FEDERAL COURT OF AUSTRALIA

University of Sydney v ObjectiVision Pty Limited [2019] FCA 1625

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| File number: |  |
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| Judge: | **BURLEY J** |
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| Date of judgment: | 2 October 2019 |
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| Catchwords: | **CONTRACT** – termination of licensing agreements – where respondent was required to assign certain patents as a condition precedent – whether there was a failure to fulfil the condition precedent – whether compliance with a condition precedent would have been futile due to the other party’s refusal to perform the agreement – whether non-payment of invoices gave rise to a termination right – held that licensing agreements validly terminated  **CONTRACT** – where respondent was required to consult and obtain applicant’s consent in relation to entering into an agreement for acquisition of majority shareholding by a third party – whether there was a failure to consult – whether the respondent failed to obtain the applicant’s consent as required – whether consent unreasonably refused  **CONTRACT** – breach – where Shareholders’ Agreement contained requirements of best endeavours and good faith – where applicant had dealings with a third party instead of offering an opportunity to the respondent – whether breach of best endeavours and good faith requirements – construction of obligations in light of the licensing agreements also on foot – held that there was no breach  **EQUITY** – estoppel – whether the applicant indicated that it would not enforce performance criteria under the licensing agreements – where this would have removed the only mechanism by which the applicant could ensure performance – where there was no clear and unambiguous representation by the applicant  **DAMAGES** – reliance damages – where the applicant did not consent to a new majority shareholder – whether this denied the respondent the necessary funds to commercialise its product – whether an exclusion clause applied to the claim for damages – held that causation not established  **COPYRIGHT** – joint authorship in a computer program – where the nature of each author’s contribution was not clear – where authors were not exhaustively identified – whether the required degree of collaboration and non-separate contribution was established – held that it was a work of joint authorship  **COPYRIGHT** – ownership – where number of joint authors was uncertain and not all had validly assigned copyright – whether fractional ownership could be established – whether an implied licence to use the work existed – whether the licence had been revoked – requirement for revocation to be communicated to the licensee  **COPYRIGHT** – infringement – consideration of causal connection where there is a common author – materiality of reproduction – where fragments of computer source code showed similarity – assessment of the quality of the part taken – held that the reproduction was not material |
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| Legislation: | *Copyright Act 1968* (Cth) ss 10(1), 14, 31, 32, 35, 36(1), 38, 43B, 78 – 83, 126B, 129A, 134, 196, 197  *Evidence Act* *1995* (Cth) ss 79, 135, 136  *Electronic Transactions Act 1999* (Cth) s 10(1)  Explanatory Memorandum, Electronic Transactions Bill 1999 (Cth)  *University of Sydney Act 1989* (NSW)  Copyright, Patents and Designs Act 1988(UK) |
|  |  |
| Cases cited: | *Acohs Pty Ltd v Ucorp Pty Ltd* [2010] FCA 577; 86 IPR 492  *Acohs Pty Ltd v Ucorp Pty Ltd* [2012] FCAFC 16; 287 ALR 403  *Acorn Computers Ltd v MCS Microcomputers Systems Pty Ltd* [1984] FCA 399; 4 IPR 214  *Admar Computers Pty Ltd v Ezy Systems Pty Ltd* [1997] FCA 853; 38 IPR 659  *Australia China Business Bureau Pty Ltd v MCP Australia Pty Ltd* [2003] FCA 934  *Australian Orthopaedic Fixations Pty Ltd v Amplitude Australia Pty Ltd* [2017] SASC 88  *Avel Pty Ltd v Multicoin Amusements Pty Ltd* [1990] HCA 58; 171 CLR 88  *Banque Commerciale S.A., En Liquidation v Akhil Holdings Ltd* [1990] HCA 11; 169 CLR 279  *Barnes v Forty Two International Pty Ltd* [2014] FCAFC 152; 316 ALR 408  *Becker Group Ltd v Motion Picture Company of Australia Ltd* [2004] FCA 630  *CA Inc. v ISI Pty Limited* [2012] FCA 35; 201 FCR 23  *Career Step LLC v TalentMed Pty Ltd (No 2)* [2018] FCA 132; 354 ALR 500  *Chapmans Ltd v Australian Stock Exchange Ltd* [1996] FCA 1568; 67 FCR 402  *Commonwealth v Amann Aviation Pty Ltd* (1991) 174 CLR 64  *Concut Pty Ltd v Worrell* [2000] HCA 64; 176 ALR 693  *Darlington Futures Ltd v Delco Australia Pty Ltd* [1986] 82; 161 CLR 500  *Dasreef Pty Limited v Hawchar* [2011] HCA 21; 243 CLR 588  *Data Access v Powerflex Services* [1999] HCA 49; 202 CLR 1  *DTR Nominees Pty Ltd v Mona Homes Pty Ltd* [1978] HCA 12; 138 CLR  *Dynamic Supplies Pty Ltd v Tonnex International Pty Ltd* [2011] FCA 362; 91 IPR 488  *EIFY Systems Pty Ltd v 3D Safety Services Pty Ltd* [2017] NSWSC 1310; 127 IPR 204  *Fairfax Media Publications Pty Ltd v Reed International Books Australia Pty Ltd* [2010] FCA 984; 189 FCR 109  *Foran v Wight* [1989] HCA 51; 168 CR 385  *Fulham Partners LLC v National Australia Bank Ltd* [2013] NSWCA 296; 17 BPR 32709  *GM Global Technology Operations LLC v S.S.S. Auto Parts Pty Ltd* [2019] FCA 97; 139 IPR 199  *IceTV Pty Limited v Nine Network Australia Pty Limited* [2009] HCA 14; 239 CLR 458  *Immer (No 145) Pty Ltd v The Uniting Church in Australia Property Trust (NSW)* [1993] HCA 27; 182 CLR 26  *IPC Global Pty Ltd v Pavetest Pty Ltd* (No 3) [2017] FCA 82; 122 IPR 445  *Janos v Chama Motors Pty Ltd* [2011] NSWCA 238  *JR Consulting & Drafting Pty Limited v Cummings* [2016] FCAFC 20; 329 ALR 625  *JR Consulting & Drafting Pty Ltd v Cummings* [2014] NSWSC 1252  *Legione v Hateley* (1983) 152 CLR 406  *LMI Australasia v Baulderstone Hornibrook Pty Ltd* [2001] NSWSC 886  *Lockwood Security Products Pty Ltd v Doric Products Pty Ltd (No 2)* [2007] HCA 21; 235 CLR 173  *Macquarie International Health Clinic Pty Ltd v Sydney South West Area Health Service* [2010] NSWCA 268  *Milwell Pty Ltd v Olympic Amusements Pty Ltd* [1999] FCA 63; 85 FCR 436  *Mount Bruce Mining Pty Ltd v Wright Prospecting Pty Ltd* [2015] HCA 37; 256 CLR 104  *Museth v Windsor Country Golf Club Ltd* [2016] NSWCA 327  *ObjectiVision Pty Ltd v Visionsearch Pty Ltd* [2014] FCA 1087; 108 IPR 244  *Optus Networks Pty Ltd v Telstra Corporation Ltd* [2010] FCAFC 21; 265 ALR 281  *Park v Brothers* [2005] HCA 73; 80 ALJR 317  *Peter Turnbull & Co Pty Ltd v Mundus Trading Co (Australasia) Pty Ltd* [1954] HCA 25; 90 CLR 235  *Primary Health Care Limited v Commissioner of Taxation* [2010] FCA 419; 186 FCR 301  *Primary Health Care Ltd v Commissioner of Taxation* [2010] FCA 419; 186 FCR 301  *Prior v Lansdowne Press Pty Ltd* [1977] VR 65; 12 ALR 685  *Prior v Sheldon* [2000] FCA 438; 48 IPR 301  *Rolleston v Insurance Australia Ltd* [2017] NSWCA 168  *Sanofi-Aventis Australia Pty Ltd v Apotex Pty Ltd (No 3)* [2011] FCA 846; 196 FCR 1  *Sargent v ASL Developments Ltd* [1974] HCA 40; 131 CLR 634  *Secured Income Real Estate (Australia) Ltd v St Martins Investments Pty Ltd* [1979] HCA 51; 144 CLR 596  *Shepherd v Felt and Textiles of Australia Ltd* (1931) 45 CLR 359  *Shield Mercantile v Citigroup* [2013] NSWSC 117  *Stefanovski v Digital Central Australia (Assets) Pty Ltd* [2018] FCAFC 31; 368 ALR 607  *Sunbird Plaza Pty Ltd v Maloney* [1988] HCA 11; (1989) 166 CLR 245  *SW Hart & Co Pty Ltd v Edwards Hot Water Systems* [1985] HCA 59; 159 CLR 466  *Telephonic* *Communicators International Pty Ltd v Motor Solutions Australia Pty Ltd* [2004] FCA 942; 62 IPR 323  *Telstra Corporation Ltd v Phone Directories Co Pty Ltd* [2010] FCAFC 149; 194 FCR 142  *Tillmanns Butcheries Pty Ltd v Australasian Meat Industry Employees’ Union* [1979] FCA 85; 42 FLR 331  *Transfield Pty Ltd v Arlo International Ltd* [1980] HCA 15; 144 CLR 83  *University of Sydney v ObjectiVision Pty Limited* [2015] FCA 1528  *University of Sydney v ObjectiVision Pty Ltd* [2016] FCA 1199  *Victoria Park Racing & Recreation Grounds Co Ltd v Taylor* (1937) 58 CLR 479  *Waltons Stores (Interstate) Ltd v Maher* [1988] HCA 7; 164 CLR 387  *Williams v Frayne* (1937) 58 CLR 710  *Wilson v New South Wales* [2010] NSWCA 333; 278 ALR 74  *Zahedpur v Idameneo (No 123) Pty Ltd* [2016] QCA 134  *Brighton v Jones* [2004] EWHC 1157 (Ch)  *Cort v The Ambergate &c Railway Co* (1851) 17 QB 127; 117 ER 1229  *International Drilling Fluids Ltd v Louisville Investments* [1986] 1 Ch 513  *Kuwait Asia Bank EC v National Mutual Life Nominees Ltd* [1991] 1 AC 187  *Lakshmijit v Sherani* [1974] AC 605  *Sweet & Maxwell Ltd v Universal News Services Ltd* (1964) 2 QB 699  *Woodhouse AC Israel Cocoa Ltd SA v Nigerian Produce Marketing Co Ltd* [1971] 2 QB 23  Textbooks  Garnett K, Davies G and Harbottle G (eds), *Copinger and Skone James on Copyright* (Sweet and Maxwell, 16th ed, 2011)  Lindgren, Rothnie and Lahore, LexisNexis Butterworths, *Copyright and Designs* |
|  |  |
| Date of hearing: | 12 March 2018 - 20 April 2018, 4 - 6 September 2018 |
|  |  |
| Date of last submissions: | 17 October 2018 |
|  |  |
| Registry: | New South Wales |
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| Division: | General Division |
|  |  |
| National Practice Area: | Intellectual Property |
|  |  |
| Sub-area: | Patents and Associated Statutes |
|  |  |
| Category: | Catchwords |
|  |  |
| Number of paragraphs: | 762 |
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ORDERS

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|  | | NSD 385 of 2014 |
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| BETWEEN: | THE UNIVERSITY OF SYDNEY ABN 15 211 513 464  Applicant | |
| AND: | OBJECTIVISION PTY LIMITED ACN 090 253 697  Respondent | |
|  |  | |
| AND BETWEEN: | OBJECTIVISION PTY LTD ACN 090 253 697  Cross-Claimant | |
| AND: | THE UNIVERSITY OF SYDNEY ABN 15 211 513 464  First Cross-Respondent | |
|  | VISIONSEARCH PTY LTD ACN 150 067 271  Second Cross-Respondent | |

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| JUDGE: | BURLEY J |
| DATE OF ORDER: | 2 OCTOBER 2019 |

THE COURT ORDERS THAT:

1. Within 21 days of these reasons the parties are to confer and provide to the Associate of Justice Burley draft short minutes of order giving effect to the conclusions that are set out in these reasons, with any points of difference between them set out in mark-up.

2. Any party wishing to make submissions as to costs, or otherwise as to the form of any final orders to be made, is to file and serve written submissions (of no more than 7 pages) and any evidence in support within 21 days of these reasons.

3. Any party wishing to respond to submissions and evidence filed in accordance with Order 2 is to do so within 14 days thereafter, such submissions also to be of no more than 7 pages in length.

4. Any reply submission (of no more than 3 pages) is to be filed and served within 7 days thereafter.

5. If any party wishes to be heard on any question arising from the question of costs or form of orders they should so indicate in their written submissions. Otherwise, any remaining questions will be determined on the papers.

Note: Entry of orders is dealt with in Rule 39.32 of the *Federal Court Rules 2011*.

REASONS FOR JUDGMENT

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BURLEY J:

##### 1. INTRODUCTION

1 This case involves an unsuccessful venture to commercialise technology in the field of visual electrophysiology. The main protagonists are a university, a company incorporated to commercialise the technology, the director and majority shareholder of that company, and the people who strove without success for over a decade to achieve a commercial product.

2 The **University** of Sydney is a body corporate established pursuant to the *University of Sydney Act 1989* (NSW). In the late 1990s two of its employees, Associate Professor Alexander Klistorner, an electrophysiologist, and Professor Stuart Graham, an ophthalmologist, developed improvements to a particular form of visual electrophysiology, using multi-focal visually evoked potential (**mfVEP**). This technology can be used to detect partial and complete blind spots associated with glaucoma and other diseases of the eye or the brain. In 1999, the University filed a patent application in respect of mfVEP technology, entitled “Electrophysiological Visual Field Measurement”.

3 One of the University’s objects is to carry out research to meet the needs of the community. Another is to exercise commercial functions for the exploitation and development of its intellectual property. Pursuant to these objects, in September 2000 the University entered into an exclusive licensing agreement with **ObjectiVision** Pty Ltd for the commercialisation of a product, ultimately called the **AccuMap**,which utilised the patented technology. The AccuMap was run on computer software theatrically called OPERA (Objective Perimetry Evoked Response Analysis).

4 Things did not go well. By 2008 ObjectiVision had failed to meet the minimum performance requirements under its agreements. The University gave notice terminating the exclusivity of the licence and began to develop its own software called TERRA (Topographical Evoked Response Recording and Analysis). At the beginning of 2011 the University gave notice of termination of the licensing agreement with ObjectiVision and began to deal with **Visionsearch** Pty Ltd in relation to the technology. ObjectiVision did not accept the termination.

5 In 2014 the University commenced these proceedings. It alleges that ObjectiVision is infringing its patented technology and wrongly does not accept the termination of the licensing arrangements. ObjectiVision disputes these matters and advances a cross claim alleging: that the licences between it and the University were not validly terminated; that in proceeding to commercialise the technology with third parties the University acted in breach of its agreements with ObjectiVision; and that the University and Visionsearch are liable to it for substantial pecuniary remedies arising from this conduct. ObjectiVision also contends that in seeking to commercialise the technology, each of the University and Visionsearch infringed its copyright in the OPERA software and acted in breach of confidence.

6 By Orders made in May 2015, all issues, including the claims for damages, were to be heard separately and before the patent infringement case. It is those matters that this judgment is addresses.

7 The dispute concerns the conduct of the parties and various individuals from 2000 until 2011. The litigation has been hard fought and no doubt challenging for the people involved. For the reasons explained below, the litigation has been protracted. Many factual and legal issues have been raised, which have necessitated this rather long judgment.

###### 1.1 Overview

8 The legal and factual issues between the parties are far-reaching. Before attending to the detail, it is convenient to provide a general summary, to explain the layout of the reasoning that follows. The relevant terms of the agreements and my factual findings relevant to the issues are addressed in later parts.

9 On 29 October 1999 ObjectiVision was incorporated as a vehicle through which the mfVEP technology could be commercialised. On 4 September 2000 the University and ObjectiVision entered into a **Licensing Agreement** for the exclusive licence of the technology. On the same day ObjectiVision, the University and several others entered into a **Shareholders' Agreement.** On 25 October 2001 the University and ObjectiVision entered into a **Second Licensing Agreement** extending the scope of the technology licensed. On 10 May 2004 the University and ObjectiVision entered into a **Variation Agreement** that altered the minimum performance obligations under the Licensing Agreement. The salient terms of these agreements are set out in section 5 of these reasons.

10 From 2000 ObjectiVision set out to commercialise the mfVEP technology by developing a product, initially called a Multifocal Objective Perimeter or **MOP** but later referred to as the AccuMap. This succeeded to a point, but in early 2005 development work stalled, and the first version of the product, called AccuMap 1, was abandoned. In 2005Mr Arthur Cheng was brought on board as the CEO of ObjectiVision to develop a better and more viable product. Various protoype devices subsequently developed were referred to as the **AccuMap 2**. The OPERA software was upgraded and in its final form was OPERA v2.3. Some aspects of the case turn on the progress made by ObjectiVision in the development of AccuMap 2 from 2005 until January 2008, when it ran out of funds and ceased work. I set out a number of findings of fact in relation to these matters, in section 4.3.

11 In early 2008 the University expressed concerns that ObjectiVision had failed to commercialise its technology in accordance with the Licensing Agreements. It served notices on ObjectiVision, and expressed the view that by August 2008 it had terminated the exclusivity of ObjectiVision’s licence. In November 2008, Associate Professor Klistorner instructed Vadim Alkhimov, a software programmer who began working for ObjectiVision in 2007 and moved to work for the University in 2008, to commence development of software that would enable him to continue his research. This was later called TERRA.

12 ObjectiVision disputed that the licence had been validly rendered non-exclusive, and between 2008 and 2010 it was at issue with the University. In January 2010 they attended a mediation, at the end of which they entered into terms of agreement referred to below as the **Heads of Agreement**, which included a number of obligations on both parties, but most significantly provided for the reinstatement of the exclusive licence under the Licensing Agreement for a limited period, to enable ObjectiVision to find third party funding to continue the commercialisation of the technology. If it failed to do so within an agreed period of time, the Licensing Agreement could be terminated.

13 In the second half of 2010 the University considered an opportunity to provide expertise and equipment to support clinical trials that **Biogen** Idec planned to conduct for a drug used to treat optic neuritis. In the course of this, consideration was given to the incorporation of a new start-up company that would develop a product and enter into a contract with Biogen. Mr Ken Coles and Dr Christopher Peterson contributed funds to this end.

14 On 19 January 2011 the University wrote to ObjectiVision, indicating that in its view the Licensing Agreements were terminated as a result of the operation of the terms of the Heads of Agreement. The University’s contract claim is based on this proposition. It separately contends that the Licensing Agreement was terminated because of the failure of ObjectiVision to pay certain invoices. In response, ObjectiVision contends that the agreements were not terminated, that the University unreasonably refused to consent to terms whereby **Hamisa** Investments Pty Ltd would take a majority shareholding in ObjectiVision, and that the other bases upon which the University contends the Licensing Agreements to be at an end are unfounded.

15 In its cross claim based on breach of contract, ObjectiVision repeats these claims, and also contends that the University acted in breach of various terms of the Shareholders' Agreement and the Licensing Agreement in various dealings that it had with Biogen. It seeks some $25 million in damages.

16 On 28 March 2011 VisionsearchPty Ltd was incorporated and in early May 2011 the University provided it with the TERRA software that Mr Alkhimov had been working on. Thereafter, Mr Alkhimov worked at Visionsearch with Mr Paul Peterson in the development of an mfVEP machine called **Visionsearch 1** which included further development to the TERRA software.

17 In its cross claim ObjectiVision also contends that the creation and use of TERRA constitutes an infringement of its copyright. It contends that the supply of TERRA to Visionsearch, and its subsequent use in the Visionsearch 1 machine, also amounted to an infringement of ObjectiVision’s copyright and also constituted misuse of confidential information. These matters are considered in sections 9 to 13 of these reasons.

###### 1.2 The parties

18 The University operates a number of research centres, one of which is the Save Sight Institute (**SSI**) which is a not-for-profit centre located at the Sydney Eye Hospital in Macquarie Street, Sydney. The SSI is part of the University Medical School and incorporates the University’s discipline of clinical ophthalmology and eye health. It is not a separate legal entity from the University.

19 One of the research groupings of the SSI is the electrophysiology and glaucoma research group, of which Associate Professor Klistorner is the leader. Associate Professor Klistorner was engaged as a full time employee of the SSI from 1997 until 2014, after which he became a part-time employee. The SSI also provides clinical services for the diagnosis, treatment and management of eye disease in the community, and educational programmes teaching ophthalmology.

20 ObjectiVision was incorporated in October 1999. Details for its shareholders are set out in some detail in section 4.4 below. Mr Cheng became the chief executive officer of ObjectiVision on 30 March 2005, was appointed as a director in April 2006, and on 29 April 2008 he became the majority shareholder.

21 Visionsearch was incorporated on 25 March 2011. Its directors were then Dr Chris Peterson, Mr Coles, and Mr Paul Peterson.

###### 1.3 The course of the proceedings up until trial

22 The University commenced these proceedings in April 2014 alleging that the Licensing Agreements had been validly terminated and that it was entitled to claim damages of non-payment of certain costs associated with its patents. It also alleged patent infringement on the part of ObjectiVision.

23 In July 2014, ObjectiVision filed a cross-claim, alleging that the University had wrongly purported to terminate the licence agreements. In May 2014 ObjectiVision was granted orders for the provision of preliminary discovery by the University and Visionsearch of the TERRA software; *ObjectiVision Pty Ltd v Visionsearch Pty Ltd* [2014] FCA 1087; 108 IPR 244 (Perry J) (**preliminary discovery judgment**). On 11 August 2014 the Court made orders by consent that all questions arising in the proceeding concerning contracts between the parties be heard and determined separately and before all questions concerning patent infringement. On 22 May 2015 ObjectiVision was granted leave to file an amended cross claim that added its claims for copyright infringement and misuse of confidential information on the part of the University and Visionsearch. On the same day, the order concerning the separation of issues was varied so that all questions relating to copyright infringement and confidential information be determined with the questions concerning contracts between the parties. It is on that basis that the present trial proceeded.

24 On 19 November 2015 ObjectiVision filed a detailed expert report prepared by Mr Robert Zeidman going to the copyright infringement case. Mr Zeidman was provided with version 2.3 of the OPERA software and asked to compare it against various files containing the TERRA software.

25 On 9 December 2015 Rares J ordered that ObjectiVision give security for costs in respect of its cross claim; *University of Sydney v ObjectiVision Pty Limited* [2015] FCA 1528 (**security for costs judgment**). Subsequently, the University gave discovery and proceeded to prepare its response to the Zeidman report. However, ObjectiVision ran into difficulties in funding its claim. The cross claim stalled, and was not reanimated until October 2016 when I heard an application brought by ObjectiVision for, amongst other things, leave to amend its cross claim; see *University of Sydney v ObjectiVision Pty Ltd* [2016] FCA 1199 (***Amendment Decision***) at [5] – [33]. The University expressed concerns about the proposal to amend the copyright claim because the amendments appeared to allege that earlier versions of OPERA other than OPERA v2.3 had been infringed and also because they appeared to allege that in addition to OPERA v2.3, particular algorithms identified in the amended pleadings were separate works that had been infringed. Senior counsel for ObjectiVision confirmed that neither concern was warranted (see [38], [51]) and that the separate reference to particular algorithms was to particularise the specific or most important files which ObjectiVision alleges have been copied. On this basis ObjectiVision was granted leave to re-draft its amended cross claim: *Amendment Decision* at [52].

26 Along the way, ObjectiVision has made numerous amendments to its cross claim. The final version is the sixth further amended statement of **cross claim**. That version abandons many earlier breach of contract allegations.

###### 1.4 The relief sought

27 In its claim the University seeks a declaration that the Licensing Agreement and Second Licensing Agreement terminated on 19 or 20 January 2011, and judgment in the sum of $19,219.74 plus interest. It also seeks declaratory, injunctive and pecuniary relief in respect of infringement of certain patents, although as noted, this aspect of the case has been separated from the subject matter of the present proceeding.

28 In the contract aspect of its cross claim, ObjectiVision seeks a declaration that the Licensing Agreement remains in full force and effect, a declaration that the Licensing Agreement remains exclusive, and damages. In the copyright aspect of the cross claim, ObjectiVision seeks permanent injunctions restraining the use or reproduction of the TERRA software by either the University or Visionsearch, consequential orders including the delivery up of infringing copies of the software, and damages.

29 The damages claim as advanced by ObjectiVision varied considerably as the case progressed. In opening submissions it was quantified on the basis that had the University not wrongly terminated the Licensing Agreements, ObjectiVision would have had commercial opportunities to exploit the mfVEP technology valued by its expert, Mr Jeffry Aroy, at over $52.9 million. In the alternative, ObjectiVision claimed that it was entitled to $25.9 million on the basis of wasted expenditure, as a result of the University’s wrongful termination. In opening, ObjectiVision contended that it was entitled to the same measure of damages for infringement of copyright and misuse of confidential information. As the trial progressed, numerous claims of breach of several agreements as pleaded in the cross claim by ObjectiVision were abandoned. As initially pleaded, taking into account alleged implied terms and the multiple contracts alleged to have been breached, there were over 70 allegations of breach. By the end of closing submissions, the alleged breaches were reduced to four, and the claim for damages for breach of contract was advanced only on the basis of an entitlement to damages based on wasted expenditure.

