no alternative available to a plaintiff other than to acquire a more valuable asset, a plaintiff may have to give credit reflecting the greater value of this asset to the plaintiff, if there is a benefit to the plaintiff which is not remote in time or speculative, and which can be quantified. In Hoad v. Scone Motors Pty. Ltd. [1977] 1 NSWLR 88, it was accepted that the plaintiff had no reasonable alternative other than to acquire a new tractor; but since the plaintiff was shortly to sell his business including this tractor, the greater second-hand value of this tractor over that which had been destroyed would have to be deducted from the plaintiff's damages. No such deduction was made in Harbutt's "Plasticine" Ltd. v. Wayne Tank & Pump Co. Ltd. [1970] 1 QB 447, where the plaintiff rebuilt a destroyed factory; but there was no suggestion that the new factory would be sold in the foreseeable future. Nor, apparently, was there any evidence or even any suggestion that there would be gains by way of productivity or economies of maintenance of the new factory: had there been evidence to that effect, the result would I think have been different. Similarly, in Hyder Consulting (Australia) Pty. Ltd. v. Wilh Wilhelmsen Agency Pty. Ltd. [2001] NSWCA 313, there was no deduction where a pavement with a life expectancy of twenty years collapsed after four years, and was replaced by one with a similar life expectancy: the prospect that, about sixteen years in the future, the new pavement would probably continue for four years longer than the original pavement should have done, was considered too remote and speculative. Had the life expectancy of the asset that failed after four years been (say) eight years rather than twenty years, I think the result would have been different; but in my opinion the deduction from damages would have been substantially less than 50%, because the benefits would have become available between four and eight years in the future, and been less than 100% certain.

263 Third, where any benefit received by the plaintiff is considered as not truly caused by the defendant's conduct and expenditure undertaken in consequence of it (and paid for by the defendant), but rather considered as being collateral, no credit is given for it: Monroe Schneider Associates (Inc) v. No.1 Raberem Pty. Ltd. (1991) 33 FCR 1.

264 Fourth, although the plaintiff has the general onus of proof of damages, there can be legal or at least evidentiary onuses cast on the defendant. If a defendant wishes to say that the plaintiff incurred loss or expenses that it could have avoided by taking reasonable steps in mitigation, the onus of proof is on the defendant: Roper v. Johnson (1873) LR 8 CP 167. If a defendant wishes to say that some part of the loss would have occurred in any event, there may be an onus on the defendant to "disentangle the causes": Watts v. Rake (1960) 108 CLR 158 at 159, Purkess v. Crittenden (1965) 114 CLR 164 at 168, Shorey v. PT Ltd. (2003) 77 ALJR 1104 at [46]-[47]. If a defendant wishes to say a benefit received by the plaintiff was caused by the defendant's conduct or by expenditure caused by that conduct, it appears that the defendant bears an onus: Monroe Schneider. The onus or at least standard of proof may also be affected by considerations of who has the capacity to offer proof (Blatch v. Archer (1774) 1 Cowp 63 at 65; 98 ER 969) and, where events have prejudiced the provision of proof, who is responsible for those events (Murphy v. Overton Investments Pty. Ltd. (2004) 78 ALJR 324 at [74]).

265 In the present case, Optus acquired the pool kit equipment and cleaned most of the damaged equipment. At the end of the recovery program, the pool kit equipment was left performing functions that had been performed by the damaged equipment. Although the pool kit equipment was newly purchased, it was not submitted by Tyco that damages should be reduced by reason of any superiority of this new equipment over the equipment it replaced: it did the same job, and it was not suggested that it would deliver savings by way of increased performance or longer life. Indeed, as pointed out by Handley JA at par.[22] of his judgment, the primary judge held that the value of leftover equipment, which was equivalent to pool kit equipment, equated in substance with the value of that pool kit equipment.

266 However, Optus plainly did have a benefit from the recovery program, namely the cleaned leftover equipment which was left free because of the continued use of the pool kit equipment. Optus could have sold that leftover equipment, and given credit to Tyco for the proceeds of sale. Provided Optus proved it obtained a reasonable price, Tyco could then not

have claimed any greater deduction from the damages than the proceeds of sale, unless Tyco proved that the sale of the equipment was not a reasonable course of action, for example by proving that Optus would have benefited more from this equipment by putting it to some use.