30 The claim for pecuniary relief arising from copyright infringement and misuse of confidential information was abandoned save for a claim for nominal damages.

###### 1.5 Summary of conclusions

31 For the reasons set out below I find:

(1) That the Licensing Agreement and the Second Licensing Agreement terminated on 19 January 2011;

(2) That had these licensing agreements not been terminated on 19 January 2011, then they were in any event validly terminated for breach on 20 January 2011 and again on 10 October 2014;

(3) That the University is entitled to judgment in the amount of $19,219.74 plus interest for failure on the part of ObjectiVision to pay outstanding patent costs; and

(4) That ObjectiVision’s cross claim fails and must be dismissed.

32 I will make orders directing that within 21 days the parties discuss and supply draft short minutes of order giving effect to the conclusions that are set out in these reasons, with any points of difference between them set out in mark-up.

33 In the normal course I would be disposed to order that ObjectiVision pay the costs of the claim and the cross-claim. However, provision will be made in the orders for any party wishing to contend for a different order to do so.

##### 2. THE WITNESSES

###### 2.1 Introduction

34 Aspects of the dispute concern events that took place many years before the various witnesses supplied their written evidence, and more years before they gave their oral evidence. Memories fade and the more intricate details of events as they happened are less likely to be remembered over time. Several aspects of the dispute concern events taking place from 2005 until January 2011. In particular, a live issue at trial was how close to completion the AccuMap 2 product was by the time that the Licensing Agreements were allegedly terminated by the University, and how much time and money was likely to be needed to complete it. In this regard there was conflicting written and oral evidence between the witnesses. Taken as a whole, I consider that the lay witnesses who gave oral evidence did their best to remember events long gone. However, I consider that the distance of time has made it appropriate to pay close regard to the documentary record of events as it appears from the email traffic and board minutes prepared contemporaneously with the events as they unfolded. In this regard I was favoured with a large and well organised court book that initially included over 30 volumes of documents, and which was slimmed down somewhat after the dust of the hearing had settled. Except where I make specific comment below, I consider that the lay and expert witnesses did their best honestly to give their evidence.

###### 2.2 The witnesses called by the University

35 **Alexander (“Sasha”) Klistorner** is an Associate Professor of Clinical Ophthalmology and Eye Health at the SSI. He works in the research and development of technology relating to electrophysiology and imaging of the visual pathway, in particular mfVEP. Associate Professor Klistorner is a world-leading expert in the mfVEP and electrophysiology fields and was a founding shareholder of and a consultant to ObjectiVision. In his first statement dated 20 December 2016, he gives evidence about electrophysiology and mfVEP, the patented technology and ObjectiVision, the AccuMap machine and the OPERA software, his research using the OPERA software, the development of the AccuMap 2 prototypes, his involvement with ObjectiVision from December 2007, his participation in a technical assessment of the AccuMap 2 prototype in early 2010 and his involvement in, inter alia, dealings with Biogen. In the course of this he responds to the evidence of Mr Cheng. In his second affidavit he responds to the evidence of an expert called by ObjectiVision, Mr Aroy. Associate Professor Klistorner was cross-examined.

36 ObjectiVision submits that Associate Professor Klistorner frequently sought to fashion his evidence so as to support the case advanced by the University. This was not my impression. I consider that Associate Professor Klistorner presented as a careful and honest witness, who attempted to answer the questions as best he could. In my view, ObjectiVision’s submission is not supported by the various examples that it advances. To the extent that he was unable to recall specific events, Associate Professor Klistorner frankly stated that this was so. I do not consider that the identified memory lapses, concerning events dating back more than a decade, can reasonably be characterised as “convenient”. Nor do I consider that his evidence as to the state of readiness or the worth of the AccuMap 2 prototypes was contrived. To the contrary, at various times he gave evidence of mishaps in the presentation of prototypes that credibly concern embarrassing events that he is likely to have recalled.

**Stuart Graham** is a professor of ophthalmology and visual science in the Faculty of Medicine and Health Science at Macquarie University, Sydney. He is also a consultant ophthalmologist with a private practice in Sydney. From 1996 until 2005 he conducted research as a PhD candidate and research fellow with Associate Professor Klistorner at the SSI. Their research concerned electrophysiology and mfVEP. Professor Graham’s PhD thesis was entitled “Development of a technique for Objective Perimetry using the multifocal visual evoked potential” and his collaboration with Associate Professor Klistorner led to them being jointly named as inventors on several patents relevant to the current proceedings. Professor Graham was one of the initial shareholders in ObjectiVision, and gives evidence about the mfVEP technique and the early history of ObjectiVision, the development of the AccuMap 2 prototypes, his involvement with ObjectiVision over time, and his dealings with other companies interested in mfVEP technology. He also provides responses to some of the expert evidence filed on behalf of ObjectiVision. He was cross-examined.

37 **Anders Hallgren** was employed by the University as the Director of Sydnovate from November 2010 to March 2014. Sydnovate, a group within the University, had the role of commercialising the University’s intellectual property. Dr Hallgren holds a PhD in Chemical Engineering/Industrial Process Technology from Lund Institute of Technology/Lund University, a Master of Science in Chemical Engineering and Process Technology from the same institution; and a degree in Business Administration, Management and Leadership, Business Law, and International Industrial Marketing from the Lund University School of Economics. In his position as Director of Sydnovate, Dr Hallgren was ultimately responsible for managing the University’s relationship with ObjectiVision and making decisions on behalf of the University in this regard. Dr Hallgren gives evidence about the correspondence between the University and ObjectiVision from November 2010 and, in particular, about the events leading from that date until the decision in January 2011 to terminate the Licensing Agreements. Dr Hallgren was cross-examined.

38 **Vadim Alkhimov** is a software engineer who graduated with an Honours Degree in Computer Science majoring in mathematics from the Moscow Power Engineering Institute in 1999. He immigrated to Australia in October 2006 and worked at ObjectiVision from January 2007 until January 2008. He then worked for the University at the SSI until May 2011. Thereafter, he worked at Visionsearch from May 2011 until November 2011, and from 30 April 2013 until 14 February 2014, whereupon he began to work for Visionsearch as a consultant for 3 days a week. Mr Alkhimov gives evidence about his work at ObjectiVision, the OPERA software, the development of the TERRA software, and gives his response to allegations that the TERRA software is a copy of the OPERA software. Mr Alkhimov was cross-examined.

39 **Stephen Garton** was from August 2009 to 2019 the Deputy Vice-Chancellor and Provost of the University. Immediately prior to that, he was the Dean of the Faculty of Arts at the University, a role that he had held since 2001. In his role as Deputy Vice-Chancellor and Provost, he was the Vice-Chancellor’s senior deputy and, together with the Vice-Chancellor, was responsible for the management of the University. He gives evidence about the functions and structure of the operation of the University, the delegation of authority within the University, the formation of the SSI and its operations and the University’s policies concerning academic freedom. Professor Garton was cross-examined.

40 **Anna Katherine Grocholsky** was from August 2004 until November 2011 engaged by the University first as a business development manager and, after 26 September 2006, as the manager of intellectual property within Sydnovate, which was later renamed the Commercial Development and Industry Partnership. She gives evidence about Sydnovate’s patent administration and payment systems, her correspondence with Mr Cheng in relation to Objectivision, and invoices rendered to ObjectiVision. Ms Grocholsky was not cross-examined.

41 **Terence Potter** is a forensic accountant at Axiom Forensics Pty Ltd. He obtained a Bachelor of Commerce degree from the University of Western Australia in 1987 and in 1990 became an associate member of the Institute of Chartered Accountants. In 1998 he established the forensic accounting division at Ferrier Hodgson in Sydney and in 2004 established Axiom Forensics Pty Ltd, where he now works. He gives expert evidence in answer to ObjectiVision’s claim for damages based on the calculation of wasted expenditure and in support of the University’s claim that ObjectiVision was insolvent after December 2007. He was cross-examined during the course of a concurrent evidence session (concerning insolvency) with Mr Potter.

42 **Michael Khoury** is a Partner at Ferrier Hodgson and the national leader of the firm’s Forensic IT practice. He specialises in computer forensics and electronic discovery. He provides evidence about the content of computer files that he examined supplied to him by the University containing the TERRA and OPERA code. Mr Khoury participated with Mr Klein in the preparation of a joint expert report. He did not give concurrent evidence and he was not cross-examined.

43 **Justin Zobel** is a professor and the head of the Department of Computing & Information Systems at the University of Melbourne. He is a computer scientist by training with a PhD in computer science. He has developed algorithms for text retrieval and from 1999 to 2001 led a project to identify RMIT students whose assignment submissions were plagiarised. This involved the development and enhancement of software, manual and automatic comparisons of examples of student computer programming assignments. He has published work on the detection of plagiarism for large code repositories and as the head of a large computer science school has practical and also academic experience in considering whether or not computer code has been copied. He gave evidence relevant to the copyright infringement claim.

44 **Philip Dart** is a senior lecturer in the Department of Computing & Information Systems at the University of Melbourne. He has a PhD in Computer Science (database systems) from the University of Melbourne and over 30 years of experience in software engineering and information technology, having worked in the industry, government and tertiary education sectors.

45 Dr Dart prepared a report under the supervision of Professor Zobel directed to the existence or absence of similarities between the source code of TERRA and final OPERA v2.3 that were identified in a report prepared by Robert Zeidman. Professor Zobel provided a report addressing the causes of extant similarities found by Dr Dart, and also the existence or absence of similarities identified by Mr Zeidman. Dr Dart and Professor Zobel participated in the preparation of a joint expert report with Mr Zeidman and were cross-examined during the course of a concurrent evidence session.

2.2.1 The witnesses called by ObjectiVision

46 **Arthur Cheng** has since 30 March 2005 been the chief executive officer of ObjectiVision and has been a director of ObjectiVision since 6 March 2006. He holds a Bachelor (Hons) degree and a Master’s degree in Commerce and Administration from the University of Victoria, New Zealand. Since 29 April 2008 he has directly or through his own company **OV2** Pty Ltd held a majority of the shares in ObjectiVision, and since 19 August 2008 he has been the sole director of the company. He gives evidence that he, and the companies that he controls, are the largest creditors of ObjectiVision and that his wife and the companies that she controls are ObjectiVision’s next largest creditors. He has since 19 August 2008 been the company’s controlling mind.

47 The written evidence of Mr Cheng traverses many of the factual issues in the proceedings. It spans events from 1999 until after 2013 and relies on the contents of various documents, including ObjectiVision board minutes and email correspondence to recount events. One relevant aspect of his evidence concerns the progress made in the development of an AccuMap 2 product after ObjectiVision ceased selling the AccuMap 1 in 2005, and the likely cost that would be necessary to produce a final AccuMap 2 product in 2011, when the deadline expired for ObjectiVision to raise funds from a third party for that purpose. The University submits that the content of his oral evidence, and the manner in which he gave it, demonstrates that he was unable to overcome his financial and emotional commitment to the proceedings to give truthful evidence.

48 Certainly it is the case that Mr Cheng is heavily invested in the proceedings. The evidence indicates that since 2005 when he became CEO of ObjectiVision, he strove to see ObjectiVision produce a working AccuMap 2 product. As set out in detail in section 4.4 below, at the end of 2007 ObjectiVision ran out of support from its main funder and shareholder, Medical Corporation Australia Ltd (**Medcorp**). In early 2008 he commenced negotiations for a management buyout of the company. In April 2008 he became a majority shareholder. He has since then invested funds in the company and he and his wife have paid in excess of $2 million on the costs of these proceedings. Furthermore, he is the person responsible for giving instructions to the lawyers engaged by ObjectiVision and he had, before giving oral evidence, read the evidence adduced by the University. He had sat through the several days of opening submissions and read the University’s submissions. He was deeply versed in the factual and legal issues in the proceedings.

49 It is perhaps understandable that these factors would present a challenge to Mr Cheng in separating his role as a witness of fact from his position as a protagonist in the litigation. Regrettably, in my view he did not meet that challenge. I consider that Mr Cheng was acutely aware of the issues in the proceedings and had a tendency to tailor his evidence to suit what he perceived to be the forensic interests of his company. For instance, there was a tendency for Mr Cheng in his evidence to refuse to accept the plain meaning of his own words as they appeared in documents authored by him, in circumstances where that meaning might be disadvantageous to ObjectiVision’s case. I give several further examples during the course of my reasons. One concerns the content of a 14 April 2005 report to the Board of ObjectiVision that Mr Cheng prepared, where he stated that there were “problems” with the AccuMap 1 device. Yet in cross-examination he refused to accept that this is what he had said, or that it reflected a belief that he held at the time. At pages 449 – 551 of the transcript his answers were evasive and skewed to downplay the content of that report insofar as it identified problems. The answers that he gave in cross examination in relation to other documents yielded a similar failure to respond directly or credibly.

50 A further example of concern arises from evidence in chief given by Professor Graham. In about November 2006 Mr Cheng instructed Spruson and Ferguson patent attorneys to register two patent applications. The first was the **stepped stimulus patent**, which allowed ObjectiVision to overcome the issue of not being licensed to commercially use the “sparse stimulus” patented by the Australian National University (**ANU**). The second involved the use of disposable electrodes to work with the micro-amplifier component of the headset of AccuMap 2, and was entitled “Flexible electrode assembly and apparatus for measuring electrophysiological signals” (the **flexible electrode patent**). The inventors were Associate Professor Klistorner and Professor Graham. Professor Graham gives evidence in chief that in January 2008 he had a conversation with Mr Cheng during which Mr Cheng said that in order to achieve a new corporate structure for ObjectiVision, he wanted to tell MedCorp that ObjectiVision had assigned the stepped stimulus patent and the flexible electrode patent back to Professor Graham and Associate Professor Klistorner and that they had assigned them over to OV2. Professor Graham subsequently met Mr Cheng and signed the requested document to reassign the patents back from ObjectiVision to himself and, a week later, he signed a second document which assigned the patents to OV2. Professor Graham subsequently had reservations about the transfers and in an email in July 2008, asked Mr Cheng to provide copies of the documents that he had assigned.

51 In his written evidence Mr Cheng accepts that on 14 and 21 February 2007 the inventors executed the deeds of assignment mentioned, but contends that the idea to assign the patents was that of Professor Graham and Associate Professor Klistorner, and that they had expressed concerns that if ObjectiVision’s funding difficulties could not be resolved, the patents would go to the University. He further contends that the assignment to OV2 was never finalised. Neither Associate Professor Klistorner nor Professor Graham were cross-examined on these events, but Mr Cheng was. He was confronted with the email correspondence. In it, Professor Graham first asks Mr Cheng to provide him with a copy of the deeds that Mr Cheng asked him to sign. Mr Cheng responds by saying that he was too busy and would get to it as soon as he can. The next day Professor Graham pressed for the copies. Mr Cheng then responded by explaining that the purpose of the assignments was to ensure that the patents would not be ‘lost’ because of a failure on the part of ObjectiVision to pay for registration fees. He said that after the preparation of the assignment papers Medcorp agreed to allow ObjectiVision to fund the patent costs and so there was no need to assign the patents to OV2. Mr Cheng supplied no documents, and Professor Graham again pressed for them to be supplied as he wished to obtain legal advice. In response, Mr Cheng said:

ObjectiVision assigned the patents to the inventors who in turn assigned them to OV2. OV2 still exists and is the assignee of the patents. When I mentioned that there was no need to assign the patents to OV2, I meant that there was no need to formally record the assignment....

52 In cross-examination, Mr Cheng steadfastly refused to accept that in his email he accepted that the inventors had assigned the patents to OV2. For an intelligent and articulate witness, I found his answers to be obtuse and self-serving.

53 In its closing submissions the University correctly characterises Mr Cheng’s evidence in this regard as troubling in three respects. First, because Mr Cheng’s written denial of the evidence of Professor Graham was shown to be incorrect. For the avoidance of doubt, I find that it was Mr Cheng who suggested the transfer. Secondly, at the time that Mr Cheng procured the signed deed from Professor Graham, Mr Cheng was a director and CEO of ObjectiVision, owing obligations of good faith in his dealings with that company, yet he procured assignments away from it to a company he controlled, being OV2. Thirdly, in cross-examination he steadfastly refused to acknowledge the plain effect of the words that he had used in his own email, namely that the inventors had assigned the patents to OV2.

54 Overall, I find myself obliged to treat the evidence given by Mr Cheng with considerable caution.

55 **Jordan Langholz** is a computer programmer who worked as a software developer at **PMP** Software Pty Ltd from 1997 until about 2002 whereupon he became a self-employed software developer working on projects, including for PMP. He gives evidence about work that he did from mid-2002 until about July 2003 on the Orienteer Upgrade Project to assist in upgrading the OPERA software. Mr Langholz was cross-examined.

56 **Martin Ford** is an accountant specialising in financial analysis. In 2012 he was appointed as a director at PPB Advisory and has since been made a partner at that firm. He holds a Bachelor of Commerce (Accounting and Finance) degree from Monash University. He gives evidence in relation to the solvency of ObjectiVision. He was cross-examined during the course of giving concurrent evidence with Mr Potter.

57 **Christopher Bowd** is a research scientist and director of the Hamilton Glaucoma Centre of the Department of Opthalmology, School of Medicine, at the University of California, San Diego. He completed a PhD in experimental psychology/neuroscience at Washington State University in 1998 and has a current research focus on the early detection and monitoring of glaucoma, and machine learning classifier analyses of imaging and visual function measurements. In 2000 Dr Bowd’s Centre received an AccuMap 1 device, and until about 2003 it worked to participate in a clinical trial designed to assess the usefulness of the device for detecting glaucoma cross-sectionally and for monitoring glaucoma-related changes longitudinally over three years. Dr Bowd gives evidence about the usefulness of the AccuMap 1 device as a tool for the treatment of glaucoma. He was cross-examined.

58 **John Michael Sinai** works at Optos plc, a provider of devices to eye care professionals. He holds the position of Vice President of Clinical Development and is responsible for working with research and development to develop new optical coherence tomography. In 1988 he completed a PhD in Clinical Vision at the University of Louisville, Kentucky. From 2004 until 2007 he was the director of Clinical Applications for Heidelberg Engineering, a company that was a distributor for ObjectiVision of the Accumap 1 device. He gives evidence about actual and potential usefulness of the mfVEP technology in the AccuMap 1 device. He was cross-examined.

59 **Jeffrey Aroy** is employed as the Vice President in the Life Sciences Practice of Charles River Associates. He holds a Bachelor of Arts in Economics, which he obtained from Harvard University, Massachusetts, in 1988 and a Masters of Business Administration in Strategic Management from the Wharton School of Business at the University of Pennsylvania. He prepared a report that was directed towards the assessment of the loss of commercial opportunity to ObjectiVision as a result of the University’s conduct. After I made a ruling as to the admissibility of certain paragraphs of his report, ObjectiVision withdrew reliance on his evidence as a whole. I give my reasons for rejecting those paragraphs in section 8.8 below.

60 **Mr Nick Klein** is the Managing Director of Klein & Co, a digital forensics investigation firm. He has affirmed three affidavits addressing the content of various digital files concerning the OPERA and TERRA software and responding to the evidence of Mr Khoury. He participated in the preparation of a joint expert report with Mr Khoury. He did not give concurrent evidence and was not cross-examined.

61 **Mr John-Henry Eversgerd** is a Partner at PPB Advisory. He completed a Bachelor of Arts in Economics and the Philosophy of Science from the University of Pennsylvania in 1994, a Master of Business Administration from the University of Michigan in 1999 and worked providing valuation services at Deloitte and Ernst & Young during the period 2000 – 2012. He gives evidence concerning the quantification of damages that ObjectiVision claims to have suffered in the nature of wasted expenditure in three affidavits. Mr Eversgerd participated in the preparation of a joint expert report with Mr Potter. He did not give concurrent evidence and was not cross-examined.

62 **Robert Zeidman** is an engineer and the founder and president of Zeidman Consulting, which provides engineering consulting services to high-tech companies. He has a master’s degree in Electrical Engineering from Stanford University and two bachelor’s degrees from Cornell University, one in Electrical Engineering and one in Physics. He is based in California, has been a computer software and hardware designer for about 45 years, and has designed and developed a variety of computer hardware and software products. In his first expert report he relied on software that he designed for use in detecting whether one computer program has been plagiarized from another computer program. He undertook a comparison of the final OPERA v2.3 with versions of TERRA provided in discovery. Mr Zeidman subsequently provided responses to the evidence of Professor Zobel and Dr Dart, participated with each of them in the preparation of a joint expert report, and was cross-examined during the course of a concurrent evidence session involving these three witnesses.

2.2.2 The witness called by Visionsearch

63 **Paul Petersen** has been a director of Visionsearch since its formation on 25 March 2011 and since then has also been contracted by Visionsearch to work as a computer programmer, systems analyst and project architect to assist in the development and commercialisation of its TERRA software. He obtained a Bachelor of Computer Science and Technology from the University of Sydney in 2000 and prior to the commencement of his work at Visionsearch, obtained experience in programming computer code, mostly in the C# language in the .NET environment. He gives evidence about his initial review of the TERRA software in September 2010, the incorporation of Visionsearch, his role in the writing of the TERRA software and his response to the allegations of copyright infringement. He was cross-examined.

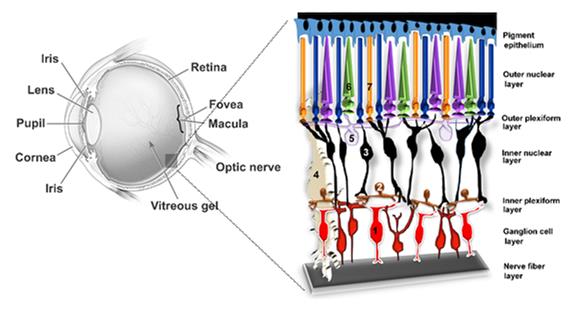
##### 3. BACKGROUND TECHNOLOGY

64 The following is derived from a primer agreed by the parties.

###### 3.1 Introduction

65 Electrophysiology is the study of the electrical properties of biological materials. One form of electrophysiology is visual electrophysiology, which involves the study of electrical signals produced or transmitted by the eye, optic nerve and visual cortex in response to a visual stimulus.

66 The retina is a light sensitive layer of tissue at the back of the eye. It is made up of millions of light-sensitive photoreceptor cells. The following image shows the structure of the eye and the layers of the retina. Looking at the layers of the retina (on the right hand side of the image below), the outer retina is comprised of the outer nuclear layer and the outer plexiform layer, and the inner retina is comprised of the inner nuclear layer, the inner plexiform layer and the ganglion cell layer.



67 When light enters the eye, it stimulates the photoreceptor cells of the retina. These cells undergo chemical changes that generate electrical impulses (electrical current). The current generated is transmitted to neurons and ganglion cells, where action potentials (nerve impulses) are generated. The action potentials generally travel from the ganglion cells through the optic nerve to the lateral geniculate nucleus and then on to the primary visual cortex. The action potentials can be recorded using electrodes placed on different parts of the skull, overlying the visual cortex. These action potentials are also known as visually (or visual) evoked potentials, or **VEPs**. The VEP response can be displayed as a ‘trace’ that displays the amplitude and latency of the VEP response.

68 Amplitude measures the functional strength or magnitude of the VEP response of the neural structures to visual stimulation. For mfVEP, amplitude is measured in nanovolts (nV). The evidence of Associate Professor Klistorner, which I accept, is that amplitude is highly variable between persons.

69 Latency measures the time it takes a VEP response to travel from the retina, along the optic nerve, to the brain’s visual cortex. For mfVEP, latency is measured in milliseconds (ms) as the delay between the time of stimulation and the response of the neural structures. Measuring latency using VEP provides the clinician with an indication of the degree of damage or interference caused by particular neurological conditions (such as demyelination, or damage to the optic nerve, caused by optic neuritis). There are a number of ways to measure latency using different latency algorithms.

70 In addition to VEPs, ERGs (electroretinograms) can be recorded using electrodes placed on the cornea or around the eye. While VEPs measure the response of the visual cortex to visual stimuli, ERGs measure the response of the retinal cells to visual stimuli. ERGs also measure amplitude and latency.

71 A VEP records the electrical response of the primary visual cortex to either a flash or a pattern stimulususing electrodes placed on the back of the head. A VEP reflects the integrity of the entire visual pathway and the final signal in the visual cortex in response to the stimulus. Electrophysiologists have researched VEPs for about the last 50 years.

72 There are different types of VEP. The full field VEP (**ffVEP**) measures the aggregated response of the whole visual pathway to a stimulus. It was the first type of VEP to be developed. The ffVEP analyses the brain’s response to a single visual stimulus, which typically covers a large part of the visual field, such as a flash or pattern of light. The ffVEP cannot detect localised defects in a person’s visual field.

73 mfVEP measures the same response but from multiple locations of the visual field: the reference to “multifocal” in mfVEP refers to the ability of a multifocal stimulus to stimulate multiple areas of the visual field.

74 The image on the left below is an example of an mfVEP trace array response, and the image on the right below is an example of a standard VEP response. It can be seen that the mfVEP measures the same response but from multiple locations.

|  |  |
| --- | --- |
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**Figure 1.** mfVEP trace array response (left), standard VEP response (right).

75 The purpose of mfVEP is to detect partial or complete blind spots (scotomas). These are a particular feature of glaucoma but can occur with other diseases of the visual system. mfVEP can be used to objectively assess whether the visual pathway is intact at multiple locations, not just central vision. It can be used for investigating cases of unexplained visual loss, potential malingering patients, and establishing any damage to the optic nerve – for example, in optic neuritis (a feature of multiple sclerosis in some multiple sclerosis patients).

###### 3.2 The mfVEP technique

76 mfVEP analysis involves dividing the visual field into sectors and then, by altering the stimulus for each sector using a pseudorandom sequence, measuring the response generated from each sector and extracting a VEP response for each sector of the visual field. This technique allows VEPs to be recorded simultaneously from different regions of the visual field.

77 mfVEP has the following (minimum) requirements or steps:

(a) Stimulating a person’s visual field using a stimulus on a computer screen (or a similar device like virtual reality goggles). An example of a typical stimulus is presented in Figure 2 below.

(b) Data acquisition: recording the person’s aggregated responses (the mfVEPs) to that stimulus in each sector of the visual field, and then digitising the signal using a digital-analogue converter.

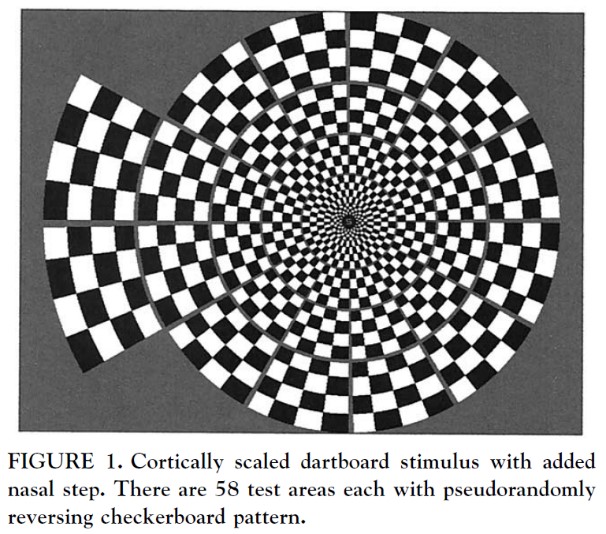
(c) Data processing: cross-correlating the stimulus for each sector with the aggregated response in order to identify the specific response for each sector and performing other functions, such as amplifying and filtering the signals and removing noise.

(d) Data analysis: displaying the person’s results for analysis, with or without a normative database.

78 In the context of mfVEP analysis, the patient is determined to be normal or abnormal at each test point. To determine this, the patient’s test results are compared against a normative database, which is a set of values obtained from a population of normal subjects. At least 30 subjects are needed to create a normative database that has statistical power in medical research.

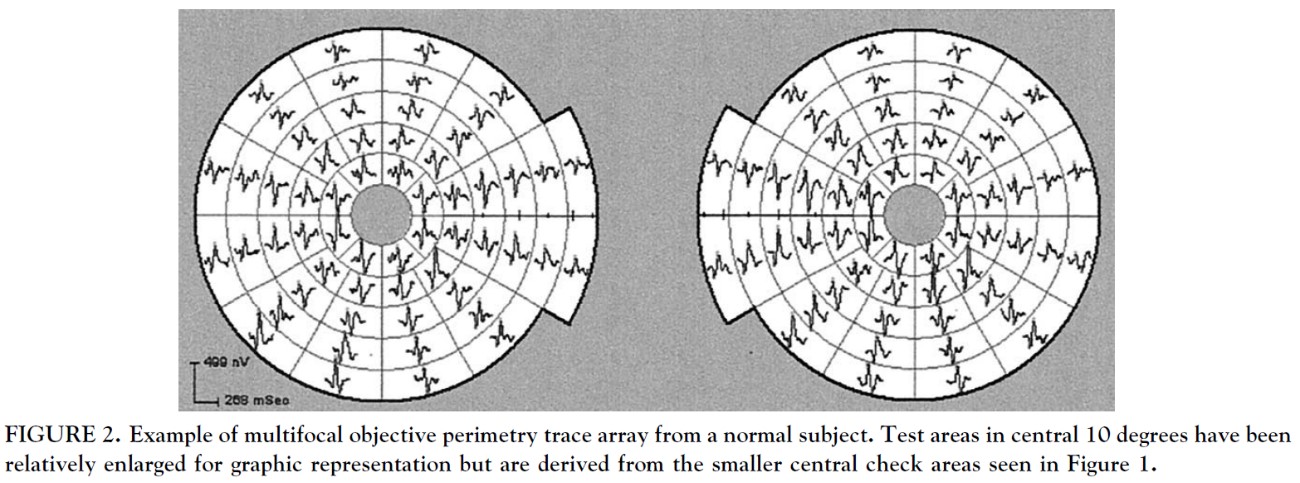
79 Collection of data is specific to the stimulus and the hardware (e.g., the monitor or the amplifier). Therefore, any time a change is made to the stimulus or hardware (or if one wants to test a new stimulus or new hardware), data needs to be collected from normal subjects to construct a new normative database for that stimulus or hardware.

80 The stimulus on a computer screen is most commonly a cortically scaled dartboard pattern consisting of a number of different sectors. Each sector has a 4 by 4 checkerboard pattern. The 16 squares within each sector flicker black and white according to the stimulus algorithm. The following checkerboard stimulus from the AccuMap 1 has 58 segments:

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**Figure 2.** Cortically scaled dartboard stimulus with added nasal step.

81 When conducting an mfVEP test, the mfVEP system will measure the amplitude and/or the latency of a person’s responses to the stimulus in each sector. A person’s visual response (a VEP trace or waveform) for each sector of the visual field can be displayed in the following way using what is known as a VEP trace array:

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**Figure 3.** Example of multifocal objective perimetry trace array from a normal subject. Test areas in central 10 degrees have been relatively enlarged for graphic representation but are derived from the smaller central check areas seen in Figure 2.

82 The VEP waveform shown in the trace arrays in Figures 1 and 3 above represents the change in potential in response to visual stimulation (in nV) (amplitude, y-axis) over a defined period of time (in ms) (latency, x-axis).

###### 3.3 The development of mfVEP

83 In the early 1990s, Dr Erich Sutter, a mathematician, developed a way of stimulating multiple areas of the visual field independently using pseudorandom m-sequences. Dr Sutter patented this stimulus method and used it to build and sell a device, which he called the VERIS Multifocal system.

84 m-sequences are sequences of numbers that appear to be randomly generated, but are not (hence their classification as ‘pseudorandom’). They can be thought of as a series of 0s and 1s in which each 0 and 1 is one frame of a computer screen. Each frame has a duration of 16 ms. The 1s can be designated as a flash or other stimulus. Pseudorandom m-sequences allow researchers to record separate brain signals in response to reversals of each sequence.

85 There are a number of visual electrophysiology systems which have been on the market since the early 2000s and which can perform mfVEP analysis (in some cases, in addition to other visual electrophysiology tests). These systems capable of performing mfVEP analysis include:

(a) the **VERIS** Multifocal System, sold by Electro-Diagnostic Imaging, Inc., which is Dr Sutter’s company;

(b) the **RETIscan**, sold by Roland Consult;

(c) the Espion system sold by Diagnosys LLC;

(d) a system sold by Metrovision; and

(e) a system sold by Scottish Health Innovations Ltd.

###### 3.4 The original AccuMap machine: an example of an mfVEP system

86 The commercially released AccuMap 1 had the following components:

(a) A headset, which fixed four electrodes in a cross-configuration over the inion of a person’s skull. The electrodes detected electric signals generated by the visual cortex.

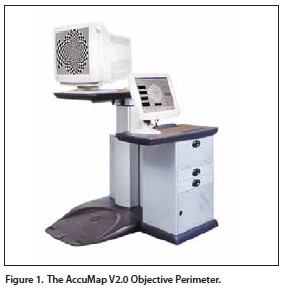
(b) An amplifier. The amplifier amplified the signals recorded from the visual cortex by the electrodes.

(c) A patient screen. This was a cathode ray tube (CRT) computer screen that displayed the multifocal visual stimulus to the patient. The stimulus was a cortically scaled dartboard similar to the one reproduced in Figure 2 above. As described further below, this was based on the development work of Iouri Malov.

(d) An operator screen. This was a liquid crystal display (LCD) computer screen. It displayed an interface that allowed the operator to run the machine and view the patient’s results. Part of the display of patient results included a display similar to that shown in Figure 3 above.

(e) A computer central processing unit, which had the OPERA software installed for the machine.

87 An image of the commercially released AccuMap appears below.

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**Figure 4.** The AccuMap 1.

###### 3.5 mfVEP and glaucoma

88 Glaucoma is a disease that damages the optic nerve. It usually happens when fluid builds up in the front part of the eye, increasing the pressure in the eye and damaging the optic nerve.

89 Perimetry is the investigation or assessment of the visual field. mfVEP is one form of objective perimetry. Objective perimetry means assessing the human field of vision for its sensitivity at multiple locations using an objective means. “Objective” here means that the patient does not have to physically make a response. mfVEP is one test that can be used to help diagnose glaucoma, optic neuritis, and perhaps other problems with the visual field. The development of mfVEP technology was a breakthrough as previous methods of assessing the visual field relied on the patient’s participation (subjective perimetry) and were therefore prone to errors.

90 I accept the evidence of Associate Professor Klistorner and Professor Graham that when measuring amplitude, mfVEP has problems with both inter-individual variability and reproducibility. A low level of inter-individual variability and a high level of reproducibility are important in diagnosing whether a patient’s responses are ‘normal’ compared to a given population or whether the patient’s responses indicate that the patient has glaucoma. Highly reproducible tests are also necessary in order to be able to monitor a patient’s glaucoma over time.

##### 4. OBJECTIVISION AND THE ACCUMAP DEVICES

###### 4.1 Introduction

91 Set out below, in largely chronological order, are findings of fact relevant to several aspects of the proceedings.

###### 4.2 The development of AccuMap 1

92 In the late 1990s Professor Graham and Associate Professor Klistorner developed technology at the SSI relating to improvements in the use of mfVEP for visual field analysis. On 7 May 1999 the University filed patent application PCT/AU99/00340 in respect of mfVEP technology developed by Professor Graham and Associate Professor Klistorner entitled “Electrophysiological Visual Field Measurement” (the **EVFM patent**). Patents deriving from that application are referred to as the **EVFM Patent Family**.

93 ObjectiVision was incorporated on 29 October 1999. There were six founding shareholders whose relevant experience, in broad outline, was as follows:

(1) Professor Graham, whose expertise as an ophthalmologist was focused on the clinical aspects of the development of the AccuMap.

(2) Associate Professor Klistorner, who had an understanding of the engineering aspects of electrophysiology and who was responsible for the design of the software for the mfVEP recording.

(3) Professor Frank Billson, who was a professor of Ophthalmology at the University.

(4) Ben Meek, a computer engineer with experience commercialising start-up technologies.

(5) Dr Alex Kozlovski, who was recruited to write the software for the machine.

(6) Dr Iouri Malov, a mathematician who was recruited to design a new algorithm to drive the stimulus for the device and to build an amplifier.

94 During 1998, Associate Professor Klistorner and Professor Graham made a decision to build a machine that could perform mfVEP. Initially, they wanted to create a system that could use off-the-shelf hardware. They could then add bespoke software that did not infringe the sequences patented by Dr Sutter. Dr Kozlovski wrote the software for the first system in return for shares in ObjectiVision. An aspect of the software involved the writing of a pseudorandom sequence that could be used as a stimulus sequence for the machine. Dr Malov had experience with pseudorandom sequences from prior work that he had done on Russian military communications systems, and he was recruited to write a multifocal stimulus that did not infringe Dr Sutter’s m-sequence stimulus. It took Associate Professor Klistorner and Dr Kozlovski about 6 months working most nights to come up with a working version of the software for the first mfVEP system that could do recordings using Dr Malov’s multifocal stimulus.

95 While Associate Professor Klistorner and Professor Graham were conducting their research and working with Dr Kozlovski, Mr Meek, who was a member of the SSI board, approached Associate Professor Klistorner with a proposal to commercialise the research. This led to the incorporation of ObjectiVision. John Newton was appointed as its first chief executive officer.

96 On 4 September 2000 the University and ObjectiVision entered into the Licensing Agreement pursuant to which the University, as the owner of the patented mfVEP technology, granted ObjectiVision an exclusive licence to use the relevant intellectual property, including the EVFM Patent Family, and bring to market a product. The purpose of this device is stated in the agreement to be to “map a patient’s visual field”.

97 Also on 4 September 2000 the Shareholders’ Agreement was entered into between: ObjectiVision, the six individuals who held the initial shares in ObjectiVision, the University, and Medcorp. The agreement records the rights and obligations of ObjectiVision shareholders and provides for the University and Medcorp to acquire shares in ObjectiVision. According to a schedule entitled Agreed Shareholding prepared for these proceedings by ObjectiVision, at this point Medcorp received an 11.76% shareholding and made an equity contribution of $400,000 to the company. By 8 February 2008 Medcorp had made an aggregated equity contribution to ObjectiVision of $11,485,847 and held 91.67% of its shares.

98 The AccuMap 1 was launched in mid to late 2001. It utilised the OPERA software written by Dr Kozlovski. The hardware components of Version 2.0 of the AccuMap 1 are depicted above in Figure 4.

99 OPERA is described in a 2001 product guide, which was written by Professor Graham, as being used for recording and analysis. It generates the multifocal stimulus on the patient’s monitor and performs signal extraction (cross correlation) and a display of the results. The results include topographical evaluation of latency and amplitude. An “asymmetry coefficient” compares right and left eyes, thereby allowing for the detection of very subtle changes. Other aspects of the software are addressed in more detail in sections 9 to 12 below, which concern the copyright aspects of the cross claim and particular aspects of the development of OPERA.

100 Professor Graham was engaged as a consultant to ObjectiVision from 17 May 2001 until February 2007. As an ophthalmologist, his involvement was particularly focused on the clinical aspects of the development of the AccuMap, such as how clinicians would use it, what sort of features they would need and the like. His role was also to assess patients’ and normal subjects’ visual function and interpret data.

101 On 25 October 2001 the University and ObjectiVision entered into the Second Licensing Agreement in which the University exclusively licensed ObjectiVision to exploit the invention in a similar patent on similar terms to the Licensing Agreement.

102 In mid-2001 Mr Newton, the CEO, decided that ObjectiVision should redevelop the system to use a custom-built amplifier rather than an off-the-shelf Grass amplifier and re-write the software that Dr Kozlovski and Dr Malov had written. ObjectiVision engaged PMP to re-write the software. Due to the change of amplifier, ObjectiVision had to collect a new normative database, because each amplifier has different technical specifications, and so the data collected using one will not be the same as the data using the other. It took PMP over a year to redesign the software, with 3 or 4 programmers working on separate modules. ObjectiVision also engaged another software engineer, Alex Osmakoff, to complete the software when PMP experienced difficulties getting the program to work. After the software had been completed and the product launched, Dr Osmakoff remained with the company.

103 The first AccuMap prototype was donated to Dr Garrick at St Vincent’s Hospital in Sydney. In late 2003 the University acquired an AccuMap 1 for Associate Professor Klistorner to use for the purpose of his research work on mfVEP and also for clinical work at the SSI. A number of other devices were sold, including to ophthalmologists in Melbourne, Forster and Newcastle.

104 On 14 November 2003 United States Federal Drug Administration (**FDA**) approval was given for the AccuMap 1 and sales commenced with Heidelberg Engineering acting as ObjectiVision’s US distributor. In the summary provided with the FDA approval, the machine is described as using “multifocal recordings of visual evoked potentials as a diagnostic aid in the detection of glaucoma”. The next step in the development of the business for ObjectiVision was to complete clinical trials in the United States so as to convince US ophthalmologists to use the device.

105 Accounts prepared by Medcorp indicate that by June 2004, some 14 AccuMap devices had been sold (mostly in Australia, with one in the US and one in Singapore) for a total of about $526,000. Three units sold in Australia in May 2002 for $130,754.16 at an average price of $43,584.72. In June 2004 the sale value for a single unit (sold in the United States) was $19,007. The records indicate that there were additional sales of 4 units in the United States (at an average value per unit of $23,367.23), the last of which was in January 2005, and a single sale in China in October 2005 for $34,073.87 for the unit. The total value of sales recorded is $653,853.

106 On 10 May 2004 the University and ObjectiVision entered into the Variation Agreement,a term of which varied ObjectiVision’s performance obligations so that ObjectiVision was required to sell 90 units by 30 September 2006 and 80 units per annum from 1 October 2006 and ongoing (the original performance requirement was that 80 units of the product be sold by 4 September 2003).

107 On 1 April 2003 Professor Graham ceased to be a director of ObjectiVision. Prior to that time he was heavily involved in the development of the AccuMap. Afterwards, his involvement was somewhat diminished, although as an employee of the University and a researcher at the SSI he continued to do ad hoc occasional work for ObjectiVision. He gives evidence, which I accept, that in about late 2004 the clinical trial that was set up in five centres in the United States was stopped, partly due to technical problems and partly due to a lack of funding. At around that time Mr Newton stepped down as ObjectiVision’s CEO and Simon Lee, then the chairman of Medcorp, and later Ryan Lee (Simon Lee’s son) stepped in as interim CEOs. The FDA trials were formally terminated by ObjectiVision in early to mid-2005.

108 Mr Gregory Fernance was appointed as the University’s nominee director of ObjectiVision on 3 September 2004.

109 In early November 2004 Medcorp informed ObjectiVision that it required a review to be conducted of ObjectiVision before it would continue to give financial support to the company. Although there was some dispute about it at the hearing, it is tolerably clear that at about this time ObjectiVision was suffering from a number of problems. Medcorp, which had been its major funder, was reluctant to advance more funds in the face of a number of technical problems with the finalisation of the AccuMap 1. The request from Medcorp included that there be a review of the level of expenditure required to proceed any further with the commercialisation of AccuMap 1. On 12 November 2004 the Board of ObjectiVision made a resolution to cooperate with Medcorp in its review.

110 In January 2005 a **Business Plan** was presented by the senior management of ObjectiVision (including Associate Professor Klistorner). The authors refer to market perceptions of shortcomings in the AccuMap 1 including: doubts in the United States market that the technology worked; that the economics of the device were not sufficiently attractive to medical practices; and that there were reliability issues with the product. An extensive list of required improvements to the AccuMap 1 is set out in the document including: the need to prove the value and reliability of the technology via clinical trials in the US; the need to reduce the cost and size of the product; and the need to improve certain technical aspects of the device such as reducing the amount of noise in the signal. The “critical recording chain” of the device is said in the Business Plan to have multiple points of failure and to be “considered unreliable”. Concepts are proposed for an AccuMap 2 product. The top three priority projects are listed as first, clinical trials with an estimated budget of $260,000 in 2005 and estimated duration of 9 to 36 months, secondly, the development of “AccuMap 2” with an estimated budget of $580,000 and timing of 9 to 12 months, and thirdly the development of “Headset II” with an estimated budget of $650,000 and duration of 9 to 12 months. The Business Plan states that expenditure on the commercialisation of AccuMap 1 had by that time been $10 million.

111 In early 2005 Mr Cheng was introduced to ObjectiVision. He had previously worked in commercialising emerging technologies with a Federal Government program and as a result had contact with the University’s business liaison unit. He had indicated to the University his interest in technological investment opportunities and, in response, was informed that ObjectiVision was seeking a strategic investor.

112 On 29 March 2005 Mr Ryan Lee sent an email to Mr Fernance, Mr Mark Clements and Mr Ben Meek attaching a proposal that Mr Cheng be appointed (via Capital City Group Pty Ltd) as interim CEO of ObjectiVision with the role of decreasing expenditure, restructuring the company, including cancelling or restructuring clinical trials, and maximising the probability of raising capital from external investors. On the next day ObjectiVision’s board minutes record that Mr Lee was authorised to sign an Interim CEO Management Services Agreement with Capital City Group and that it was agreed that, subject to discussions with Mr Cheng, the US clinical trials “should be placed on hold for six months whilst an assessment is made regarding a suitable strategic partner and to decrease the company’s cash burn rate”.

113 On 14 April 2005 Mr Cheng provided the ObjectiVision board with a CEO report which included an **Action Plan** and a pro-forma budget for April to October 2005. In it, he recommended terminating agreements with US clinical trial sites on the basis that the original objectives of the program were no longer appropriate and that the introduction of the AccuMap 2 would invalidate the existing trial protocol. He also recommended presenting the AccuMap 2 prototype at international ophthalmology conferences in July 2005 and October 2005, and revamping the management team. The minutes record that the board resolved to approve Mr Cheng’s recommendations relating to the management team changes and the termination of clinical trial arrangements. It was also noted that any expenditure relating to product development was subject to completion of a successful capital raising by the existing shareholders of ObjectiVision.

114 An issue arises concerning the state of AccuMap 1 at the point that development of that product ceased and development of AccuMap 2 commenced. In my view the objective evidence indicates that AccuMap 1 was a product with *significant shortcomings* that had forced its withdrawal from the market. This was the description given by Mr Cheng to the managing director of SSI in a letter dated 6 February 2008. It is supported by more contemporaneous documents, including Mr Cheng’s assessment in his letter to ObjectiVision dated 22 February 2005 and also Mr Cheng’s Report to the board as part of his Action Plan of 14 April 2005. In the latter Mr Cheng reports that the solution to problems with AccuMap 1 required redesign and redevelopment, and identifies problems with the headset and the OPERA software that required debugging and adding an ERG module to it. The Action Plan describes a redesigned and redeveloped AccuMap as being “critical” to ObjectiVision to “restore credibility”. The budget proposal is $3,851m per annum for the new development and $1.212m per annum for clinical trials. A timeline is proposed for the completion of the AccuMap2 prototype by 30 June 2005 and to have the European launch of the product at the World Glaucoma Congress in Vienna in July 2005. An American launch at the American Academy of Ophthalmology Conference in October 2005 is also proposed.

115 In a CEO report to the board of ObjectiVision dated 16 August 2005, Mr Cheng refers to the need to convey to the market “a clean break from past failures – both financially and product wise”, the latter plainly being a reference to AccuMap 1.

116 Despite the content of these documents, in his evidence Mr Cheng sought to downplay the perceived problems with AccuMap 1 and their likely adverse effect on perceptions of ObjectiVision. An example may be seen where the 14 April 2005 report said, under the heading “Opera 2.1”:

Problems: debugging issues, no ERG capability, needs to be twice as fast during testing.

117 In cross-examination Mr Cheng denied that in so saying, he had conveyed to the board in 2005 that there was a problem at that time with the software either in relation to bugging issues, or ERG capability. For the reasons given, I prefer to rely on the content of the 2005 CEO reports.

118 In my view the objective and contemporaneous materials provide a clear picture that the AccuMap 1 product was regarded by those working for and within ObjectiVision to be an unsuccessful product because of perceptions in the market that it was not achieving clinical or commercial outcomes. Common sense dictates that a rational commercial organisation would not terminate the marketing and sale of a new product unless there was good reason to do so. At that point in time, in excess of $10,000,000 had been spent on product development. Plainly enough, the decision not to continue with FDA trials and to move to a different product was not taken lightly, and there were problems with both the product and with market perception of the product. This conclusion is supported by the documents to which I have referred above. It is also supported by the letter sent by Mr Cheng to Dr Shariv of Sydnovate on 6 February 2008, when he said that the management of ObjectiVision “inherited a product with significant shortcomings that had forced [its] withdrawal from the market”. To the extent that Mr Cheng in his evidence contends otherwise, I reject that evidence.

###### 4.3 The development of AccuMap 2

119 There is a factual dispute between the parties as to how far the development of the AccuMap 2 device progressed. ObjectiVision contends in closing submissions that by June 2005 the first AccuMap 2 prototype was complete. The University disputes that the prototype was functional and contends that the development of the device was beset by problems and that it was never completed. This is explored below.

120 The **first prototype** for AccuMap 2 involved the redesign and re-development of AccuMap 1 with better componentry. Minutes of an ObjectiVision board meeting on 14 April 2005 record Mr Cheng’s recommendation, that appears to have been adopted, that the new prototype reflect a reduced footprint, a disposable headset, ERG function, and include “sparse stimulus” technology (a type of stimulus developed by the Australian National University). The budget for the development was estimated to be $3.851m per annum with an estimate for completion by 30 June 2005.

121 In early July 2005 something approximating the first prototype was put on display at the World Glaucoma Congress in Vienna. In his evidence Mr Cheng says that this was a “functioning product” that was able to be demonstrated to the public. However, this assertion is not supported by the evidence as a whole and I reject it. Mr Cheng’s CEO report of 16 August 2005 describes the prototype as “exhibited” which accords more precisely with the evidence of Professor Graham and Associate Professor Klistorner, who each attended the conference and give evidence that the device displayed was a mock-up that was not demonstrated.