267 In fact, Optus did not sell the equipment, and the primary judge held that the credit to be given was what Optus would have paid for the equipment, if bought second-hand in an arm's length transaction at the end of the recovery program; and the judge put this at \$2,745,900.00.

268 In my opinion, since it was plain that Optus had a benefit the value of which had to be deducted from damages, the onus was on Optus to prove what the value of that benefit was. The circumstances that Optus alone could have maintained records which would have assisted in establishing that value (Murphy) and that Optus had a much superior capacity than Tyco to lead evidence concerning that value (Blatch) were relevant in determining whether this onus was discharged.

269 For Optus, Mr. Greenwood SC submitted that Optus proved that the value to it of the leftover equipment was no greater than the price it would have paid for this equipment if purchased second-hand at the end of the recovery program, by leading evidence that (1) the only substantial use of the equipment was for the Year 2000 (Y2K) compliance program, (2) that the Y2K program was a non-production application, (3) that increased risk of system instability associated with the use of second-hand equipment was of particular concern in "mission critical applications", and (4) that the Y2K program did not require machines as powerful as the leftover equipment; and by the absence of cross-examination to suggest the contrary of any of these propositions.

270 Mr. Hutley SC for Tyco submitted that this was not sufficient, in circumstances where Optus could have led evidence as to its policy as to the acquisition of equipment and as to precisely what equipment would have been capable of performing the tasks actually performed by the leftover equipment, but (except in relation to the Tandem recovery program) chose not to do so.

271 In my opinion, in relation to the cabinets identified by Handley JA which were extensively used, Tyco's submissions should be upheld. Optus did not provide the Court with records it could have kept as to such use, or with evidence it could have called directed to how the tasks for which these cabinets were used could and would have been performed if the leftover equipment had not been available; and in those circumstances, I do not think the Court should draw the inferences favourable to Optus suggested by Mr. Greenwood.

272 Thus, Optus did not prove that the value to it of these cabinets was no greater than acquiring them second-hand; and in my opinion, in lieu of the allowance provided by the primary judge, credit should be given to Tyco for the cost of acquiring the equivalent pool kit equipment new between April and June 1998.

POOL KIT EQUIPMENT: TYCO'S THIRD SUBMISSION

273 I agree with Handley JA that this submission succeeds, and substantially with his reasons.

274 It was established that \$577,400.00 was spent on pool kit equipment which had no functional equivalents in the leftover equipment. The primary judge accepted that the systems adopted by Optus ensured that no claim was made for any acquired equipment that increased the capacity of Optus's equipment beyond that of the damaged equipment.

275 In my opinion, a comparison of the pool kit equipment with what was left over at the end of the highly complicated recovery program is a more reliable indication of whether capacity was increased than is Optus's methodology; so that Tyco should have been given credit for this sum.

276 The primary judge gave credit for \$97,497.07 as being the second-hand value of two AS4100 machines that had not been included as equivalent leftover equipment; and a question arises whether some or all of this should be deducted from the \$577,400.00.

277 Mr. Ogbourne, the witness who supported the figure of \$577,400.00, had originally specified a larger amount, which included \$469,205.00 in respect of two AS4100 machines. He was then referred to certain leftover equipment that had not been included as equivalents, and accepted that it could be to some extent regarded as equivalent to two AS4100 machines; and for that reason, he reduced his figure by \$270,652.00 to \$198,553.00 in respect of the two AS4100 machines. The primary judge did not allow \$577,400.00, but he did give credit to Tyco for the second-hand value of this leftover equipment at \$97,497.07.

278 Since the \$97,497.07 relates at least in part to the \$270,652.00 already deducted by Mr. Ogbourne, it is clear that it should not be deducted in full from the \$577,400.00. It might be suggested that some part should be deducted, because

the \$97,497.07 was apparently reached as being the full second-hand value of two AS4100 machines (so that possibly as much as 198,553/469,205 of \$97,497.07 should be deducted, that is, \$41,257.73). However, no such submission was made, and on the whole I do not think there should be any deduction.