122 There were problems with the software and the electrodes on the disposable headset cross. Plans to take the first prototype to the American Academy of Ophthalmology conference in Chicago in October 2005 were abandoned. In November 2005 the prototype was put on display at the World Neurology Congress in Sydney. At that point a live demonstration was attempted by Associate Professor Klistorner, but he gives evidence that it embarrassingly failed to work in front of an audience of neurologists and instead a pre-recorded demonstration version was run. Mr Cheng gives evidence that the live demonstration succeeded, however, no objective evidence supports this proposition and I consider that the recollection of Associate Professor Klistorner, who conducted the attempted trial, is more likely to be correct. It also accords with the subsequent abandonment of the first prototype.

123 After the November conference, the first prototype was abandoned. The CEO reports provided by Mr Cheng to the board of ObjectiVision in November and December 2005 record that there were “issues” with the development of the AccuMap 2. The November report notes the problem of inconsistent conductivity of new printed circuit electrode sets, which held back finalisation of the product. There was also a need to finalise drawings of components, to source materials and electronic componentry, and to document the hardware and software specifications. Without these, and a pre-manufacturing model, regulatory testing “could not begin”. Furthermore, at this time ObjectiVision was having difficulties securing sufficiently skilled staff on a full-time basis. Dr Osmakoff was assisting with IT on a part-time basis only, and engineering support was not able to be found. ObjectiVision relocated its operations to smaller premises to save money. Mr Cheng’s December 2005 report notes that the industrial designers engaged by ObjectiVision, Tiller + Tiller, were not able to finalise the headset cross and electrode placement and Mr Cheng decided to use a different designer. A plan on the part of ObjectiVision to attend an ophthalmology conference in February 2006 with the first prototype was abandoned and Mr Cheng reported to the board that he would have to “stretch our resources” beyond April 2006.

124 On 1 April 2006 Mr Cheng was appointed a director of ObjectiVision.

125 After the first prototype had been abandoned, work on the **second prototype** proceeded. It used generic hardware components, including an off-the-shelf laptop, articulated arm for the patient monitors and a transformer. The headset, called the “Headset2”, remained a specialised element. There were issues with the headset, and in early 2006 it was proposed that it needed to be re-designed. KWA Design was engaged on 3 March 2006 to do the design work. In his report to the board of March 2006, Mr Cheng estimated that the production of the prototype would be achieved by 7 July 2006.

126 On 1 June 2006 ObjectiVision applied for the stepped stimulus patent developed by Professor Graham and Associate Professor Klistorner. This invention allowed ObjectiVision to overcome the issue of not being licensed to commercially use the “sparse stimulus” technology patented by ANU.

127 At around this time ObjectiVision moved its servers, computers and AccuMap 2 prototypes to Associate Professor Klistorner’s offices at the SSI.

128 On 22 June 2006 Mr Cheng provided a CEO report to the ObjectiVision board which referred to an anticipated delay in the delivery of the Headset2 prototype, from April 26 to 9 June 2006. It referred to milestones in the development timeline being re-adjusted to account for the delay.

129 In the CEO report on 25 August 2006, Mr Cheng notes that KWA’s head designer, Jonathan Dyer, had been engaged to complete the prototyping and production data work on a freelance basis.

130 In late August 2006 it was planned to take the second prototype overseas for demonstrations in China and Europe. Prior to that, a synchronisation problem was discovered in the software by a software engineer engaged by ObjectiVision, Mr Alvarez. Synchronisation is important in the context of the testing done by the AccuMap. As Associate Professor Klistorner explains, in order to record a proper reading, any change to the stimulus shown on the patient monitor must be synchronised with the acquisition of the data, and this must be very precise. Even a shift of one frame of the monitor, which is 15 milliseconds, will produce an incorrect result. Associate Professor Klistorner considered that there were many problems in synchronising the video stimulus output with data acquisition from the patient.

131 These observations are relevant in the context of an email exchange between Mr Alvarez and Mr Cheng on 22 August 2006, shortly before the trip to Europe and China. In it Mr Cheng asked Mr Alvarez for an update on matters for which he was responsible, including the LCD monitor, OPERA documentation review, OPERA GUI (graphical user interface), and testing and debugging of the system. One aspect of Mr Alvarez’s response was to report that his main concern was with a synchronisation issue that he and Associate Professor Klistorner were attempting to resolve. Mr Cheng replied by saying that it was important to ensure that if doing a demonstration overseas “we do not embarrass ourselves with the system going haywire”. He then said: “If the synchronisation problem is a more deep-rooted nature, work on it when we are away but *mask it for the trip*” (emphasis added). The University draws two points from this exchange. The first is that in cross-examination Mr Cheng failed frankly and honestly to acknowledge that by encouraging Mr Alvarez to “mask” the problem he was instructing him to conceal the fault. In my view that criticism is warranted. In a passage of cross-examination that extended over several pages the following exchange took place:

Mr Darke: You’re saying to Mr Alvarez that if he couldn’t fix the synchronisation problem before you departed, he should conceal it for the trip; correct?

Mr Cheng: I’m not sure what I meant at that stage.

Mr Darke: Well, you meant, Mr Cheng, that he should hide it, didn’t you?

Mr Cheng: Well, there are different ways of – of eliminating the synchronisation. Mask it – one way of masking it would be to reduce the number of runs. Synchronisation is not ongoing and it happens once in every quite a number of runs.

132 This wordplay on the part of Mr Cheng is, in my view, indicative of an unwillingness on his part to accept the effect of his own words and instead to provide a convenient reconstruction of events to suit what he perceived to be the benefit of ObjectiVision in the litigation. There could be no real doubt from the text of his message that he intended Mr Alvarez to somehow conceal (mask) the inconvenient failure to synchronise. Secondly, it shows a tendency on his part to downplay the difficulties encountered by ObjectiVision in solving problems with the AccuMap 2 second prototype, one of which was the problem of synchronisation, a point to which I return below.

133 In September 2006 Mr Cheng and Associate Professor Klistorner attended the third Global Chinese Ophthalmic Conference in Beijing. The second prototype was not exhibited, but a demonstration was provided to a potential Chinese distributor. During that demonstration Associate Professor Klistorner gave evidence that the arm of the computer screens broke and the screen fell off. There is again a conflict of evidence between Associate Professor Klistorner and Mr Cheng as to whether or not a live demonstration took place. Associate Professor Klistorner contends that none did, and gives his recollection that a demonstration version of the OPERA was used, taking a reading from pre-recorded results. Mr Cheng denies that the arm fell off the device and gives evidence that a live demonstration, taking readings from a subject, took place in China. In his oral evidence he asserts that this was reported to the board and in correspondence. No corroborating report or correspondence was drawn to my attention. The CEO report for the board meeting on 12 October 2006 says that “the morning of the first day was spent demonstrating the AccuMap2 to Global Vision technicians and staff”, but does not indicate whether this was a live or recorded demonstration. I prefer the account of Associate Professor Klistorner, whom I consider to be likely to have recalled the event, and to have known of the status of the second prototype, over the evidence of Mr Cheng. My view that the second prototype had not advanced to the stage of live demonstration is supported by contemporaneous board reports identifying problems with the development, such as those mentioned by Mr Alvarez, and also by the fact that plans to attend a November 2006 conference to promote the product were cancelled to “finish off certain aspects of the AccuMap2”. In fact, ObjectiVision then moved to a different prototype.

134 Work on the third prototype, called the **white prototype**, was commenced in late 2006. It used a medical touchscreen personal computer rather than a laptop and was a “higher-end” version of the AccuMap 2 targeted at ophthalmologists rather than optometrists. According to the December 2006 CEO report to the board by Mr Cheng, ObjectiVision planned to use a “panel PC solution” using industrial components, instead of using a generic laptop. This approach involved creating a bespoke computer that could be used as the hardware. As Mr Cheng explained in cross-examination, the advantage of such a system is to avoid the problem, apparently endemic in the use of generic computers, of the components being changed by the manufacturer with various upgrades and additions. Such changes can have a material effect on the operation of the testing done for the prototype application. The decision to adopt a panel solution led, as Mr Cheng said, to ObjectiVision having to “reinvent the wheel” in doing its own embedded systems. The white prototype was intended to be the first version of the AccuMap 2 launched.

135 In his December 2006 CEO report to the board, Mr Cheng proposed that the clinical launch of the white prototype would take place at an exhibition stand at a conference in Fort Lauderdale in May 2007. In his report he says that a three man product development team made up of industrial designer Minh Lee, electronics engineer Lee Glanzmann and software engineer Nik Von Huben had been recruited to work on the product. However, Mr Von Huben never started because he had reservations about the financial viability of ObjectiVision, and the services of Messrs Lee and Glanzmann were subsequently terminated for unsatisfactory performance.

136 In the minutes for the board meeting of ObjectiVision on 19 December 2006, record is made of the December CEO report, noting that the budget and draft business plan proposed by Mr Cheng were addressed, including a draft business plan and a 5 year cash flow projection. The minutes note that the budget presented a “cash shortfall of approximately $200,000. There was discussion regarding various capital raising options”.

137 On 16 January 2007 Mr Alkhimov commenced working with ObjectiVision. Mr Alkhimov’s role in working for ObjectiVision and later the University is important to the claim for copyright infringement advanced by ObjectiVision.

138 By February 2007 Medcorp and the University were not prepared to fund ObjectiVision any further. ObjectiVision unsuccessfully attempted to raise $500,000 from a third party funder which could be matched by a Commercial Ready Grant (**CRG**) from the Commonwealth Government for which ObjectiVision applied. As a result of the funding issues, Mr Cheng decided that ObjectiVision should “slow down its work” to avoid running out of funds by June 2007.

139 On 19 February 2007 Professor Graham resigned as a consultant for ObjectiVision, citing conflicts with his workload as an ophthalmologist and a desire to preserve his status as an independent researcher, rather than a “company man”. In his resignation letter he advised that he would continue to support ObjectiVision, including through possible informal consultancy work.

140 Mr Cheng looked for external funding but ultimately was unable to find any source during the course of 2007. The closest that he came was an executed Memorandum of Understanding between Professor Frank Billson of the SSI and ObjectiVision that was prepared in 2007. In it, the parties agree that in return for an injection of equity of $500,000, ObjectiVision will issue a controlling interest of 50.01% of its shares to Professor Billson. The agreed valuation of the company was $1,000,000. However, ultimately Professor Billson did not elect to proceed because ObjectiVision failed to provide him with sufficient information in his due diligence of ObjectiVision or with an updated business plan that he had sought.

141 In his CEO report for the 18 April 2007 board meeting Mr Cheng said that assembly of the white prototype would begin in the week of 30 April 2007, and that as a result of the dismissal of the product development personnel recruited in December 2006, Mr Alkhimov had been engaged to address both the software and the electrical engineering issues remaining. Earlier plans for the launch of the product were deferred from May 2007 to the World Glaucoma Congress in Singapore on 18 July 2007. The retention of regulatory consultants was put on hold until testing and final design and technical specifications of the white prototype were confirmed.

142 In his 9 August 2007 report to the board of ObjectiVision, Mr Cheng noted that it had been decided at the April meeting to “slow the company down to conserve resources” whilst assessing funding options. He stated that ObjectiVision’s cash position as at 3 August was $112,304, with forward commitments being such that it was “currently $36,122 in deficit... with the anticipated impact of the R&D tax offset in September, the net cash position is brought back up to $132,288 positive”. The report also indicates that two further components were to be included in the white prototype before testing and documentation could commence: an infra-red distance measuring device which had been designed and developed from scratch, and a multifocal ERG module. Both, Mr Cheng thought, were expected to be incorporated into the white prototype in the next 2 weeks.

143 In the 9 August 2007 report Mr Cheng also states that an important prerequisite to the successful launch of the white prototype is the repetition of the clinical studies from Australia in key overseas markets, in particular in Europe and the US. This would require multiple production models and funding beyond the ability of local research grants to support. Furthermore, in his report Mr Cheng states that the appointment of regulatory consultants was further deferred until the AccuMap 2 has been tested and final design and technical specifications confirmed. Under the heading “Personnel”, Mr Cheng states that the company is in “desperate need” of a full time senior engineer and project manager but also notes that financial expediency dictates that the undesirable practice of using part-time consultants will have to continue. Mike Kroon of Custom Circuits had been retained as an electrical engineering consultant on a part time basis. The report concludes that an action plan for the present is “inappropriate at this stage and will be re-presented on resolution of the capital raising issue”.

144 In his written evidence Mr Cheng contends that the white prototype was “completed” subject to “small tweaks” by May 2007. For the reasons earlier given, I prefer to have regard to the contemporaneous documents to ascertain the position. In this regard I note the matters set out below.

145 In an email of 14 August 2007 Mr Dyer, the industrial designer, records that the materials for the electrode cross are still being investigated and the amplifier box for the headset amplifier is not finalised. In an email to Mr Cheng on 1 September 2007, Mr Dyer says that as a rough estimate the prototype is “approximately 30 – 40% representative of the final production unit”. He identifies design issues which need to be resolved, and estimates that once this is achieved there will be standard production times of 8 – 12 weeks. In response, Mr Cheng expressed concern about the fact that another prototype might be needed before finalising production data and ramping up production, “not to mention meeting regulatory requirements”. Other issues with the white prototype mentioned in the email are the distance sensor, cables, cooling fan, connectors, mounts, brackets and others.

146 In mid-2007 Associate Professor Klistorner ceased to be paid by ObjectiVision, but nonetheless continued to advise and assist in the redevelopment of the AccuMap 2.

147 In September 2007 Mr Cheng prepared a confidential information memorandum for potential investors in which he sought mezzanine financing funding for ObjectiVision of a minimum of $1.5 million to match a CRG from the Commonwealth for up to $1 million, and to provide working capital. By this time, Medcorp was not prepared to supply any further finance. In the information memorandum, Mr Cheng provides a five year cash flow projection which sets out the costs that he anticipated that ObjectiVision would incur in the 10 months or so *before* it commenced selling a production model of the AccuMap (that is, the white prototype version) commercially. The projected costs are for: personnel, marketing, regulatory, production, clinical trials, medical reimbursement, research and development, and other overheads, and come to $895,950. No sales of the AccuMap are projected for the year 2008. It will later be seen that when Mr Cheng sent a budget to the University in mid-2008, he estimated $150,000 required for the 6 months until the mezzanine financing round, which in my view is incredible. In cross-examination it was put to Mr Cheng that he deliberately omitted a large part of the $895,000 from the budget submitted to the University, in order to produce a budget which was in line with the amount of funding available from the University at that time. The estimate in the confidential information memorandum was provided at a time when Mr Cheng anticipated the continued assistance of Associate Professor Klistorner and Professor Graham.

148 The events following September 2007 show steps forward and setbacks.

149 On 20 September 2007 Mr Fernance resigned as a director.

150 On 7 October 2007 an email indicates a need for the amplifier used to be redesigned.

151 On 29 October 2007 Professor Graham provided Mr Cheng with a draft application for a government funding grant that says that “the AccuMap 2 prototype is close to completion”.

152 By early November 2007 Mr Cheng was pushing the development of the device hard. In an email of 5 November 2007 to the development team of Associate Professor Klistorner, Mr Kroon and Mr Alkhimov, he proposes a project schedule that involves the integration of the e-distance sensor unit and ERG into the existing prototype by the next day, the submission of concept drawings for the monitor stand and ophthalmic table by 12 November, and fixing the heating problem of the technical monitor and finalising all external cabling connectors by 12 November 2007. He proposes that by 23 November 2007 all aspects of the prototype be tested and that the team will “start collecting [the] normals database”.

153 On 6 November 2007 Associate Professor Klistorner responded to an email from Mr Cheng indicating that there were five “main issues” that were unresolved: (1) cabling between two monitors, (2) interference on the patient monitor, (3) ERG adaptor, (4) heating and ventilation and (5) headband. Associate Professor Klistorner says in his email that he cannot estimate when these will be resolved. In oral evidence in chief he explained that cabling issues normally related to noise, which interfered with the signal readings that were to be taken. He indicated orally, and I accept, that there was also a synchronisation issue in November and December 2007, which was that in order to record a proper response to a change in visual stimulus the data acquisition and the stimulus needed to be co-ordinated. The shift of one frame on the monitor is 15 milliseconds, and so the data acquisition must be finely synchronised with the video output. This problem was present in testing conducted in 2010.

154 On 8 November 2007 a frustrated Mr Cheng sent an email saying that they were unlikely to be able to assemble and test 5 or 6 sets of preproduction prototypes “any time soon”, if the time they were taking to assemble the current prototype was any guide. On the same day Mr Alkhimov reported that Mr Kroon had a new version of an ERG amplifier that worked well with the optical sensor, but not well with a “real patient”. On 14 November 2007 Associate Professor Klistorner sent an email to Mr Cheng indicating that he needed to finish the cables and that he was “ready to start testing”. The email is unclear as to what sort of testing was required. In cross examination Associate Professor Klistorner said that he thought he meant testing to see if the machine worked. It was put to him that he meant testing for a normative database. On 30 November 2007, Mr Alkhimov sent an email to Mr Cheng saying that Mr Kroon had provided a new main interface cable that had reduced the noise level on the patient screen dramatically. He says “Now Sasha can start real tests on a [sic] real patients on the AccuMap 2. I have finished all the scaling issues today and Sasha [Associate Professor Klistorner] tested it and said it works fine”. This indicates that the testing that could commence was indeed on real people, for the preparation of a normative database.

155 On 4 December 2007 Associate Professor Klistorner sent an email to Mr Cheng where he reported doing some recordings and stated that he could do the “whole test regardless of stimulus under 15 min”. He also says “system is working fine”. On the same day Mr Alkhimov sent an email to Mr Cheng reporting, amongst other things, that he and Mr Kroon had worked on the overheating problem and lowered the temperature to 52 degrees celsius, which he says is “still high enough” but that the system is operating in a more stable manner. Mr Alkhimov reports that the system has been tested with Associate Professor Klistorner for 4 hours and the processing time remained the same, but notes that there are issues with a new ERG amplifier as there is still too much noise in the signal.

156 On 5 December 2007 Associate Professor Klistorner sent an email to Mr Cheng reporting that “I did few recording[s] today – we can do whole test regardless of stimulus under 15 min. And system is working fine”. In cross-examination Associate Professor Klistorner briefly suggested that the testing to which he referred was using the old AccuMap 1 device or another device at the SSI, although he accepted that he could not remember the event itself. It appears from the context that it is more likely to have been using the white prototype.

157 By December 2007 the financial position of ObjectiVision was dire. Medcorp had been providing ObjectiVision with funding but had been reluctant to do so since February 2007. In March 2007 Medcorp had declined to provide a letter of guarantee matching funds for ObjectiVision’s CRG application. In December 2006, Medcorp advised Mr Cheng of its intention to exit as a majority shareholder of ObjectiVision. In his report to the ObjectiVision Board dated 7 December 2007 Mr Cheng states that Medcorp’s decision not to underwrite ObjectiVision’s CRG application was a setback that “proved debilitating” to the completion of the AccuMap 2. Despite this, Mr Cheng states that “significant progress” has been made with the AccuMap 2. He reports that the hardware aspects of AccuMap 2, without the ERG, were completed that week and that Associate Professor Klistorner was able to begin systematic testing of the system on a targeted 50 patients. He estimated that testing would be completed by mid-January 2008 and that the AccuMap 2 should be “ready for demonstration to investors after that”, with an estimate of 3 to 6 months to begin the process of FDA clearance. The report refers to the difficulties faced in raising capital in the current economic environment and says:

Therefore, before approaching any VC [venture capitalist], the AccuMap2 prototype needs to be seen as fully developed, tested on patients and be in a demonstrable state. Because of the significant changes that has [sic] taken place in the venture capital market, OV also needs to remove as much of the risk as possible of investing in the company by getting the AccuMap2 to production-ready stage with full regulatory approvals and independent clinical validation. OV itself needs to assemble a proper management team, maintain its IP portfolio and technology pipeline and present a credible business case.

158 The report then says that funding is required swiftly, and gives as an example that if the company does not find a way of retaining Mr Alkhimov after December, it will stall the software development side of the company and set it back by 6 to 9 months. Other problems caused by delays are also identified.

159 Mr Cheng provided two alternative budgets to the board. The first is based on the company progressing to completion of prototypes and then regulatory approvals and production units (Plan A), the second based on the *halting of all expenditure* to focus on capital raising (Plan B). The board notes that taking into account an R&D Tax Concession received of $154,000, ObjectiVision had a cash deficit of $22,000 on 5 December 2007. It resolved to defer passing a resolution on the options until there had been a discussion with the company’s ultimate holding company, Medcorp. The Plan A budget proposes an injection of capital of $325,000 to fund the retention of key staff (Mr Alkhimov and Associate Professor Klistorner) and Mr Cheng, building of prototypes for clinical trials, clinical trials, regulatory clearance and various other steps.

160 Notice was given to Mr Cheng (via Capital City Group Pty Ltd, the entity through which he was engaged) that effective 14 December 2007 his services had been terminated and he was directed to cease all further expenditure by ObjectiVision.

161 On 18 December 2007 Mr Cheng wrote to Associate Professor Klistorner confirming his understanding that Mr Alkhimov’s engagement with ObjectiVision would cease on 14 January 2008 and from then until 17 March 2008 he would work for the SSI. The email expresses a hope that from then, ObjectiVision may be in a position to re-engage Mr Alkhimov. Mr Cheng says that “there are important priorities with respect to the completion of the AccuMap 2 prototype” that Mr Alkhimov should be permitted to work on while he is engaged by the SSI. This email is significant in the context of the copyright claim, and I return to it later. Mr Cheng also wrote to Mr Alkhimov, confirming that his consultancy contract would terminate on 15 January 2008.

###### 4.4 Work on AccuMap 2 ceases and Mr Cheng takes control of ObjectiVision

162 On 3 January 2008 Mr Cheng wrote to Mr Fernance in his capacity as director of investment and capital management at the University to advise him that Mr Cheng’s services with ObjectiVision have been terminated and that Medcorp (which is referred to as MOD in Mr Cheng’s letter) has directed that no more money be spent by the company. Mr Cheng says:

Given the inevitability and imminence of OV’s demise, I proposed to the MOD Board on 31/12/07 that MOD cedes majority control of OV immediately to a vehicle controlled by OV Management (consisting of its CEO, founding scientists and technical consultants) in return for managing the business, looking after its working capital requirements, keeping the company’s IP alive and preserving its solvency until more permanent funding can be arranged.

I was advised by Mark Clements today that the MOD Board has rejected OV Management’s proposal. I was further given instructions to wind up the company. Therefore, pursuant to s 9 of the Licensing Agreement between the University and ObjectiVision, I am notifying the University of OV’s situation and MOD’s position on the matter.

163 On 10 January 2008, Mr Cheng, accompanied by Professor Graham and Associate Professor Klistorner, met with Dr Shariv (managing director of Sydnovate), Dr Ward (Business Development Manager), and Mr Fernance, to discuss Mr Cheng’s intention to initiate a management buyout. Mr Cheng gives evidence that he asked for the University’s permission to do this. Mr Cheng says that Dr Shariv advised that the likely scenario would be that the University would terminate the licence and put the licensing agreement out to tender, and that ObjectiVision should participate in the tender.

164 On 11 January 2008 the University (via Dr Shariv) wrote to Mr Cheng as director and CEO of ObjectiVision, referring to the terms of the Licensing Agreement as varied under the Variation Agreement and noting that ObjectiVision had failed to make certain payments to the University (**First Notice of Breach**). The letter required remedy of the non-payments within 45 days failing which it would exercise its entitlement to terminate the Licensing Agreement in accordance with cl 18.3. The letter also noted that ObjectiVision had failed to comply with reporting requirements under cl 5 of the Licensing Agreement. The letter states that the University would like to terminate the Licence Agreement as soon as possible if ObjectiVision does not intend to remedy the breaches or, as indicated in a meeting on 10 January 2008, if ObjectiVision does not have the resources to continue to support the patents.

165 On 22 January 2008, ObjectiVision notified the University that it had paid the outstanding patent expenses, in the amount of $5,613.41. It also denied breaching the Licensing Agreement. Other outstanding payments claimed by the University (licence fees in the amount of $15,000) were paid by 22 February 2008.

166 On 31 January 2008, Mr Cheng wrote to Mr Dyer proposing a meeting to consider the design of the AccuMap 2 and the ‘next prototype’. In the same email, he refers to Associate Professor Klistorner’s suggestion of using different actuators for the white prototype, as well as other not insignificant design changes including streamlining the present design, altering the arrangement of the monitors, and having a complete system that is “ready to roll out of a single box”. It is apparent, having regard to his oral evidence on the subject, that Mr Cheng was proposing further development work on the white prototype as well as potentially building an alternative to the white prototype.

167 On 6 February 2008 Mr Cheng wrote to Dr Shariv. He enclosed a letter dated 5 February 2008 covering financial reporting periods ending 31 December 2006, 30 June 2017 and 31 December 2007. The letter says that when the present management was given responsibility in April 2005 for ObjectiVision, it had no infrastructure and no way forward, let alone a way to achieve “minimum sales”. It says “[m]anagement also inherited a product with significant shortcomings that had forced its withdrawal from the market”. The letter says that the product shortcomings were successfully overcome. It concludes with the suggestion that ObjectiVision has fulfilled its obligation to take all reasonable actions to introduce the product into the commercial market.