POOL KIT EQUIPMENT: TYCO'S FOURTH SUBMISSION

279 I agree with Handley JA that this submission fails, for the reasons he gives.

BLACKTOWN UPGRADE EXPENDITURE

280 I agree with Handley JA that Tyco should succeed on this issue. However, my reasons are a little different, in a way that could possibly affect interest calculations.

281 Tyco contended that there was no loss to Optus in spending \$3,295,792.00 in upgrading Blacktown, because it got full capital value for that expenditure, and in any event, was left with what has been called a class A data centre at Rosebery free for use; and this data centre was used to the full in Optus's internet operations which expanded rapidly from about mid-1998. (A class A data centre is one suitable for the most critical operations, having high levels of redundancy, particularly in terms of power supply and air conditioning.) Tyco relied on evidence that the value to Optus of such an A-class data centre was about \$4.7 million.

282 Optus contended that it had no advantage from the upgrade at Blacktown, because the upgraded Blacktown was doing no more than performing what had previously been performed by Rosebery; and because it was accepted that it was reasonable mitigation of damages not to move these functions back to Rosebery. Neither the Blacktown nor the Rosebery premises as such were made available by payments charged to Tyco. No advantage to Optus in respect of Rosebery could be identified from any of the individual items of expenditure making up the sum of about \$3.3 million. Mr. Berents's evidence was that the internet operations did not require a class A centre. At most, Tyco should be allowed the difference between the value to Optus of Rosebery, and the value to Optus that Blacktown and part of Castle Hill would have had, if not used to take over the Rosebery operations; and that difference was not quantified.

283 In my opinion, Mr. Berents's evidence went only to a hypothetical question, which was not addressed by Optus at the time because the class A Rosebery centre was available for internet operations and was used for them. Contemporary documentation strongly supported the need for a class A centre for this use, and in my opinion, Mr. Berents's evidence to the effect that he would have overridden the views of business managers was unconvincing. I would give greater weight to the contemporary documents than Mr. Berents's unsatisfactory evidence on a hypothetical question; and would hold that Optus did require a class A data centre for its internet operations.

284 Had Rosebery not become available, Optus would have needed to spend a large sum, probably of the order of \$4-5 million, to provide premises for its internet operations. Tyco should not get any credit for the availability of the premises at Rosebery, considered merely as premises, because expenditure charged to Tyco did not add to the totality of premises available to Optus. But in my opinion, Tyco should get credit for the difference in value between the premises available at Rosebery being to the standard of Blacktown (pre-upgrade to class A) and being to the actual class A standard of the freed-up Rosebery, as from the time the freed-up Rosebery began to be used for internet operations.

285 In my opinion, the availability of Rosebery as a class A centre, in lieu of the availability of those or of some other premises of less than class A standard, is a result of the expenditure by Optus in upgrading Blacktown to A-class, and cannot be regarded as collateral.

286 In accordance with the principles discussed earlier, in my opinion the onus was on Optus to quantify the benefit which it received as the result of Tyco's conduct and measures (paid for by Tyco) to mitigate loss arising from that conduct. Having regard to that consideration, and the failure of Optus to lead evidence which could assist in quantifying this benefit, in my opinion the best measure of this benefit is the amount of \$3,295,792.00 actually spent to upgrade Blacktown to a class A data centre.

287 It would seem that use of Rosebery for internet operations commenced about the end of March 1999, and in my opinion it is appropriate to give credit for the amount of \$3,295,792.00 as at the end of March 1999.

BUSINESS RECOVERY SERVICES

288 I agree with Handley JA that Tyco fails on this issue, for the reasons he gives.

THE BULLOCK ORDERS

289 I agree with Handley JA that Tyco's appeal on this issue should succeed, for the reasons he gives.

CROSS-APPEAL ON INTEREST

290 I agree with Handley JA that Optus's cross-appeal on interest fails, for the reasons he gives.

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