168 On 26 February 2008 the University wrote to ObjectiVision (**Second Notice of Breach)** stating that it had failed to satisfy the minimum performance criteria set out in clause 7.3 of the Licensing Agreement (as varied by the Variation Agreement) and notifying it that if it did not remedy the breach by achieving the minimum target within 3 months, the University intended to render the Licences non-exclusive or otherwise review them. Correspondence between the parties followed.

169 In the period from January 2008 until about mid-2008 Associate Professor Klistorner and Mr Alkhimov continued to do some work for ObjectiVision. Associate Professor Klistorner recalls that Mr Cheng went about weekly to the SSI to discuss the work that Mr Alkhimov and Associate Professor Klistorner were doing on the white prototype and that they spoke on most other days. Mr Cheng was at that time looking for an investor, Medcorp having withdrawn its support. In February 2008, Associate Professor Klistorner recalls receiving an offer to participate in a rights issue to raise money for ObjectiVision. He turned down the offer as he did not want to work on ObjectiVision without the University’s support.

170 On 6 March 2008 Mr Cheng informed Associate Professor Klistorner that he intended to take the AccuMap 2 prototype and the OPERA software to the United States to complete the development there without the SSI or the University.

171 On 24 April 2008 ObjectiVision offered a rights issue to its shareholders at a value of 0.15 cents per new share, to raise $100,000. This ascribed an implied value of the company of $170,000. Mr Cheng took up the offer and thereby, on 29 April, became the majority shareholder in the company.

172 In minutes of a directors meeting of ObjectiVision held on 13 May 2008, the board (comprised of Mr Cheng and Mr Clements) agreed to reinstate Mr Cheng as CEO and appoint him as chairman of the company. The minutes note that the company had completed the rights issue in order to raise $100,000 to pay third party creditors.

173 As at 16 May 2008 the shareholding and respective accumulated equity contributions in ObjectiVision were as follows (noting that “OV2 Pty Ltd” refers to a company set up and controlled by Mr Cheng):

|  |  |  |
| --- | --- | --- |
| **Name** | **% shareholding** | **Aggregated equity contributions** |
| University | 1.91% | $396,660 |
| Medcorp | 36.67% | $11,485,847 |
| OV2 Pty Ltd | 46.70% | $80,516 |
| Arthur Cheng | 14.33% | $22,715 |
| Alex Klistorner | 0.17% | - |
| Stuart Graham | 0.22% | $225 |

174 On 19 June 2008 Professor Graham sent an email to Mr Cheng stating, amongst other things, that the suggestion made by Mr Cheng in his letter that there was little to do to complete the white prototype is wrong, and estimating that there is “at least a year’s work” even if it is properly funded. The tenor of the email is such that one might reasonably conclude, as I find, that there had been a significant breakdown of relations between the two. It concludes with the words “please do not contact me again, as I do not wish to work with you on the project anymore”. Mr Cheng responds saying that Professor Graham’s estimate of time needed to complete the prototype is inaccurate since he has “hardly been involved in the technical aspects” of development for some time.

175 On 27 June 2008, ObjectiVision wrote to the SSI and Sydnovate in terms acknowledging that the SSI would not work with ObjectiVision in further developing the prototype for the AccuMap 2. In the letter, ObjectiVision accepts that its relationship with the SSI is at an end and wishes to explore alternatives to obtain scientific technical support. A **Commercialisation Plan** is enclosed. In itMr Cheng sets out a list of issues that have confronted the development of the AccuMap 2 (white prototype), which include an absence of scientific support and expertise (with Professor Graham and Associate Professor Klistorner no longer being available to ObjectiVision), as well as a lack of prototyping expertise and a small Australian market. The Commercialisation Plan indicates that ObjectiVision is considering taking the work of ObjectiVision to the United States. It also provides a list of tasks and timelines, which include 3 months to complete the white prototype (to end of September 2008), 2 – 3 months for the development of a normative database, and 3 months to replicate 3 trial production units. The production of the first unit, with a manufacturer, is estimated to be by 31 March 2009. The document proposes that an FDA application will be lodged within 3 months. For funding, the Commercialisation Plan proposes that $150,000 is required for the 6 months until a mezzanine financing round. The 6 month period coincides with the estimated time for the first production of AccuMap 2 (white prototype). The budget includes regulatory compliance of $27,000 and $15,000 to finalise a functional prototype.

176 Mr Cheng was cross-examined on the estimates contained in this plan. It is apparent that the expenditure estimate does not include any patent prosecution or maintenance costs, which in 2007 Mr Cheng estimated at $35,000. Further, in his December 2007 CEO Report Mr Cheng included an amount of $65,000 for regulatory compliance in contrast to the $27,000 in the Commercialisation Plan. In addition, the estimate did not include any costs for a software developer like Mr Alkhimov or an mfVEP specialist such as Associate Professor Klistorner, both of whom needed to be replaced, presumably at some cost. In addition, there is a 3 month estimate for lodging an application with the FDA, whereas in a later commercialisation plan drawn up in 2010, Mr Cheng proposes 6 months. In cross examination Mr Cheng accepted that the latter was more conservative and in some ways more accurate.

177 It was put to Mr Cheng that the amount of $150,000 in the Commercialisation Plan was provided deliberately to coincide with the amount of funding that ObjectiVision had at that point, in order to persuade the University that it should accept his proposal to permit the company to proceed (with an exclusive licence) for the next 6 months. That appears to me to be the likely reason for the amount of $150,000 being selected, although Mr Cheng in cross-examination said that he could not recall if that was why the figure was chosen. In any event, in light of the content of the December 2007 CEO Report to the board of ObjectiVision and comparing it with the September 2007 Information Memorandum, I consider that there is a high degree of artificiality about the estimate of expenditure provided. In the September 2007 document, Mr Cheng gave an estimate of the costs over the next 10 months leading to the first production of the white prototype as being $895,000 In the December 2007 CEO Report an estimate of $325,000 is given for the next 6 months. Whilst there may be room to consider that some of the costs varied, perhaps in light of progress made in the course of the final three months of 2007 before all expenditure ceased, I regard the reduction in estimated costs from a range of about $537,000 (this figure is the 10-month $895,000 estimate scaled down to 6 months) to $325,000, down to $150,000, to be an artefact of the desire on the part of Mr Cheng to produce an estimate to the University that coincided with the funds then available to him.

178 In mid-2008 ObjectiVision removed its servers, computers and AccuMap 2 prototypes from the SSI.

179 On 12 August 2008 Sydnovate, on behalf of the University, wrote to Mr Cheng at ObjectiVision complaining that it had filed patent applications in relation to the flexible electrode invention and the stepped stimulus invention. It contended that Associate Professor Klistorner and Professor Graham (listed as inventors on each of the patent applications) were employees of the University at the time that the inventions were made and that the subject matter of the patent applications fell within the definition of “improvements” under cl 10 of the Licensing Agreement. The University claimed that it owned the intellectual property the subject of the patents. This issue is the subject of one of the material terms in the Heads of Agreement.

###### 4.5 The University notifies ObjectiVision that the Licence Agreements are non-exclusive

180 On 27 August 2008 the University wrote to Mr Cheng advising him that as a result of the breach notified in the Second Notice of Breach, the Licences had been made non-exclusive from the date of the letter pursuant to cl 7.3 of the Licensing Agreement. On 8 September 2008 ObjectiVision wrote to the University disputing any breach and denying the effectiveness of the non-exclusivity notice.

181 On 30 September 2008 Mr Cheng wrote to Associate Professor Klistorner and Professor Graham asking them to return documents that they are holding from the time when they were involved in ObjectiVision, including soft copies of design drawings for the AccuMap 2 and various versions of the OPERA software source code, and also for any hardware or equipment that belong to ObjectiVision. In early October 2008 Associate Professor Klistorner gathered all ObjectiVision material that he could find for collection by Mr Cheng. In December 2008, in response to a request from Mr Cheng, Associate Professor Klistorner located some more equipment that he returned. The events concerning the return of materials to ObjectiVision are addressed in more detail in section 11 below.

182 On 8 October 2008 the University wrote to ObjectiVision giving notice of a breach of the Licensing Agreement by reason, *inter alia*, of the failure on the part of ObjectiVision to assign the stepped stimulus and the flexible electrode patent applications to it.

183 In about October 2008 Associate Professor Klistorner decided that he needed Mr Alkhimov to create a new software program that had the same functionality as OPERA. He purchased a desktop computer for him to use and on 19 October 2008 sent an email to the director of the SSI, Professor McCluskey, outlining his proposal that the SSI build a new system using off the shelf hardware and a new software program, to be written by Mr Alkhimov. The email says that in order to be independent from ObjectiVision, new software would be required which, according to Mr Alkhimov, would take him 3 – 4 months to do. A new normative database would be required with an estimated cost of $10,000. This proposal was accepted. Associate Professor Klistorner gives evidence that his intention was to have Mr Alkhimov write a software program that did the same things as OPERA, with the same functions, including patented functions so that he could continue and build on his research into mfVEP. At that point his understanding was that the licence the University gave to ObjectiVision was no longer exclusive. Associate Professor Klistorner gives evidence of his understanding that from late 2008 Mr Alkhimov worked on the code for the new software, designing it himself ‘from scratch’. I return to this evidence, and the subsequent steps taken in the writing of the TERRA software in the context of ObjectiVision’s claim for copyright infringement, in sections 9 to 12.

184 On 17 April 2009 Mr Cheng wrote to the Vice-Chancellor and principal of the University, Dr Michael Spence, concerning the outstanding issues between ObjectiVision and the University. On 22 May 2009 the Acting Vice-Chancellor of the University (Prof Don Nutbeam) responded to Mr Cheng. He proposed that the University may be prepared to render the license exclusive once more, and asks that Mr Cheng introduce the investors to which he refers in his 17 April 2009 letter so that the University can evaluate their requirements. He also notes that the University has not prohibited Associate Professor Klistorner or any staff in the SSI from providing consultancy services to ObjectiVision, but will not force him to do so, if he is unwilling or does not have the capacity to undertake the work. He indicates that the University adheres to its earlier position in relation to the flexible electrode and stepped stimulus patents, which it considers are “improvements” and therefore owned by the University within cl 10 of the Licence Agreement. The letter reminds Mr Cheng that the Licence Agreement requires that disputes between the parties must first be referred to mediation.

185 On 14 July 2009, Dr Chris Peterson was appointed to the management council of the SSI and he and Mr Ken Coles were also appointed to the advisory board from August 2010 until May 2011. On 30 September 2009 the University sent a letter of Mr Cheng at ObjectiVision entitled “Notice of Breach” giving notice of breach by reason of failure to pay certain patent registration and maintenance costs. The letter demanded payment of $33,239.86 within 45 days, this amount including $15,059.64 in outstanding patent costs invoiced to ObjectiVision for the EEG Scaling and Goggles patent family, as well as late payment charges.

###### 4.6 The Heads of Agreement signed

186 On 19 January 2010 representatives of the University and ObjectiVision attended a mediation and executed the Heads of Agreement. Present at the mediation on behalf of ObjectiVision were Mr Cheng and Mr Craig Lambert, a barrister who had been advising ObjectiVision in relation to the dispute. The University was represented by Associate Professor Klistorner, Dr Ward, Mr Coles and two solicitors employed by the University, Ms Sara Hofman and Ms Ewa Miszczak. A number of factual issues raised in the contract case concern the events that took place following the entry into the Heads of Agreement and the purported termination of the Licensing Agreements by the University on 20 January 2011. These focus, in particular, upon the introduction of Hamisa as a potential majority shareholder in ObjectiVision. The relevant terms of the Heads of Agreement are set out in section 5.5 below.

###### 4.7 The relevant correspondence prior to the purported termination by the University

187 By cl 1.7 of the Heads of Agreement, ObjectiVision was required to enter into a binding agreement providing for the acquisition of the majority of shares ‘within the exclusivity period’. This period was set to end on 22 December 2010.

188 In a letter dated 26 November 2010, ObjectiVision wrote to Dr Hallgren of Sydnovate to inform the University that ObjectiVision was in negotiations with Mr Tatsuya Yasukawa to enter into an agreement to allow a special purpose vehicle that is wholly owned by Mr Yasukawa to acquire a majority shareholding in ObjectiVision. Mr Yasukawa is noted as having a background in investment banking and property investment experience. A draft agreement was attached, and ObjectiVision asked that the University provide its consent to entry into the agreement. The draft provides for HamisaInvestments Pty Ltd to acquire three tranches of shares in ObjectiVision to a total of 50.1% of its shares. Various conditions precedent and milestones to be achieved by ObjectiVision in terms of development of the AccuMap 2 are set out in the agreement.

189 On 30 November 2010 Dr Hallgren responded in detail, expressing the University’s concerns over the proposed terms. His letter states that the proposal does not comply with clause 1.6 of the Heads of Agreement because any approach to or progress in negotiations should have occurred prior to the consent stage. It also states that the draft agreement gives rise to several concerns on the part of the University, which are then set out, drawing attention to three alleged deficiencies in the draft agreement.

190 The first is that a first condition precedent in the draft requires that before Hamisa Investments acquires a second tranche of shares, the University must comply with clauses 1.3, 1.4 and 1.5 of the Heads of Agreement, which relate to the provision of services or assistance by key personnel: Associate Professor Klistorner, Dr Peterson and Mr Alkhimov. The University considered that this requirement had already been satisfied. However, earlier correspondence between the parties indicates that this was a matter of contention. Dr Hallgren recorded that it was of concern to the University that the second tranche of shares would not be acquired until the happening of an event that the University contends has already taken place.

191 Secondly, a further condition precedent to the acquisition of the second tranche of shares was that Associate Professor Klistorner and Mr Alkhimov provide assistance to ObjectiVision in various forms in order to meet various “milestones”. The University complained that neither the University nor those individuals was consulted about the provision of such assistance, which goes well beyond that set out in the Heads of Agreement.

192 Thirdly, the University contends that the milestones that must be met by ObjectiVision prior to the supply of the second tranche are uncertain and could take many years to fulfil, such as obtaining FDA, CE Marking, TGA and other regulatory and compliance approvals. The University contends that these are obligations that must be met by ObjectiVision with only the $150,000 proposed to be advanced for the first tranche of shares, which would not be adequate to meet the costs of achieving those targets.

193 Further, the letter notes that the University is unable to provide consent until further details regarding the investor’s experience and financial resources are provided, along with an outline of the proposed business plan and estimated funding resources. The letter requests that a suitable time be suggested by Mr Cheng for a meeting between Mr Yasukawa and Dr Hallgren.

194 In response, on 6 December 2010 Gilbert and Tobin (**G+T**), then the solicitors for ObjectiVision, wrote to Mallesons Stephen Jacques, now known as King & Wood Mallesons (**KWM**), the solicitors for the University, providing a detailed critique of the refusal by the University to consent to the transaction. Enclosed with the letter is an amended draft heads of agreement (the **draft Hamisa HOA**). A consent to the acquisition from Medcorp (dated 30 November 2010) is supplied with the draft Hamisa HOA.

195 On 8 December 2010 KWM wrote back, extending the exclusivity period from 22 December 2010 until midnight at the end of 19 January 2011 and providing detailed reasons justifying the University’s stance in refusing consent to the draft Hamisa HOA.

196 On 15 December 2010 G+T wrote to KWM. The temperature of the correspondence, already high, increased. In this letter G+T states that KWM has provided no valid justification for the University’s continued refusal to consent to the transfer. It asserts, amongst other things, that the University has “blocked” access of ObjectiVision to the services of Associate Professor Klistorner. The letter contends that Hamisa satisfies the requirements of cl 1.6 of the Heads of Agreement and that the only enquiry under that clause is whether Hamisa has the capacity to commercialise the technology. By refusing consent, the letter alleges, the University is acting unreasonably. The letter contends that a request by the University for ObjectiVision’s commercialisation plans is outside the terms of the Heads of Agreement and that insistence on that as a precondition is a breach. Other accusations are made. Finally, the letter notes that the University has raised no objection to the issue of the first tranche of shares to Hamisa and states that Objectivision intends to enter this agreement by Friday (regardless of consent). To that end a draft First Subscription Deed is attached.

197 In a letter dated 17 December 2010 KWM denies the allegations made in the G+T letter, states that Associate Professor Klistorner has informed the writer that he does not want to be involved in providing services to ObjectiVision and denies that the University has acted unreasonably in declining consent. The letter concludes that “it is a matter for ObjectiVision” whether it enters into the First Subscription Deed, which is not for the acquisition of a majority of shares.

198 On 22 December 2010 Hamisa entered into the **First Subscription Deed**, by which it was issued with 15% of the shares in ObjectiVision. ObjectiVision did not notify the University that this deed had been entered into until 18 January 2011, when it was provided with another agreement that referred in its recitals to that fact.

199 On 23 December 2010 G+T wrote a letter before action to KWM which included allegations that the University: had acted in breach of its licence agreements with ObjectiVision, had attempted to commercialise the technology itself without the knowledge or approval of ObjectiVision, and had engaged in acts of infringement of ObjectiVision’s copyright in the OPERA software.

200 In a letter dated 13 January 2011 G+T refers to the letters of 8 December 2010 and 15 December 2010 from KWM. It provides a copy of Mr Yasukawa’s curriculum vitae and confirmation that Mr Yasukawa is obtaining banker’s letters confirming that “he has substantial financial resources to fund the business plan in excess of $2 million”; a letter from UBS Wealth Management is enclosed to support this. The G+T letter goes on to say that ObjectiVision and Hamisa are in the process of negotiating amendments to the draft Hamisa HOA to review the condition precedent to provide for the circumstances that the University refuses to allow any SSI employees, such as Associate Professor Klistorner, to provide services to ObjectiVision to enable the system to achieve regulatory approval. In addition, although it contends that it is not required by cl 1.7 of the Heads of Agreement or as a precondition to the University providing its consent, the letter provides a copy of a revised Commercialisation Plan (the **2011 Commercialisation Plan**). The letter also encloses a draft document containing revised sale and performance targets. The letter confirms that ObjectiVision will assign the stepped stimulus and flexible electrode patents upon the University providing its consent under clause 1.7 of the Heads of Agreement.

201 The 2011 Commercialisation Plan includes the following:

8. Outstanding Tasks to complete Accumap2 commercialisation

The Accumap2 prototype is substantially (90%) complete and with the exception of the mfERG module, fully functional. However, as with all medical devices it needs to go through the requisite phases of being tested and debugged, undergo pre-clinical testing and independent multi-site clinical validation, and attain regulatory compliance/approval.

These processes can be completed within a nine-month period and will ideally require the services of A/P Klistorner and Graham to oversee the activities.

Alternatively, an appropriately qualified professional designated by the University that can do the job in an equally competent manner plus the release of all information and data relating to improvements to the Accumap by the two inventors over the past three years that have not been divulged to ObjectiVision (as reflected by various studies published or unpublished), may suffice.

202 In a letter of 14 January 2011 from KWM the University responds. It states that if an agreement were provided for the acquisition by Hamisa of a majority of the shares in ObjectiVision by 19 January 2011, then the University would refuse consent because “at this stage” ObjectiVision has not demonstrated that Hamisa has the resources required to commercialise the AccuMap 2 product. The following reasons are provided: (1) Mr Yasukawa does not have relevant experience in the commercialisation of new technology, medical devices or the health sector and the requests by ObjectiVision of assistance from the University demonstrates that this is so; (2) Hamisa has not agreed to commit adequate financial resources to commercialise the product. The University contends the initial amount of $150,000 is likely insufficient, noting that $23,513 will be used to repay Medcorp. Furthermore, the statement in the 2011 Commercialisation Plan that “AccuMap 2 is 90% complete” is not in accordance with the University’s understanding and in any event the $150,000 of funding extends only until October 2011, at which time the plan provides for Hamisa to seek additional funding; (3) the draft agreement does not deal with raising additional funding; and (4) no information has been provided as to the liquidity of the holdings of **Hamisa Holdings** Pty Ltd (an entity related to Hamisa) or whether the majority of those funds would be made available to ObjectiVision. The University also states that the 2011 Commercialisation Plan is not sufficiently detailed and “hardly qualifies as a plan”.

203 ObjectiVision then presents the University with a fait accompli. In a letter dated 18 January 2011 G+T notifies the University that ObjectiVision has entered into a Share Subscription Deed (the **Hamisa Third Party Agreement**) for the acquisition of 35.1% of the shares in ObjectiVision, making Hamisa the majority shareholder. It includes a letter from Citigroup confirming that Hamisa Holdings held $936,000 in Non-Citibank products and $161,500 in Citibank products and also a letter from Mr Yasukawa confirming that these securities were free from any security interest. Also enclosed is a letter of comfort from Mr Yasukawa as the director of Hamisa Holdings confirming that it would provide financial support to Hamisa in relation to the subscription of shares in ObjectiVision and the development and commercialisation of the AccuMap 2 device, to the extent that Hamisa is not able to meet such liabilities out of its own assets and cash flow. The executed Hamisa Third Party Agreement is attached. It recites the entry into the First Share Subscription Deed on 22 December 2010 (which is the first notice received by the University of entry into that agreement).

204 Relevant parts of the Hamisa Third Party Agreement include the following:

3 Subscription for Shares

3.1 Subscription and allotment

On or before the date that is nine calendar months from the date of this deed, the Investor must subscribe for and the Company must issue and allot a number of shares equal to 35.1% of the issued share capital (Subscription Shares) in the Company free from any Security Interest, based on the share capital of the Company on the Completion Date to the Investor.

3.2 Subscription monies

(a) Immediately prior to the issue and allotment of the Shares in clause 3.1, the Investor shall pay to the Company an amount to be determined in accordance with clause 3.2(b) (Subscription Amount) in immediately available funds as consideration for the issue and allotment of the Subscription Shares.

(b) The Investor and the Company shall use best endeavours to agree to the consideration to be paid by the Investor to acquire the Subscription Shares. In arriving at the amount of the consideration, the Investor and the Company agree to take into consideration the value of the Company having regard to the achievement of the milestones as set out in clause 3.4. Failing agreement of the Subscription Amount within 5 Business Days of when the Subscription Amount is first proposed (by either party), the Investor and the Company must appoint an independent valuer (and failing agreement on the valuer an independent valuer appointed by the President of the Institute of Chartered Accountants) to determine the market value of the Subscription Shares using a valuation methodology considered by the independent valuer to be reasonable but amongst other things, having regard to the achievement of the milestones set out in clause 3.4, and the value so determined shall be the basis for the determination of the consideration payable by the Investor under this clause 3.2. The Company and the Investor must jointly bear the independent valuer's cost of its engagement in relation to the determination of the Subscription Amount.

3.3 Calculation of Subscription Shares to be issued

For the avoidance of doubt the number of Subscription Shares to be subscribed for by the Investor, and issued and allotted to the Investor by the Company under clause 3.1 shall be calculated based on the share capital of the Company as at the Completion Date, so that the Investor shall hold 50.1% of the issued share capital of the Company following the issue of the Shares to the Investor.

3.4 Milestones

The parties and the independent valuer must take into consideration the following milestones (if achieved by the Company) in determining the amount of consideration for the Subscription Shares:

a) successful completion of pre-clinical and clinical trials with the Accumap2 prototype in Australia;

b) successful completion of US clinical trials for the Accumap2 prototype and developing a commercial normative database approved by the FDA;

c) obtaining of FDA, CE Marking, TGA and other regulatory and compliance approvals necessary for the commercial launch of the Accumap2 ;and

d) production and sale of the first production unit of the Accumap2.

205 On 20 January 2011 the University wrote to ObjectiVision in the following relevant terms:

We note that the Licence Agreement as defined in clause 1.1 of the Heads of Agreement made on 19 January 2010 ("HOA") has now terminated in accordance with clause 1.7 of the HOA. In case an election is required to terminate the Licence Agreement pursuant to clause 1.7 of the HOA (and the University does not accept that is the case), this letter constitutes notice to you that the University so elects.

…

We note our letter to you dated 20 September 2010 in relation to certain payments owed to the University under clause 8 of the Licence Agreement and clause 1.8 of the HOA. We are instructed that at least invoice 60-015566 dated 27 July 2010 remains unpaid. It is now over 45 days after that letter. We note that this non payment would have afforded the University a termination right under clause 18.3 of the Licence Agreement.

###### 4.8 The incorporation of Visionsearch

206 In March 2011 Visionsearch was incorporated. Its function was to provide a vehicle to enter into an agreement with Biogen in order to provide machines using mfVEP technology for Biogen’s clinical trials for a drug to combat demyelination of the optic nerve. Since 2008, the University had worked on developing its own mfVEP device and accompanying software. The mfVEP device, Visionsearch 1, was completed in late 2011 and two of these devices were supplied to Biogen. ObjectiVision claims that the University, through its negotiations with Biogen, breached the Licensing Agreements and its obligations under the Shareholders’ Agreement.

##### 5. THE RELEVANT AGREEMENTS

###### 5.1 The Licensing Agreement

207 On 4 September 2000 the University and ObjectiVision entered the Licensing Agreement which gave ObjectiVision an exclusive licence (**First Licence**) to use certain intellectual property, and bring to market a product being the MOP, later referred to as AccuMap.

3.1 Subject to the provisions of Clause 7 the University hereby grants to the Licensee an exclusive licence throughout the Territory to Exploit the Licensed Intellectual Property for the term of this Agreement.

208 The “Licensed Intellectual Property” is defined as being the intellectual property set out in Schedule 1 as well as intellectual property arising from additional registrations, and any improvements to the Licensed Intellectual Property. Schedule 1 to the agreement lists the patent entitled “Electrophysiological Visual Field Measurement” as described in Patent Application PCT/AU99/00340. This is the parent application in the EVFM Patent Family.

209 Clause 7 obliged ObjectiVision to meet certain minimum sales and performance criteria. It relevantly provides:

7.1 The Licensee shall take all reasonable actions to introduce the Product into the commercial market as soon as is practicable, consistent with sound and reasonable business practice including promotion and advertising to market the Product and to achieve at least the minimum sales and/or performance criteria stipulated in Schedule 7…

…

7.3 Where an exclusive licence has been granted pursuant to Clause 3.1 and where the Licensee has failed for any reason to achieve the minimum sales and/or other performance criteria stipulated in Schedule 7, the University may at its sole discretion by giving the Licensee three (3) months’ notice in writing make the licence hereby granted non-exclusive or otherwise review the licence…

210 The minimum sales stipulated in Schedule 7 were that 80 units of the product (Accumap) be sold within three years of the date of the Licensing Agreement. The Licensing Agreement was signed on 4 September 2000, so the date for performance of the minimum sale requirement was 4 September 2003.

211 The Licensing Agreement also contains a release of liability clause:

17.1 The University, its servants and agents shall not be liable to the Licensee and the Licensee hereby releases and agrees to keep released the University its servants and agents for any loss, damages, costs, or expenses arising directly or indirectly from or in relation to this Agreement except to the extent that such loss, damages, costs or expenses arise out of negligent or unlawful acts or omissions by the University, its servants and agents.

212 The Licensing Agreement provided that ObjectiVision was to make various payments to the University as follows:

18.1 This Agreement shall remain in effect until the last patent or patent application in the Licensed Intellectual Property has expired or been abandoned, unless terminated earlier as provided herein.

…

18.3 The Parties agree that if the Licensee does not make a payment due hereunder and fails to remedy such non-payment within forty five (45) days after the date of notice in writing of such non-payment, the University may terminate this Agreement.

213 Clause 20 provided, relevantly:

20.9 This Agreement constitutes the entire agreement between the Parties. Any prior arrangements, agreements, representations or undertakings are hereby superseded.

20.10 The Parties agree that this Agreement and the Subscription and Shareholders’ Agreement of even date are separate and distinct agreements relating to separate and distinct subject matter. In the event that there is any provision of the Subscription and Shareholders’ Agreement which bears upon the interpretation of the Licensing Agreement, and such provision is inconsistent with the provisions of the Licensing Agreement, the provision in the Licensing Agreement shall prevail.

###### 5.2 The Shareholders’ Agreement

214 At the same time as the Licensing Agreement was entered, Medcorp invested in ObjectiVision in exchange for shares. On 4 September 2000 the University, Medcorp and ObjectiVision entered into the Shareholders’ Agreement which records their respective rights and obligations.

215 Clause 5.1 of the Shareholders’ Agreement provides:

Each Shareholder agrees:

(a) to co-operate and use its best endeavours to ensure that the Company successfully carries on the Business;

(b) not to use Confidential Information in a way which damages or is reasonably likely to damage the company or any of the other Shareholders;

(c) not to delay unreasonably any action, approval, direction, determination or decision required of the Shareholder;

(d) to give approvals or make decisions required of the Shareholder in good faith and in the best interests of the Company and the carrying on of the business as a commercial venture; and

(e) to be just and faithful in the Shareholder’s activities and dealings with the company, the business and the other Shareholders.

216 Clause 20.15 provides:

Separate agreements

The parties agree that this Agreement and the Sydney University Licensing Agreement are separate and distinct agreements relating to separate and distinct subject matters.

###### 5.3 The Supplementary Licence Agreement

217 On 25 October 2001, the University and ObjectiVision entered into a supplementary licensing agreement (the Second Licensing Agreement) pursuant to which the University exclusively licensed ObjectiVision to exploit worldwide the invention in Patent Application No. PCT/AU01/00423 entitled “Method and apparatus for objective electrophysiological assessment of visual function” (**423 Patent**) on largely the same terms as the First Licence (**Second Licence**). Collectively, the First and Second Licences are referred to as the **Licences**.

218 The patents granted deriving from the 423 Patent comprise a virtual reality headset (**goggles patent**) and an amplitude scaling algorithm (**scaling patent**). They are referred to below as the **EEG Scaling and Goggles patent family**.

###### 5.4 The Variation Agreement

219 On 10 May 2004 the University and ObjectiVision entered into a **Variation Agreement** pursuant to which ObjectiVision’s minimum performance obligations arising under the Licensing Agreement were varied. Under the new performance obligations, ObjectiVision was required to sell 90 units by 30 September 2006 and 80 units per annum from 1 October 2006, and ongoing.

###### 5.5 The Heads of Agreement

220 By cl 1.1 of the Heads of Agreement the University agreed to reinstate ObjectiVision’s exclusive licence under terms of the Licensing Agreement of 4 September 2000, as amended, for a defined “Exclusivity Period”. Clause 1.2 addresses the duration of the exclusivity period which, it is not disputed, became 22 March 2010 until 19 January 2011.

221 ObjectiVision’s key obligation under the Heads of Agreement was set out in cl 1.7. It needed to find a third party to acquire the majority of shares in ObjectiVision. Clauses 1.6, 1.8 and 1.9 stipulated certain conditions which needed to be met in discharging this obligation, and they are set out in full below. If a majority shareholder was not found within the defined exclusivity period, the Licensing Agreement would terminate.

222 The University also had a number of obligations under the Heads of Agreement. By cl 1.3 the University undertook that a team including Associate Professor Klistorner, Professor Peterson and Mr Alkhimov would make an assessment of the ObjectiVision AccuMap 2 prototype and provide a report giving an expert opinion of the status of the prototype and recommendations on how to address any technical deficiencies identified in it, provided that ObjectiVision first made an upfront payment of $15,000 and entered into the University’s standard consultancy agreement. On 22 March 2010 the University provided ObjectiVision with an “AccuMap 2 Technical Assessment Report”.

223 By cl 1.4 of the Heads of Agreement, the University agreed that Associate Professor Klistorner would provide instructions in Sydney to one or more ObjectiVision nominees relating to how to perform mfVEP tests, compile data for a normative database and import it into the AccuMap 2 software.

224 Clause 1.5 provides an undertaking from the University that Associate Professor Klistorner would attend meetings and calls with potential investors or sublicensees (defined as “third parties”) at ObjectiVision’s reasonable written request. ObjectiVision agreed that all such requests would be made to Sydnovate and that “no direct contact would be made by ObjectiVision to Associate Professor Klistorner”.

225 Clause 1.6 provides (internal numbering added):

1.6 (1) Objectivision undertakes to consult with the University regarding any approach to or progress in negotiation with Third Parties including providing details of the Third Parties. (2) Objectivision will obtain written consent from the University prior to entering into an agreement to allow a Third Party to acquire a majority shareholding in Objectivision or grant a sub-licence. (3) The University will provide its consent in circumstances where the Third Party has the resources required to commercialise the AccuMap 2 product and will not withhold its consent unreasonably. (4) The University will provide Objectivision with its response to a request for consent within 3 working days of Objectivision providing details of the relevant Third Party and proposed transaction in accordance with this clause 1.6. (5) The parties undertake to seek to agree in good faith revised sales and performance obligations under the license agreement.

226 Clause 1.7 provides:

1.7 The parties agree that unless Objectivision enters into a binding agreement providing for the acquisition of the majority of the shares in Objectivision or an exclusive sublicense with a Third Party in accordance with clause 1.6 and within the Exclusivity Period, the License Agreement will terminate and neither party will have any further obligations to the other under the License Agreement.

227 Clause 1.8 provides:

1.8 Objectivision agrees to pay the outstanding patent costs in the amount of $18,018.61 (inclusive of GST) within 30 days of the University providing evidence from the patent attorneys that they these costs do not relate to any patents that only cover the “goggles” claims. Objectivision agrees to pay any further patent costs until the end of the Exclusivity Period other than costs relating solely to the “goggles” claims.

228 Clause 1.9 provides:

1.9 Objectivision agrees that a condition of the University granting consent under clause 1.6 will be that Objectivision first assigns the “Stimulus Method” and “Flexible electrodes” patents currently filed in Objectivision’s name to the University. Objectivision further agrees that it will assign these patents to the University if the License Agreement terminates. In addition Objectivision undertakes to continue to maintain these patent applications until the end of the Exclusivity Period.

##### 6. THE UNIVERSITY’S CLAIM

###### 6.1 The contentions

229 The University claims in its originating application a declaration that the First Licence and Second Licence terminated on 19 or 20 January 2011, judgment in the amount of $19,219.74, interest and costs. The issues between the parties are considered below (by reference to their original issue numbering in the agreed Statement of Issues).

230 **Issue 1** concerns whether or not on the proper construction of the Heads of Agreement the Licences were validly terminated on 19 January 2011. First, the University contends that by cl 1.9 of the Heads of Agreement ObjectiVision was required to assign the stepped stimulus and flexible electrode patents to it prior to the grant of any consent to a third party agreement, and ObjectiVision failed to do so. Secondly, the University contends that ObjectiVision failed to consult with it regarding any approach to or progress in negotiations with Hamisa in accordance with cl 1.6. Thirdly, because by 19 January 2011 ObjectiVision had not with its approval, as required by cl 1.7 of the Heads of Agreement, entered into a binding agreement providing for the acquisition of the majority of the shares in ObjectiVision or an exclusive sub-licence with a third party in accordance with cl 1.6 of the Heads of Agreement. In this regard, the University submits that by operation of cl 1.7 the Licences automatically terminated on 19 January 2011 and that on 20 January 2011 the University confirmed that automatic termination. The University emphasises that ObjectiVision did not in fact obtain the University’s consent in writing or at all prior to entering into either the First Subscription Deed or the Hamisa Third Party Agreement. Fourthly, the University contends that it did not fail to withhold its consent unreasonably or otherwise contrary to cl 1.6. This issue only arises, the University contends, if it fails on the first, second and third issues.

231 ObjectiVision disputes each of these points. It contends that it was ready, willing and able to assign the stepped stimulus and flexible electrode patents to the University, and indicated that it would do so in accordance with cl 1.9 Heads of Agreement. It contends that it did consult with the University regarding its negotiations with Hamisa as required by cl 1.6. ObjectiVision contends that the University failed to provide its consent in circumstances where Hamisa had the resources required to commercialise the AccuMap 2, and also that the University unreasonably withheld its consent contrary to cl 1.6.

232 **Issue 2** is whether, in the alternative, on the proper construction of cll 8 and 18.3 of the Licensing Agreement, the University validly terminated the First and Second Licences on 20 January 2011. The sub-issues arising here concern whether ObjectiVision was liable to bear the costs arising from the recordal of an assignment of the ownership of the invention the subject of the 423 Patent from the inventors to the University and whether, if it was, the University validly terminated the Licences for non-payment of invoices issued on its behalf.

233 **Issue 3** concerns whether, in the alternative to issues 1 and 2, by operation of cll 8 and 18.3 of the Licensing Agreement the University validly terminated the Licences when it commenced these proceedings on 16 April 2014.

234 **Issue 4** concerns whether ObjectiVision is liable to pay the University $19,219.74 or a lesser amount pursuant to the Licensing Agreement by reason of non-payment of invoices dated from 27 July 2010 to 17 January 2011 (as identified in paragraph 23 of the Amended Statement of Claim) in respect of costs incurred by the University relating to or arising from the registrations of and ongoing maintenance of inventions the subject of the Licences.

###### 6.2 Issue 1: Did the University validly terminate the Licences on 19 January 2011?

235 The principles applicable to the construction of contractual terms are not in dispute. They are conveniently summarised in ***Mount Bruce*** *Mining Pty Ltd v Wright Prospecting Pty Ltd* [2015] HCA 37; 256 CLR 104 at [46] - [51] (French CJ, Nettle, Gordon JJ), namely (footnotes omitted):

46 The rights and liabilities of parties under a provision of a contract are determined objectively, by reference to its text, context (the entire text of the contract as well as any contract, document or statutory provision referred to in the text of the contract) and purpose.

47 In determining the meaning of the terms of a commercial contract, it is necessary to ask what a reasonable businessperson would have understood those terms to mean. That enquiry will require consideration of the language used by the parties in the contract, the circumstances addressed by the contract and the commercial purpose or objects to be secured by the contract.

48 Ordinarily, this process of construction is possible by reference to the contract alone. Indeed, if an expression in a contract is unambiguous or susceptible of only one meaning, evidence of surrounding circumstances (events, circumstances and things external to the contract) cannot be adduced to contradict its plain meaning.

49 However, sometimes, recourse to events, circumstances and things external to the contract is necessary. It may be necessary in identifying the commercial purpose or objects of the contract where that task is facilitated by an understanding "of the genesis of the transaction, the background, the context [and] the market in which the parties are operating". It may be necessary in determining the proper construction where there is a constructional choice. The question whether events, circumstances and things external to the contract may be resorted to, in order to identify the existence of a constructional choice, does not arise in these appeals.

50 Each of the events, circumstances and things external to the contract to which recourse may be had is objective. What may be referred to are events, circumstances and things external to the contract which are known to the parties or which assist in identifying the purpose or object of the transaction, which may include its history, background and context and the market in which the parties were operating. What is inadmissible is evidence of the parties' statements and actions reflecting their actual intentions and expectations.

51 Other principles are relevant in the construction of commercial contracts. Unless a contrary intention is indicated in the contract, a court is entitled to approach the task of giving a commercial contract an interpretation on the assumption "that the parties ... intended to produce a commercial result". Put another way, a commercial contract should be construed so as to avoid it "making commercial nonsense or working commercial inconvenience".

6.2.1 Failure to meet a condition precedent (issue 1(b))

236 The University contends that ObjectiVision was required to assign certain patents to it as a condition to the grant of any consent in accordance with cl 1.6 of the Heads of Agreement. There is no dispute that no assignment was made. The University contends that absent any such assignment, it was not obliged to provide any consent to allow a third party to acquire a majority shareholding in ObjectiVision.

237 Clause 1.9 is unequivocal in its terms. In my view it imposes a condition that must be fulfilled before the University became required to give its consent pursuant to cl 1.6. This accords with the express language of cl 1.9. It is plain from the first sentence of that clause that ObjectiVision has agreed that it is a condition of the provision by the University of consent of cl 1.6 that the assignments *first* take place. Clause 1.9 makes it a condition that before the University consents to any binding agreement, it must receive the assignment. The intention was that, come what may from the consent process, the University would receive the assignment.

238 ObjectiVision first contends that as a matter of construction, the obligations in cl 1.9 should be considered in the context of the totality of the agreement. Once this is done, it should be understood that the clauses operate together such that the consent provided under cl 1.6 is to be provided at the same time as the assignment under cl 1.9. As senior counsel for ObjectiVision, Mr Cobden SC, put it, cll 1.6, 1.7 and 1.9 contemplated a mutual process where there was an “interdependence” between the obligations contained in the clauses. Immediately following the provision by the University of the consent to the acquisition of a shareholding, ObjectiVision would provide the assignments. This arises, ObjectiVision submits, from what it describes as a fairly “elastic” concept of consultation between the parties within cl 1.6 before they move together to complete a single transaction, with the University reasonably providing its consent within cl 1.6 and the assignments within cl 1.9 taking place.

239 I agree that the obligations in cl 1.9 should be considered in the context of the agreement as a whole, but I disagree with the construction for which ObjectiVision contends. It is not supported by the plain language of clause 1.9. The use of the words *first assigns* suggests, more credibly in my respectful view, that the clause is directed to avoid precisely the sort of Mexican standoff for which ObjectiVision contends. It contemplates that regardless of the clause 1.6 issue, ObjectiVision would first make the assignment of the patents. The construction argument of ObjectiVision would at least require the word “first assigns” to be replaced with something like “simultaneously” assigns. No doubt other impermissible rewording of the bargain struck between the parties would be necessary. In the circumstances it is not necessary or appropriate to have recourse to events external to the contract (*Mount Bruce* at [49]). In any event, nothing about the objective circumstances leading up to the Heads of Agreement suggests otherwise. The fact that the stepped stimulus and flexible electrode patents had not been registered in the name of the University was a longstanding and separate dispute between the parties. The terms of the agreement made plain that come what may, the assignment was to take place.

240 Having regard to the correct construction of cl 1.9 of the Heads of Agreement, it is necessary to turn to the facts relevant to that clause. There is no dispute that ObjectiVision did not before 19 January 2011, and has not even now, assigned the “Stimulus Method” (referred to elsewhere in these reasons as the stepped stimulus patent) and flexible electrode patents to the University. Clause 1.9 makes it a condition of the University granting consent under cl 1.6 that these patents first be assigned to the University. In other words, it is a precondition to the University having to grant consent under cl 1.6 was that assignment. No such obligation ever arose, because the condition precedent to that obligation arising was never satisfied.

241 ObjectiVision submits that it indicated twice in correspondence on 15 December 2010 and on 13 January 2011 that it was “ready, able and willing” to assign the patents as required under cl 1.9. In relation to ObjectiVision’s willingness to comply with cl 1.9, I note the letter on 13 January 2011 says (emphasis added): “we confirm that ObjectiVision will assign the … patents *on the University providing its consent*under cl 1.7”. This is not “first assigning” the patents.

242 ObjectiVision then submits that by contrast, the University had never indicated any willingness to consent to Hamisa’s investment in ObjectiVision. ObjectiVision formed the view then, as it submits now, that the University was withholding its consent unreasonably in breach of cl 1.6. The essence of ObjectiVision’s submission on this point is that the assignment of the patents would have been futile, as the University had indicated that it was not going to provide its consent. In those circumstances, even if cl 1.9 is properly interpreted as a condition precedent to the University’s failure to perform, it is entitled to damages for the failure to perform cl 1.6, citing Kitto J in ***Peter Turnbull & Co*** *Pty Ltd v Mundus Trading Co (Australasia) Pty Ltd* [1954] HCA 25; 90 CLR 235 at 250 and ***Park v Brothers***[2005] HCA 73; 80 ALJR 317 at [42].

243 I reject this argument. In *Peter Turnbull & Co* the High Court considered a case where the plaintiff agreed to buy and the defendant agreed to sell some oats at a certain price freight on board Sydney, to be loaded on a ship nominated by the plaintiff in January or February 1951 with 14 days’ notice. On 8 January 1951 the plaintiff mentioned 14 February as the approximate shipping date and later identified the ship. The plaintiff was required to give the defendant an appropriate shipping notice but held off doing so until receiving confirmation from the defendant. At the end of January the defendant indicated that it could not supply the shipment of oats in Sydney but instead would be able to deliver them in Melbourne, and sought the plaintiff’s help in effecting this substitution. The plaintiff was unable to do so, and told the defendant it would have to supply the oats in Sydney. The defendant replied that it could not, and the plaintiff, having had to buy the oats later at a higher price, sued. The issue identified by Dixon CJ was whether the plaintiff, by failing to fulfil the condition precedent of the contract (giving the shipping notice), was disentitled to recover from the defendant for non-delivery of the oats. The Court found that the plaintiff was entitled to succeed on the ground that in so far as there was a non-fulfilment of the condition requiring the nomination of a February ship and the giving of 14 days’ notice of the ship and shipping date, the defendant dispensed the plaintiff from such fulfilment. By insisting that it was unable to supply the oats in Sydney, the defendant had indicated that it was useless for the plaintiff to complete the condition precedent of providing a shipping notice for a ship departing Sydney. The Chief Justice considered that the principle applicable was that illustrated by Lord Campbell CJ in ***Cort*** *v The Ambergate &c Railway Co* (1851) 17 QB 127; 117 ER 1229, quoting it at 90 CLR 247:

There being an executory contract, whereby the plaintiff agreed to sell and the defendant to buy on arrival, certain goods, to be delivered at Belfast at a certain price, payable on delivery, it was held that a refusal by the defendant before the arrival of the cargo to perform the contract was not itself necessarily a breach of it, but that such refusal, unretracted down to and inclusive of the time when the defendant was bound to receive the cargo, was evidence of a continuing refusal and a waiver of the condition precedent of deliver, so as to render the defendant liable for the breach of contract.

244 In the result, Dixon CJ considered that the defendant had unmistakably intimated to the plaintiff that it was useless to take the steps required for the defendant to deliver to Sydney, because the defendant could not do so and impliedly intimated to the plaintiff, when time still allowed for the plaintiff to fulfil the conditions precedent, that it need not do so. In the passage of the decision of Kitto J in *Peter Turnbull & Co* relied upon by ObjectiVision, his Honour commences with agreement with Dixon CJ and the statement in *Cort*. At p 250 he states the principle upon which ObjectiVision relies:

The principle, which applies whenever the promise of one party, A, is subject to a condition to be fulfilled by the other party, B, may, I think, be stated as follows. If, although B is ready and willing to perform the contract in all respects on his part, A absolutely refuses to carry out the contract, and persists in the refusal until a time arrives at which performance of his promise would have been due if the condition had been fulfilled by B, A is liable to B in damages for breach of his promise although the condition remains unfulfilled.

245 ObjectiVision also cites *Park v Brothers*, where Gleeson CJ, Gummow, Hayne, Callinan and Heydon JJ approved the above passage from Kitto J. In both statements of the principle set out above, and on the facts of *Peter Turnbull & Co*, the position of the plaintiff A in so far as it concerns its obligation to comply with the condition precedent depends on an absolute refusal on the part of B to carry out the agreement.

246 The facts of the present case are not such that I would conclude that the University refused to perform the Heads of Agreement. In the University’s final letter prior to the execution of the Hamisa Third Party Agreement dated 14 January 2011 it makes several criticisms of the information provided to it about Mr Yasukawa and Hamisa Holdings. These are set out in more detail in section 4.7 above but include the observation that Mr Yasukawa’s experience does not include the experience in the commercialisation of new technology, medical devices or the health sector which would be required, and that the University considers ObjectiVision to lack the technical, clinical, regulatory and industry resources required and which it contends (then and now) were contemplated in the drafting of “resources required” in cl 1.6 of the Heads of Agreement. The University also notes that Hamisa has not agreed to commit sufficient financial resources to commercialise AccuMap 2, the first tranche of $150,000 being unlikely to be sufficient and provision for further funding apparently not being made.

247 At this point ObjectiVision had not provided the University with a draft agreement reflecting foreshadowed changes to an earlier draft. Nor had ObjectiVision asked for the University to consent to a draft agreement. In fact it did neither before 18 January 2011.

248 Furthermore, the language of the 14 January 2011 letter does not, in my view, amount to an absolute refusal on the part of the University to carry out the Heads of Agreement. Notably, the letter states that *at this stage* ObjectiVision has not demonstrated that Hamisa has the resources to commercialise the AccuMap 2 product.

249 In determining whether there has been a refusal by one party to carry out the agreement, it is necessary to have regard to the nature of that party’s obligations under the agreement. The University’s relevant obligation under the Heads of Agreement was to provide consent where the proposed third party shareholder had sufficient resources, and also not to unreasonably withhold its consent. Essentially, then, the obligation is for the University to consider the proposal and to approve it unless there is reason not to. The letter gives several reasons for the University’s reservations about Hamisa, as outlined above. It specifically refers to resources. Without finding that the University had no basis on which to question the resources of Hamisa, or that it was unreasonably withholding consent in such a blatant way as to indicate to ObjectiVision that there was no utility in upholding its end of the bargain, it cannot be said that it was refusing to carry out its obligations under the Heads of Agreement. The question of whether consent was unreasonably withheld is a separate issue and is considered later in these reasons. For present purposes it is sufficient to say that the reasons in the letter are evidence of detailed consideration by the University and the absolute refusal threshold is not met. In any event, as noted below, I have found that if there was a refusal by the University, it was not unreasonable.

250 Furthermore, in issue 1(d) (considered below) a key point of dispute is the correct construction of the word “resources” in the context of cl 1.6. It is evident from the terms of the 14 January 2011 letter from the University that it adopted the construction of that term that it propounds in these proceedings, namely that it is a reference not only to financial resources but the technical, clinical, regulatory and industry resources required to bring AccuMap 2 to market. The University submits that even if ObjectiVision’s construction of “resources” being limited to financial resources only is accepted, it cannot be said that the University absolutely refused to perform the Heads of Agreement merely because it wrongly understood cl 1.6 to encompass more than mere financial resources. The University relies on the proposition from ***DTR Nominees*** *Pty Ltd v Mona Homes Pty Ltd* [1978] HCA 12; 138 CLR 423 at 431 - 432 (per Stephen, Mason and Jacobs JJ) that a party, though asserting a wrong view of a contract because it believes it to be correct, may well be willing to perform the contract according to its tenor once the proper construction is exposed. In such an event, an intention to repudiate would not be attributed to it. The court in *DTR Nominees* noted, citing Pearson LJ in *Sweet & Maxwell Ltd v Universal News Services Ltd* (1964) 2 QB 699, that a party should not too readily be found to have refused to perform an agreement by contentious observations in the course of discussions or arguments. That observation is apposite in the present case. I find that the University did not repudiate the contract by adopting a different construction of “resources” from that adopted by ObjectiVision.

251 Accordingly issue 1(b) must be determined in favour of the University. The consequence is that by ObjectiVision’s failure to comply with cl 1.9, the University was not required to grant consent under cl 1.6 and the Licensing Agreement terminated automatically under cl 1.7.

6.2.2 Lack of consultation within cl 1.6 (issue 1(c))

252 The first sentence of cl 1.6 provides that “ObjectiVision undertakes to consult with the University regarding any approach to or progress in negotiations with Third Partiesincluding providing details of the Third Parties”. Third Parties are defined in cl 1.5 as potential investors or sublicensees.

253 The University submits that this obliged ObjectiVision to consult with it from the commencement of its dealings with a potential investor or sublicensee. Further, the University ought to have been informed of every step in negotiations from their commencement. It submits that although it is not an express requirement, it may be inferred the University was only required to provide consent under cl 1.6 in circumstances where it had been consulted in this fashion. This, the University submits, is supported by two matters. First, the structure of cl 1.6 is such that the requirement to consult precedes the obligation to provide consent. Secondly, the plain purpose of the consultation requirement is to put the University in a position where it could decide whether or not to consent to a proposed third party agreement.

254 ObjectiVision contends that the University reads too much into the first sentence. The clause is to be read as a whole. It does not require consultation from the outset with every person with whom a deal may possibly be made, but only a “potential investor or sublicensee”, which indicates that preliminary discussions may be excluded. In fact the obligation is focused on an approach to or the progress of negotiations with a third party who is likely to end up in an agreement. ObjectiVision accepts that the fourth sentence of cl 1.6 stipulates that a minimum three days’ notice must be given, but contends that the first sentence does not impose a requirement, a departure from which would relieve the University of otherwise providing its consent. That is, ObjectiVision would not be precluded from seeking the University’s consent (nor would the University be justified in refusing to grant it) merely because of a failure to consult. The first sentence is, ObjectiVision submits, more in the nature of a “chatty introduction” to the balance of cl 1.6. In any event, it submits that whatever may be said of the letter of 26 November 2010, by the time the relevant agreements were raised, there had been consultation between the parties.

255 In my view cl 1.6(1) imposes an obligation on ObjectiVision to “consult” which means to “seek counsel from” or “refer to for information”. Taken in context, the evident intention is to enable a dialogue between the University and ObjectiVision to take place during the course of negotiations with a potential investor so that the University is informed of relevant developments and is in a position to provide the consent required at the relatively short notice required later in cl 1.6(4). However, I do not consider that the language of cl 1.6(1) is such as to warrant the conclusion that it amounts to a separate condition precedent to the operation of cl 1.6 in the manner contended for by the University.

256 Turning to the facts, the operative failure alleged by the University was that the first time that ObjectiVision provided any notice of the arrangement with Hamisa Investments was on 26 November 2010, when it provided a draft agreement for the acquisition of shares in three tranches, with various preconditions attached. Consent was sought within three working days.

257 The response by Dr Hallgren on 30 November 2010 rightly pointed out that there was a failure to consult prior to 26 November 2010. His response raised other concerns about the form of the proposed agreement, including the fact that the second and third tranches of shares were not to be acquired until certain preconditions had been met. However, ultimately the 26 November 2010 form of agreement was not executed by Hamisa. The parties moved on and the relevant agreements that were signed by Hamisa were the First Subscription Deed and the Hamisa Third Party Agreement. Although the 26 November 2010 letter from ObjectiVision was probably later than contemplated by cl 1.6(1), in my view following that date there was a measure of consultation (albeit of an adversarial and strained variety) such that I would not conclude that this obligation was not met.

6.2.3 Did ObjectiVision seek the University’s consent prior to entry into the First Subscription Deed or the Hamisa Third Party Agreement? (issue 1(e))

6.2.3.1 The Arguments

258 It will be recalled that on 15 December 2010 the solicitors for ObjectiVision provided the First Subscription Deed to the University for the acquisition of the first tranche (15%) of the shares in ObjectiVision. After a number of trenchant criticisms of the conduct of the University, the letter notes that the University advanced no objection to the acquisition by Hamisa of the first tranche of shares in ObjectiVision for $150,000 and states that ObjectiVision intends to enter into the enclosed subscription deed on Friday 17 December 2010. The University responded on 17 December 2010 disputing the contentious issues and saying, in effect, that “it is a matter for ObjectiVision” whether to enter into the First Subscription Deed, and that the University makes no comment. On 22 December Hamisa entered into the First Subscription Deed. The Hamisa Third Party Agreement (whereby Hamisa was to acquire a further 35.1% of shares and become the majority shareholder) was entered into on 18 January 2011. A draft of the agreement for Hamisa to become the majority shareholder had not been provided to the University prior to its execution.

259 It is against this background that issue 1(e) arises. Clause 1.6 provides in its second sentence that “ObjectiVision will obtain written consent from the University prior to entering into an agreement to allow a Third Party to acquire a majority shareholding in ObjectiVision or grant a sublicence”. In its fourth sentence the clause provides that “the University will provide ObjectiVision with its response to a request for consent within 3 working days of ObjectiVision providing details of the relevant Third Party and proposed transaction in accordance with this clause 1.6”.

260 The University submits first that because ObjectiVision did not seek the University’s written consent prior to entering into the Hamisa Third Party Agreement it contravened these requirements, and the University was not obliged to provide its consent, regardless of the requirements of the third sentence of cl 1.6.

261 ObjectiVision does not dispute that it did not seek the University’s consent prior to entering into the Hamisa Third Party Agreement. Its arguments in response concentrate on the second of the points advanced by the University, set out below.

262 The University’s second argument is that there was no need for it to consider or consent to the entry into the First Subscription Deed because it was not presented as an agreement for the acquisition of a majority of the shareholding in ObjectiVision in the form of the *combination* of the First Subscription Deed and the Hamisa Third Party Agreement. In this regard the term   
“agreement” when used in cll 1.6 and 1.7 is be understood to include the singular as well as the plural. Where two agreements are to be entered into in order to provide for a party to acquire a majority of the shares, then that fact was required to be notified to the University so that it could consent to both. Although the University had been informed on 15 December 2010 that ObjectiVision intended to enter into the First Subscription Deed, the University contends (and it is not disputed) that it was unaware that the First Subscription Deed had been entered into until a month later, when Dr Hallgren noted the recitals to the Hamisa Third Party Agreement on 18 January 2011. It was never informed of or asked to consent to the combination of agreements that might have led to the acquisition by Hamisa of a majority shareholding in ObjectiVision. The University submits that in light of these matters, on the plain language of cl 1.7 of the Heads of Agreement, ObjectiVision did not comply with cl 1.6(2) with the consequence that no occasion arose for the University to perform any obligations relating to consent (in accordance with cl 1.6(4)) in relation to the Hamisa Third Party Agreement, and so the University could not have been required to consent to ObjectiVision entering into it.

263 ObjectiVision commences by contending that the University has not sufficiently pleaded the second argument and it should not be permitted to advance it. I disagree. The point raises a question of construction. The facts are based on the terms of the correspondence between the parties and are not, and could not be, in dispute. After closely considering the oral argument on the pleading point at pages 2125 – 2130 of the transcript, and the response to it at pages 2241 – 2242, the terms of the Amended Statement of Claim, Amended Defence, and the Reply to the Amended Defence, it is apparent that ObjectiVision’s case as first advanced relied upon the entry into the Hamisa Third Party Agreement alone as satisfying the requirements of clause 1.6; see Amended Defence [30]. It was that issue that was addressed in the Reply. ObjectiVision did not raise the combined effect of the two agreements in its pleaded case, but only did so in oral argument, and the University should be permitted to respond to it. In any event, it is apparent from the Reply at [7(e)(vi)] that the point the University seeks to advance was raised. This, coupled with the opening written submissions of the University, particularly at [106], and the closing written and oral submissions of the University, leads me to the view that this issue has been sufficiently notified to enable it to be fairly advanced in the proceeding: *Banque Commerciale S.A., En Liquidation v Akhil Holdings Ltd* [1990] HCA 11; 169 CLR 279 at [18] – [19]; *Stefanovski v Digital Central Australia (Assets) Pty Ltd* [2018] FCAFC 31; 368 ALR 607 (McKerracher, Robertson and Derrington JJ) at [65].

264 ObjectiVision next makes two points. It first asserts that only an agreement that gives a third party a majority interest in ObjectiVision required the consent of the University. Secondly, it contends that the University did consent to the entry into the First Subscription Deed in the terms of the letter from KWM that said it is a “matter for your client as to whether or not it enters into that agreement, and the University makes no comment” and that this was sufficient.

265 It is to be noted that these points leave the first, and more significant argument advanced by the University unanswered.

6.2.3.2 Consideration

266 In my view the University is correct to characterise the question as not being whether the University would have consented to the Hamisa Third Party Agreement, had its consent been sought (as ObjectiVision submits), but rather whether the University failed to consent to the Hamisa Third Party Agreement and/or the First Subscription Deed in circumstances where it was required to do so. In fact, at no time did Objectivision seek the University’s consent to enter the Hamisa Third Party Agreement. The terms of cl 1.6 are unequivocal insofar they concern the provision of prior consent. The purpose of prior notice was to enable the University to understand the nature and terms of the transaction so that could give consideration to providing its consent. ObjectiVision does not suggest otherwise. As a matter of commercial common sense, in the context of this agreement, it was important that the University, as the party agreeing to a continuation of its exclusive licence arrangements, should be apprised of the terms of the proposal. ObjectiVision agreed that the University should have an opportunity to consider and consent to it. This purpose is not only apparent from the broader context in which the Heads of Agreement was entered, but also from the terms of the agreement itself, including the requirement in the first sentence of cl 1.6 that there be consultation regarding any approach to or progress in negotiations and the explicit agreement of ObjectiVision that the University would give its consent *prior to* entering into a third party agreement. Accordingly, as a matter of construction, the University’s first argument is in my view correct.

267 The University’s second argument turns on whether the Heads of Agreement should be construed such that any agreement for the acquisition of shares was subject to the requirement that prior consent be given if the ultimate effect was to be that a majority of the shares in ObjectiVision was to be acquired. The background to the Heads of Agreement demonstrates that there was a significant lack of expertise on the part of ObjectiVision to complete the project of commercialising the AccuMap 2. Mr Cheng did not have the necessary technical and medical skills to do so. As much is apparent from the terms of cll 1.2 – 1.5 of the agreement, which required the University to furnish the assistance of Associate Professor Klistorner, Professor Peterson and Mr Alkhimov. The University clearly wished, and ObjectiVision agreed, for a party other than the existing majority shareholder (Mr Cheng) to take over the conduct of the enterprise in order to achieve the commercialisation requirements of the Licensing Agreement. The University submits, against this background, that if the prior consent requirements of cl 1.6 only applied to the final agreement that gave a third party its majority shareholding, then the University would be deprived of all visibility of prior agreements. I do not accept this argument. At the point that a party was about to become a majority shareholder, the University had the ability under cl 1.6 to make any enquiries necessary to assess the third party’s resources and so on. The enquiries under cl 1.6 would extend to visibility over any prior agreements, as these would be a necessary part of assessing the potential new majority shareholder’s resources. Accordingly, the University’s second construction argument on this point does not succeed. As noted, this does not assist ObjectiVision, in light of the University’s success on its first argument.

268 Turning to the facts, a first draft agreement was provided on 26 November 2010, to which Dr Hallgren responded on 30 November 2010, setting out various points of concern on the part of the University. On 6 December 2010 G+T provided a further draft agreement for Hamisa Investments to acquire a majority of shares. This was the last time that a *draft* was supplied for acquiring a majority of shares. Clause 3.1 of the draft agreement provides for a first tranche of 15% of the shares to be issued for $150,000. Clause 3.3 provides for a second tranche to enable Hamisa to acquire a total of 50.1% of the shares. The amount to be paid for the acquisition is an amount agreed or determined by an independent valuer (cl 3.4(b)). Clause 4.2 provides for various preconditions to be met before the second tranche is paid. They include, in cl 4.2(c), the provision by Associate Professor Klistorner and Mr Alkhimov of assistance to ObjectiVision to complete beta testing, software debugging, clinical validation and other tests with the AccuMap. Clause 4.2(d) provides that Hamisa must complete, to its reasonable satisfaction, financial and legal due diligence of ObjectiVision. Clause 4.2(e) requires a new Shareholders' Agreement to be negotiated between the existing shareholders of ObjectiVision. The terms of this draft agreement were notably different to the terms that were ultimately entered into by ObjectiVision and Hamisa on 18 January 2018. The existence of potential differences was telegraphed to the University in a letter from G+T on 13 January 2011, which observes that ObjectiVision and Hamisa “are in the process of negotiating amendments to the draft heads of agreement”, however the actual changes made were never provided to the University before the deed was entered on 18 December 2011. The changes that were in the process of negotiation were no doubt in response to the fairly detailed criticisms made by the University’s solicitors in correspondence on 8 and 15 December 2015.

269 Ultimately, the Hamisa Third Party Agreement was entered on 18 January 2018, the penultimate day of the term provided for under the Heads of Agreement, without ObjectiVision providing its terms to the University and without ObjectiVision asking for or obtaining the University’s consent. It was in a substantially different form to the draft provided on 6 December 2010.

270 In these circumstances, it is apparent to me that the University cannot have been obliged to give its after-the-fact consent to the entry into the Hamisa Third Party Agreement. It was not asked to do so in accordance with the requirements of cl 1.6. The University succeeds in its first argument.

271 The success of the first argument renders the second redundant, but for completeness I note that it cannot succeed. On 15 December 2010 G+T wrote to the University and informed it of ObjectiVision’s intention to enter into “the enclosed agreement to issue Hamisa with 15% of the shares in the company on Friday this week”. The First Subscription Deed was attached in unexecuted form. ObjectiVision did not request that the University consent to the deed. Nor did it inform the University that this was to form part of the transaction that would culminate in an agreement for the purchase of a majority of the shares. The response by the University that it was a matter for ObjectiVision whether it entered into the deed was not, as ObjectiVision submits, the equivalent of consent by an agent of the University. It meant that it was a matter of indifference to the University. It would have an opportunity to grant or refuse consent when an agreement came along that purported to give Hamisa a majority shareholding.

272 Accordingly, in my view it was a term of cl 1.6 and cl 1.7 that the University provide its written consent prior to ObjectiVision entering into an agreement with a majority shareholder. That was not met. The consequence is that the Licensing Agreement (as amended) terminated on 19 January 2011.

6.2.4 Was consent unreasonably refused? (issue 1(d))

273 Issue 1(d) is whether the University failed to provide its consent in circumstances where Hamisa had the resources required to commercialise the AccuMap 2 product, or withheld its consent unreasonably, contrary to clause 1.6.

274 Four sub-issues arise. The first concerns the meaning of the requirement of reasonableness in cl 1.6(3) in the sentence: “The University will provide its consent in circumstances where the Third Party has the resources required to commercialise the AccuMap 2 product and will not withhold its consent unreasonably”. The second concerns the meaning of the word “resources” in this sentence. The third sub-issue is whether or not the University withheld its consent unreasonably. That involves consideration of the content of the obligation and whether, on the facts, the University so behaved. Finally, ObjectiVision contends that if the University did unreasonably withhold consent, then that is an answer to all of the other points raised in relation to cl 1.6 concerning the requirement to assign the specified patents in cl 1.9, the requirement for prior consultation in cl 1.6(1), and the requirement for prior written consent in cl 1.6(2). I consider this point as the fourth sub-issue for determination under this topic.

6.2.4.1 Consideration of the construction issues

275 The University contends that the proper construction of cl 1.6(3), conformably with its apparent purpose, is that the words “and will not withhold its consent unreasonably” limited or qualified the obligation to provide consent imposed on the University by the first part of the sentence. A single obligation is imposed on the University to consent where the third party had the resources required to commercialise the AccuMap 2, unless it was reasonable for the University not to do so. In its written closing submissions, ObjectiVision adopted what appeared to be a different construction of the sentence, whereby the University was obliged to consent if the third party had the requisite resources, and “in any case”, it could not withhold its consent unreasonably. The University submits that this leaves open the possibility that the University may be obliged to consent even where a third party did not have adequate resources. From a practical perspective, the difference in construction seems slight, as lack of resources would presumably be a reasonable basis for refusing consent. However, its position was clarified in oral closing submissions, and ObjectiVision now accepts (if it did not earlier) the University’s construction. In argument the University also propounded as an alternative a construction that it submitted was open, but less preferable. This is that the words “and will not withhold its consent unreasonably” specified the manner in which the University was to determine whether or not the third party had the resources required to commercialise the AccuMap 2. ObjectiVision contests this construction. It is not necessary to dwell upon it further, because in my view the closing words of the sentence in terms qualify the University’s obligation to give its consent to a proposed third party agreement, and are not merely limited to its determination of whether a proposed third party had the resources required to commercialise the AccuMap 2. The first construction more closely aligns with the purpose (or a purpose) of the Heads of Agreement, which was to enable the University to be satisfied that ObjectiVision was controlled by a third party with resources that would enable it to commercialise the AccuMap 2.

276 The second construction issue – the meaning of the term “resources” – at first appears more contentious but upon closer examination is not. ObjectiVision submits that in its late 2010 and early 2011 correspondence, the University impermissibly sought to read “resources” as necessarily including “clinical, medical, regulatory, and industry resources”, when in fact the resources necessary were financial. The University contends that the ordinary meaning of the word “resources” is not confined to financial resources. The resources required to commercialise the AccuMap 2 went far beyond financial, and extended to technical and scientific expertise amongst other areas. Ultimately, however, the difference between the parties was chimerical. In its written submissions ObjectiVision accepts that in considering a third party investor, it may have been appropriate for the University to consider whether its clinical, medical, regulatory or industry resources were such that less was required in terms of financial resources. It also submits as self-evident that the greater the proposed third party’s financial resources, the more unreasonable it would be to withhold consent based on an alleged deficiency of clinical, medical, regulatory or industry resources. In oral submissions it contends that the word “resources” does not *necessarily* include clinical, medical, regulatory and industry resources, whereas the University’s position evinced a requirement that it did. The University accepts that the requirement of sufficient resources in the Heads of Agreement would *not always* mean consideration of resources beyond financial, but that in the present case it did. These submissions indicate that the dispute between the parties is not the relevant matters to take into account, or whether financial resources alone should be taken into account, but rather whether or not as a matter of fact it was appropriate for the University to refuse to provide the consent that was sought. I address these matters of fact below. For completeness, however, I should add that in my view the word “resources” is not qualified in cl 1.6. It arises in the context of a proposal in that clause for a third party to take a majority shareholding in the corporate vehicle that exclusively licenses the patented technology of the University. The commercial objective of the Heads of Agreement was to determine whether hitherto unsuccessful efforts to commercialise the technology could be achieved with the assistance of a third party investor. Accordingly, the word should be read as potentially extending to non-financial resources.

277 Finally, before turning to factual matters, the following propositions may be regarded as established for the purpose of considering the content of the obligation of reasonableness, and bear on the reasonableness or otherwise of the University’s refusal:

(1) Where an obligation arises for consent not unreasonably to be refused, the reason for refusal must be something affecting the subject matter of the contract which forms the relationship between the parties, and not something extraneous and dissociated from the subject matter of the contract; ***Secured Income*** *Real Estate (Australia) Ltd v St Martins Investments Pty Ltd* [1979] HCA 51; 144 CLR 596 at 610; ***Fulham Partners*** *LLC v National Australia Bank Ltd* [2013] NSWCA 296; 17 BPR 32709 at [44] (Basten JA, Barrett J and Bergin CJ agreeing).

(2) The objective and subjective position is considered. In *Fulham Partners* the Court of Appeal noted (at [43]) that it was not in dispute that the subjective intentions of the party who refused consent (there, the NAB parties) were relevant, but there was disagreement was to whether they were determinative. It considered that in one respect they may clearly have been determinative, namely if the appellants had established that the NAB parties acted for collateral, improper or extraneous motives (at [43]). In the present case, the pleadings do not permit allegations of improper purpose to be raised.

(3) In *Fulham Partners* the Court of Appeal said at [46] of the content of the obligation (emphasis added):

In *Secured Income*, the High Court upheld a refusal as not unreasonable where the purchaser of a property withheld consent for the vendor to lease various portions of a large office building on the basis that the purchaser entertained reasonable doubts that the vendor would or could pay the rent promptly. The effect of the purchaser's refusal was to reduce the purchase price of the property, because the aggregate rents were below a figure fixed in the contract. Mason J stated at 610:

“Approaching the contract in the present case in the light of these observations, I conclude that the respondent was not entitled to refuse to grant a lease to the appellant so as to deprive the appellant of a benefit which would otherwise accrue to it under the contract. A refusal on that ground would be capricious and arbitrary. **On the other hand, a refusal on the ground that there were doubts that the appellant could or would pay the rent promptly would, if the ground were made out, not be capricious or arbitrary**.”

In the present case, if the University had reasonable doubts as to whether Hamisa had the resources required to commercialise the AccuMap 2, withholding consent to Hamisa would not be unreasonable.

(4) The onus of proving that consent has been unreasonably withheld is on the party seeking to demonstrate that the refusal was unreasonable; *Fulham Partners* at [55]; *International Drilling Fluids Ltd v Louisville Investments* [1986] 1 Ch 513 at 520. In the present case the onus is first on the University is to establish that it did not give its consent to a third-party agreement. That fact is not in dispute. ObjectiVision must then establish that the withholding of the consent was unreasonable.

6.2.4.2 Was the University’s refusal of consent unreasonable?

278 The requirement under cl 1.6 is that the University would provide its consent in circumstances where the third party (here, Hamisa) has the resources required to commercialise the AccuMap 2, and would not withhold its consent unreasonably. In my view the University did not unreasonably withhold its consent. At that time the white prototype of AccuMap 2 was not complete. In this regard I refer to section 8.7.1 below and the following additional factors.

279 First, it is to be recalled that ObjectiVision had endeavoured to commercialise the AccuMap 2 since 2005. In the course of various minutes to the Board of ObjectiVision and other documents Mr Cheng had estimated that the cost of development would be:

(a) In April 2005, $3.851m per annum and a further $1.212m for clinical trials (in a report by Mr Cheng to the board of ObjectiVision dated 14 April 2005);

(b) In September 2007, $895,950 for the 10-month period from September 2007 to June 2008 (in order to get the product to sale in an Information Memorandum dated September 2007);

(c) In December 2007, $325,000 for the 7 months to June 2008 to get the point of regulatory clearance (report to the board of ObjectiVision dated 7 December 2007);

(d) On 27 June 2008, $150,000, proposed to be required until a mezzanine financing round is achieved (in the Commercialisation Plan of 27 June 2008). However, for the reasons that I have set out, I do not consider this to be a reliable estimate (see reasons at 4.3 – 4.4 above). My scepticism was supported by the expert evidence of Mr Potter (with which Mr Ford agreed) who doubted that $150,000 would be sufficient to fully develop and commercialise the AccuMap 2 product.

280 Secondly, by January 2011 there is no doubt that the relationship between Mr Cheng and Associate Professor Klistorner and Professor Graham had broken down. As much is apparent at least from the correspondence dated 19 June 2008 from Professor Graham. Associate Professor Klistorner indicated in emails on 21 February 2008 and 6 March 2008 that he did not want to be involved with ObjectiVision without the University’s support, and he gives evidence that in mid-2008 he told Mr Cheng that he would no longer work with ObjectiVision. In the letter from ObjectiVision to SSI and Sydnovate on 27 June 2008, ObjectiVision confirmed that “its relationship with the Institute for provision of scientific technical support has come to an end”. This point was further made explicit insofar as Associate Professor Klistorner was concerned in cl 1.5 of the Heads of Agreement. Accordingly, any reasonable consideration of the resources required to commercialise the AccuMap 2 would require consideration of whether or by whom those individuals may be replaced. Any plan for the completion of AccuMap 2 would need to accomodate the likely absence of Associate Professor Klistorner and Professor Graham to assist. Their replacement is likely to have taken time and money, which is not addressed in the estimate of $150,000.

281 There is no real dispute that Hamisa did not itself have skills to contribute to the technical aspects of the business of developing and selling mfVEP technology. Mr Yasukawa was an experienced businessman. However, his personal skills did not extend to addressing technical aspects of the AccuMap 2, software, hardware, clinical or other such matters. The case advanced by ObjectiVision relies on the financial resources available to Hamisa to enable AccuMap 2 to be brought to market.

282 In the course of argument, the parties agreed that a deficiency in access to technical skills of the type to which I have just referred may be redressed with sufficient funds. However, the funds that Hamisa had access to for the purpose of funding the commercialisation of the AccuMap 2 were limited. They are to be considered by reference to the terms upon which any investment was to be made, as set out in the agreements reached with ObjectiVision.

283 Thirdly, Dr Hallgren’s view that the upfront investment of $150,000 was inadequate to enable the milestones set out in the Hamisa Third Party Agreement to be achieved was reasonable having regard not only to Mr Cheng’s own prior estimates, but also the expert evidence provided by Mr Potter and Mr Ford.

284 Fourthly, the availability of any funds additional to the $150,000 was highly conditional, and depended on the value of the company and the successful development of the product by reference to the “milestones” (cl 3.2(b)). It will be recalled that the milestones identified in cl 3.4 of the Hamisa Third Party Agreement are:

(a) successful completion of pre-clinical and clinical trials with the AccuMap 2 prototype in Australia;

(b) successful completion of US clinical trials for the AccuMap 2 prototype an developing a commercial normative database approved by the FDA;

(c) obtaining of FDA, CE Marking, TGA and other regulatory and compliance approvals necessary for the commercial launch of the AccuMap 2; and

(d) production and sale of the first production unit of the AccuMap 2.

285 The Hamisa Third Party Agreement provided that within 9 months from 18 January 2011 Hamisa must subscribe for 35.1% of the shares in ObjectiVision and that the amount to be paid for those shares was to be that agreed between ObjectiVision and Hamisa or failing that, as determined by an independent valuer.

286 In this regard it is to be recalled that in April 2008 the shareholders of ObjectiVision, who at that stage were principally Medcorp and the University, agreed to a rights issue of shares to raise $100,000 to provide working capital to pay existing shareholders. Mr Cheng took up that issue and thereby acquired a majority of the shares in the company. The notional value of ObjectiVision at that point was $170,000. Accordingly, a very real question arises as to the value of ObjectiVision in the event that the milestones could not be met. Mr Potter and Mr Ford agreed that the availability of additional funds from the acquisition of the second tranche of shares under the Hamisa Third Party Agreement was “highly conditional” and depended on successful development of the AccuMap 2 for there to be significant funds raised.

287 ObjectiVision provides no evidence of the value of the 35.1% of the shares before or after the completion of any valuation. One is left to speculate as to the available funds in the event that by the subscription date 9 months hence (19 October 2011) some or all of those milestones are not met, or indeed the valuation if they were met. It may be inferred that if the milestones are not met with the available funds, then little, if any, further will be raised. The available resources to achieve the milestones is the money paid by Hamisa to ObjectiVision for the first 15% of shares, being $150,000.

288 Furthermore, despite the provision of evidence to the University that Hamisa Holdings had available assets of about $2.8m, the information provided to the University did not indicate that those funds were available for the development of the AccuMap 2 product.

289 As noted in [200] – [203] above, the 13 January 2011 and 18 January 2011 letters from G+T indicate that there was a total value of $2.8m in funds apparently available to Hamisa Holdings. The letter of comfort from Mr Yasukawa states that Hamisa Holdings will assist Hamisa “in meeting its **liabilities** as and when they fall due” (emphasis added) in relation to (a) the subscription of shares in ObjectiVision and (b) the development and commercialisation of AccuMap 2, but only to the extent that money is not otherwise available to Hamisa to meet such liabilities.

290 These letters accordingly draw attention to the nature of the liabilities of Hamisa towards the development and commercialisation of AccuMap 2. Those are set out in the Hamisa Third Party Agreement Agreement. The materials supplied to the University do not indicate that in the absence of the support of Hamisa Holdings, Hamisa has any additional available funds.

291 The liabilities of Hamisa are to be understood by reference to the terms of the Hamisa Third Party Agreement and the milestones, to which I have referred.

292 Accordingly, the achievement of the milestones was to be the gateway to raising funds beyond the $150,000 raised in the First Subscription Agreement. The milestones focused on the successful completion of the AccuMap 2 prototype, clinical trials, regulatory approvals, and production units of AccuMap 2 for sale within 9 months. The history of the development of prototype AccuMap 2 devices from 2005 – 2008 indicates that sustained optimism, supported by Associate Professor Klistorner and the University, had met an ever receding horizon and the expenditure of large sums of money. Yet if ObjectiVision failed within 9 months and with $150,000 then the value of the 35.1% shares could be nominal. At best, it was highly uncertain. No minimum price for the 35.1% shareholding was specified. The Hamisa Third Party Agreement in effect required that the available $150,000 in funds (less the $23,000 owed to Medcorp) be sufficient to take the AccuMap 2 to production via the milestones. All in circumstances where, I find, Associate Professor Klistorner and Professor Graham would not be available to ObjectiVision.

293 In these circumstances, in my view ObjectiVision has not demonstrated that Dr Hallgren was subjectively unreasonable to refuse consent on behalf of the University. Nor has it established that it was objectively unreasonable for that consent to be refused.

294 I should note that in the submissions advanced on behalf of ObjectiVision, three challenges were made to the approach taken by Dr Hallgren to the provision of consent by the University. The first was that Dr Hallgren approached the question of granting consent using the same decision-making process that he would use in deciding whether to recommend an investment, which meant that he failed to have regard to the to the fact that the University was *obliged* not to withhold its consent unreasonably. Dr Hallgren accepted in cross-examination that in his prior experience in recommending investments, he had not been constrained by a standard where he was not able to unreasonably withhold his consent. However, he did not accept, and it has not been established, that he failed to apply the correct standard in considering whether to grant consent. The second was that Dr Hallgren took a blinkered view to the question of consent and confined his consideration solely to whether or not Hamisa had sufficient resources to develop the AccuMap 2 and indicated, via the University’s letter of 14 January 2011, that no amount of money from Hamisa would suffice to satisfy the cl 1.6 requirement. In my view that submission is not supported by Dr Hallgren’s oral evidence or the text of the 14 January 2011 letter from KWM.

295 The third challenge was to contend that the University, via Dr Hallgren, refused consent unreasonably in comparison to its conduct in relation to the University’s agreement to become involved with commercialising the mfVEP technology with Visionsearch at around the same time. In this regard, ObjectiVision submits that the unreasonableness of Dr Hallgren’s approach is demonstrated by the arbitrary way in which he applied his requirement for expertise to Hamisa, but not to Visionsearch. ObjectiVision submits that one example of this was Dr Hallgren’s approach to Visionsearch’s “regulatory” resources. Dr Hallgren appeared to assume that Dr Peterson would have regulatory experience from his work at the SSI, but the evidence indicates that he did not have knowledge or experience of the medical regulatory process. ObjectiVision further submits that Visionsearch had limited financial resources available to it, since the only potential cash flow came from the sale of the first two machines to Biogen and the agreement by Biogen to take 10 further machines. In essence, ObjectiVision sought to show that ObjectiVision had effectively been replaced by Visionsearch, but that Visionsearch was not subject to the same scrutiny and standards that ObjectiVision had been.

296 I reject that submission. There are several reasons why the comparison between the conduct of the University towards ObjectiVision vis-á-vis Visionsearch cannot sensibly be made. First, the University did not enter into any binding exclusive licence agreement with Visionsearch, whether in January 2011 or later. Secondly, the evidence indicates that before the University entered any exclusive licence agreement with Visionsearch (which ultimately did not happen) due diligence was still required. This is evident from a document entitled “Non-binding Term Sheet – Visionsearch” dated 5 August 2011 which provided that Visionsearch would prepare a commercialisation plan and Visionsearch and the University would review and agree to that plan. That term sheet was in effect no more than a set of proposals yet to be finalised. It provided in cl 1.3 that once the term sheet was agreed the parties would enter into exclusive negotiations to negotiate for a definitive binding agreement. The evidence is that it was never converted into a licence. Thirdly, the University did not have the same unhappy history with Visionsearch that it did, by January 2011, with ObjectiVision, including knowledge ObjectiVision had failed since 2005 to produce a viable commercial product. Furthermore, the relationship between Associate Professor Klistorner and Professor Graham, and Mr Cheng and ObjectiVision, had soured by January 2011. It had not with Visionsearch. These matters lead me to the firm view that there was no real parity, such that it may meaningfully be said that by not supplying consent for the Hamisa Third Party Agreement the University was not being even-handed, or treating like with like, when compared with its treatment of Visionsearch.

###### 6.3 Issue 2: Did the University validly terminate the Licences on 20 January 2011?

6.3.1 Introduction

297 The University contends that if the Licences were not terminated automatically as a result of the operation of the terms of the Heads of Agreement, then they were terminated for breach for non-payment of costs due, upon the provision by the University of notice of termination on 20 January 2011, or alternatively on the date of the commencement of these proceedings on 16 April 2014. In this section I address the first of these contentions, which is issue 2 in the Statement of Issues. The relevant facts are not in dispute and are set out below.

6.3.2 Summary of relevant facts

298 Clause 8.1 of the Licensing Agreement provides that the University “has made or shall make applications for registration of the patent or other rights in respect of the Licensed Intellectual Property”. “Licensed Intellectual Property” is listed in Schedule 1 as the “Electrophysiological Visual Field Measurement” patent application No PCT/AU99/00340, which is the parent application in the EVFM patent family. Clause 8.1 provides that the University shall be responsible for the ongoing maintenance of such registrations, but that “all costs relating to or arising from such registration and maintenance...shall be borne by [ObjectiVision]”.

299 Clause 8.3 provides that either party may request for additional intellectual property to be registered to extend patent protection to “Improvements” made to the already licensed intellectual property, and/or to additional countries. Clause 8.4 provides that if so requested the University shall make applications and the additional intellectual property arising from registrations shall be included in the licence. As for cl 8.1, all costs relating to or arising from such registration and maintenance are to be borne by ObjectiVision.

300 Clause 18.3 provides that the parties agree that if ObjectiVision “does not make a payment due hereunder and fails to remedy such non-payment within forty-five (45) days after the date of notice in writing of such non-payment, the University may terminate this Agreement.”

301 Clause 19.1 provides for a 6 point dispute resolution mechanism if there is a dispute between the parties.

302 On 27 July 2010 the University issued invoice no. 60-015566 (**27 July 2010 invoice**) for a total of $2,994.16 for the combination of:

(1) $1,804.76 for the costs of arranging the recordal of the assignment from the inventors to the University at the Japanese Patent Office of a patent within the EEG Scaling and Goggles patent family (**the Japanese Application**); and

(2) $1,189.40 being for the prosecution and maintenance of registrations of the invention.

303 On 3 September 2010 Mr Cheng questioned the liability of ObjectiVision under the Licensing Agreement to pay the first of these charges. ObjectiVision maintains that the amount of $1,804.76 has never been due under the Licensing Agreements. It otherwise accepts liability for the prosecution and maintenance costs, and Mr Cheng did not dispute that amount in his letter.

304 On 20 September 2010 the University wrote to ObjectiVision maintaining that both amounts were owed. It is this letter that the University contends provides notice in writing under cl 18.3 of the Licensing Agreement that the amount has fallen due.

305 On 30 November 2010 the University by Dr Hallgren wrote to ObjectiVision, contending that it had failed to comply with the terms of the Heads of Agreement. The terms of this letter have been addressed earlier in these reasons in section 4.7. On 8 December 2010 the University (via KWM) responded to correspondence sent on behalf of ObjectiVision concerning the performance of the Heads of Agreement, and extended the exclusivity period from 20 December 2010 to 19 January 2011 (see [195]). ObjectiVision relies on these letters as representing a waiver or termination of any rights to terminate for non-payment.

306 On 20 January 2011 the University (via KWM) wrote to ObjectiVision. The letter commences by noting that the Licence Agreement has been terminated in accordance with cl 1.7 of the Heads of Agreement and that, if an election is required under the Heads of Agreement, the letter constitutes notice of that election. Furthermore, under the heading “Other matters” the letter refers to the KWM letter of 20 September 2010, states that is more than 45 days after the date of that letter and that the 27 July 2010 invoice has not been paid, and says “[w]e note that this non payment would have afforded the University a termination right under clause 18.3 of the Licence Agreement” (see [205]). The University contends that this constitutes a valid notice of termination. ObjectiVision disputes it.

6.3.3 The Issues

307 The University submits that by its 27 July 2010 invoice the two costs identified above were owed. ObjectiVision disputes indebtedness in relation to the recordal of the assignment of the Japanese Application (issue 2(a)). The University contends that by its letter of 20 September 2011 it gave valid and effective notice in writing of non-payment pursuant to cl 18.3 of the Licensing Agreement. ObjectiVision disputes that this is so (issue 2(b)). The University next submits that by its letter of 20 January 2011 it effectively gave notice of termination of the Licensing Agreements. ObjectiVision disputes this also (issue 2(c)). Furthermore, ObjectiVision contends that the University had an obligation first to comply with the dispute resolution requirements of clause 19.1 of the Licensing Agreement before exercising any right of termination (issue 2(d)), and that in any event the University waived or lost any right to terminate the first or second Licensing Agreements for non-payment by reason of: (a) insisting on performance of the Heads of Agreement in its letters of 30 November 2000 and/or 8 December 2010; (b) electing to extend the exclusivity period in its 8 December 2010 letter; and (c) failing to exercise its notice of termination within a reasonable time (issue 2(e)).

6.3.4 Consideration

308 In relation to issue 2(a), there is no dispute that the $1,189.40 portion of the 27 July 2010 invoice, being for the prosecution and maintenance of patent registrations, was due and payable. The disputed amount is $1,804.76. That amount is for arranging the recordal of the assignment in the Japanese Patent office of the Japanese Application. Accordingly, ObjectiVision accepts an outstanding debt of $1,189.40. I proceed first to consider whether ObjectiVision is also liable to pay $1,804.76 for the assignment of the Japanese Application to the University.

309 On 25 October 2001 the University, ObjectiVision and four named inventors entered into the Second Licensing Agreement. The recitals provide that the inventors have *on behalf of the University* devised improvements and filed an application for the grant of a standard patent in Australia, which is defined as “the Application”. There is no dispute that these improvements form part of the EEG Scaling and Goggles patent family, which was derived from the 423 Application. The recitals also provide that the University is entitled to an assignment of the Application, and that it has agreed with ObjectiVision that the improvements shall be considered “Improvements” within the Licensing Agreement. Clause 2 gives effect to this by providing that the improvements, called in this agreement “New Improvements”, shall be treated as “Improvements”. Clause 3 provides that the inventors agree to assign to the University the benefit of the Application in Australia. In cl 4 the University grants a licence in respect of the Improvements to ObjectiVision. Clause 5 provides that ObjectiVision shall pay an additional licence fee of 0.4% of net sales to the inventors (except for Associate Professor Klistorner, because he is an employee of the University). By cl 6 the inventors warrant to ObjectiVision and the University that they will do all things as may be necessary to procure the grant of the application to the University as well as the grant of any equivalent foreign patent protection. By cl 7 the parties ratify and confirm the terms of the Licensing Agreement save only as varied by the Second Licensing Agreement. The Second Licensing Agreement makes no provision for the payment of costs.

310 ObjectiVision submits that the obligation on the part of the inventors to assign the benefit of the Application and assist in procuring the grant of any foreign patent is that such that those steps cannot be considered to form part of the costs arising from the registration and maintenance of patents as contemplated within cl 8.4 of the Licensing Agreement. It submits that they were the cost of steps required to be taken by the inventors under the Second Licensing Agreement and that it was only after they had been taken that cl 8.4 obligations would arise. Furthermore, neither Licensing Agreement treats the costs of recording an assignment from the inventors to the University as costs “relating to or arising from” the “registration and maintenance” of the licensed intellectual property.

311 The University submits that the recitals and cl 4 of the Second Licensing Agreement demonstrate that the 423 Application, which led to the Japanese Application, was a patent application of the kind referred to in cl 8.3 and 8.4 of the first Licensing Agreement. It submits that the effect of the Second Licensing Agreement was that, having agreed that the original Licensing Agreement would be extended to cover the 423 Application and the Japanese Application, in the normal course the University would file a patent application. As it happened, the inventors had already done so. Instead of filing a fresh application, the University had to obtain an assignment of it. The words in cl 8.4 that if a request is made, the University shall *make such applications* within 30 days, are to be understood to include an assignment of the application for the Japanese patent, thereafter, the Japanese Application became a University application within the meaning of cl 8.4. Accordingly, ObjectiVision was obliged to bear the cost of the Japanese Application.

312 In my view cll 8.1 and 8.3 of the Licensing Agreement contemplate that ObjectiVision shall be responsible for all costs of the registration and maintenance of patents the subject of the Licence. By “registration”, it is apparent from the context that applications for registration of the patents are included. At the time of the Licensing Agreement, the patent application for the intellectual property listed in Schedule 1 had not been registered. It was envisaged that the University would arrange for the registration of the Electrophysiological Visual Field Measurement patent application and thereafter keep it registered in Australia and in other countries around the world, and that ObjectiVision would pay the costs.

313 The effect of the Second Licensing Agreement was to add to the exclusive licence the Australian application for the 423 patent which is the “Application” the subject of that agreement. As I have noted, cl 2 provides that the improvements described and/or claimed in that application shall be treated as Improvements under the original Licensing Agreement. Clause 6 provides for the inventors to do all things necessary to assign the application for the standard patent to the University. By cl 7 the terms of the Licensing Agreement continue to apply. As I have noted, no provision is made in the Second Licensing Agreement for the payment of costs. That is left to the terms of the Licensing Agreement.

314 The obligation in cl 8.4 of the Licensing Agreement is that within 30 days the University is to make applications for (in this case) patents for any Improvements within 30 days. In the case of the 423 Application, the inventors had already filed a patent application in Japan. The effect of clause 8.4 is that whilst the University is to make such applications as are necessary, all costs arising from or relating to such applications are to be paid for by ObjectiVision. In my view it is tolerably clear that clause 8.4 governs the obligation to pay costs relating to the 423 Application. It is also tolerably clear that a cost of procuring the registration of the Japanese Application is the cost of recording the assignment of it from the inventors to the University. That cost falls within the broad term of a cost “relating to or arising from” such registration, the route to which involves either filing the application itself (which is what would happen pursuant to cl 8.1) or taking an assignment of the application from the inventors, which is what happened here.

315 Accordingly, I find that the cost of recordal of the assignment of the Japanese Application for $1,189.40 was due and payable by ObjectiVision pursuant to the terms of the Licensing Agreement.

316 The next question (issue 2(b)) is whether the KWM letter of 20 September 2010 to G+T is sufficient to provide notice of non-payment to ObjectiVision within cl 18.3 of the Licensing Agreement. That clause requires that notice of non-payment be in writing, but imposes no other requirement as to the form of the notice. In the letter the University responds to the 3 September 2010 email from Mr Cheng disputing the imposition of fees for the recordal of the assignment of the Japanese Application, and also disputing earlier payments made by ObjectiVision to the University for similar charges. The University adheres to its view that both components of the 27 July 2010 invoice have fallen due and refers to cl 8.1 of the Licensing Agreement. It concludes by stating that for the reasons set out in the letter the whole of the invoice must be paid. In my view this supplies sufficient notice within cl 18.3.

317 Next, the question arises as to whether by its letter of 20 January 2011 the University effectively elected to terminate for non-payment (issue 2(c)). Clause 18.3 provides that if the licensee fails to remedy a non-payment within 45 days, the University *may terminate*, leaving it a matter for its election. There is no dispute that in order effectively to terminate in such circumstances, no particular form of communication is needed, but the party seeking to terminate must make it unequivocally clear that it is treating the agreement as at an end: ***Lakshmijit*** *v Sherani* [1974] AC 605 at 616. In this regard, in *Becker Group Ltd v Motion Picture Company of Australia Ltd* [2004] FCA 630, Sackville J said:

85 Where one party repudiates its obligations under a contract, the innocent party is entitled to accept the repudiation, thereby discharging itself from further performance, and to sue for damages: *Heyman v Darwins Ltd* [1942] AC 356, at 399 per Lord Porter, cited in *Shevill*, at 626, per Gibbs CJ.  The repudiation itself does not terminate the contract; the innocent party must elect to terminate the contract: *Heyman v Darwins Ltd*, at 361, per Viscount Simon LC; JW Carter, *Breach of Contract* (2nd ed, 1991), at 324.  Where the innocent party relies on a common law right to terminate, it is necessary for that party to act in such a way as to make it plain that it treats the contract at an end: *Heyman v Darwins Ltd*, at 361.  No particular form of words is necessary, so long as the intention is plain: *Lakshmijit v Faiz Sherani* [1974] AC 605, at 616, per Lord Cross of Chelsea; JW Carter, *Breach of Contract*, at 334.

86 Nor is it necessary for the innocent party to specify the precise conduct that is said to constitute repudiation of the contract or the breach of a fundamental term.  Any ground for termination that exists at the time the innocent party elects to terminate may be relied on at a later date:  *Shepherd v Felt and Textiles of Australia Ltd* (1931) 45 CLR 359, at 377-378, per Dixon J.  Thus in *Carr v J A Berriman Pty Ltd* (1953) 89 CLR 327, it was held that the fact that a builder had given a notice of cancellation under a clause that had no application did not prevent the notice being effective to terminate the contract if the builder otherwise had grounds to do so: see at 343, per Fullagar J, with whom Dixon CJ, Williams, Webb and Kitto JJ agreed.  See also *GEC Marconi v BHP Information Technology,* at 172-173 [747], per Finn J.

318 The letter of 20 January 2010 (from KWM to G+T) states:

We note our letter to you dated 20 September 2010 in relation to certain payments owed to the University under clause 8 of the Licence Agreement and cl 1.8 of the Heads of Agreement. We are instructed that at least invoice 60-015566 dated 27 July 2010 remains unpaid. It is now over 45 days after that letter. We note that this non payment would have afforded the University a termination right under clause 18.3 of the Licence Agreement.

319 The conditional aspect of the final sentence quoted is to be understood in the context of the second paragraph in the letter, two pages earlier, which states that the Licensing Agreement terminated on 19 January 2011 as a result of the operation of cl 1.7 of the Heads of Agreement and further that if election is required under the Heads of Agreement, then the letter constitutes such election. Read as a whole, it is clear that the University intended to communicate, in as many ways that it considered to have available to it, that it regarded the Licensing Agreement and the Second Licensing Agreement to be at an end. By the time that the reader came to the paragraph quoted above, he or she can have been in no doubt about it. The words “would have afforded” do not convey that the University could, but is forbearing from relying on a right of termination arising from breach of cl 8 of the Licensing Agreement, but rather that the agreement is terminated also for that breach, were that termination to prove necessary. Any different construction would in my view be unrealistic, having regard to the content of the letter and the circumstances in which the letter was received.

320 To the extent that it is necessary to do so, the University relies on an alternative argument, namely that it is permitted to rely on a separate reason for termination to that given in its letter, citing ***Shepherd*** *v Felt and Textiles of Australia Ltd* (1931) 45 CLR 359 at 377 - 378. Dixon J there summarised the position as follows:

When the respondent terminated his agency it was not aware of the contents of the telegrams and the letter which he had sent to its customer’s buyer, and it acted upon other grounds. It is well established, however, that a servant’s dismissal may be justified upon grounds on which his master did not act and of which he was unaware when he discharged him … It is true that the agreement between the appellant and the respondent does not amount to a contract of service. But the rule is of general application in the discharge of contract by breach, and enables a party to any simple contract who fails or refuses further to observe its stipulations to rely upon a breach of conditions, committed before he so failed or so refused, by the opposite party to the contract as operating to absolve him from the contract as from the time of such breach of condition whether he was aware of it or not when he himself failed or refused to perform the stipulations of the contract. “It is a long established rule of law that a contracting party, who, after he has become entitled to refuse performance of his contractual obligations, gives a wrong reason for his refusal, does not thereby deprive himself of a justification which in fact existed, whether he was aware of it or not” (per Greer J., *Taylor v. Oakes Roncoroni & Co* [(1922) 127 LT at 269]) …

321 His Honour returned to this same proposition in *Williams v Frayne* (1937) 58 CLR 710 at 733 where he said:

For, as a general rule, it is enough that upon the true facts a party is entitled to act as he has done and his justification is independent of his own knowledge of the facts…

(see also *Concut Pty Ltd v Worrell* [2000] HCA 64; 176 ALR 693 at [29] (per Gleeson CJ, Gaudron and Gummow JJ)).

322 In the opening paragraphs of its letter of 20 January 2011 the University unequivocally communicated its election to terminate the Licensing Agreement, stating “[i]n case election is required to terminate the Licence Agreement pursuant to clause 1.7 of the Heads of Agreement (and the University does not accept that this is the case), this letter constitutes notice to you that the University so elects.” Applying *Shepherd* to the present facts, if (contrary to the view I have expressed) the termination of the Licensing Agreement was not unequivocally communicated by reason of the express reference to breach for failure to pay the 27 July 2010 invoice, then the election to terminate expressed in the 20 January letter provided such notice.

323 ObjectiVision next contends (issue 2(d)) that before the notice of termination could be provided, it was a term of the Licensing Agreement that the University first comply with the dispute resolution cl 19.1. The chapeau to cl 19.1 provides “If there is a dispute between the Parties then: ...” Thereafter the parties agree to discuss the dispute amicably at first, and then if they fail to settle it within 14 days, a dispute procedure leading to a mediation is set out.

324 Two reasons lead me to the conclusion that ObjectiVision’s argument cannot succeed. The first is that there was no dispute that at least the $1,189.40 portion of the 27 July 2010 invoice, being for standard patent registration and maintenance, was due and payable. It was accepted to be due. The second is that the right to terminate for failure to make a payment under cl 18.3 is expressed to be at the University’s election 45 days after the date of notice in writing of non-payment. The right to terminate for that breach is not limited by any requirement that the parties first mediate under cl 19.1. In *Chapmans Ltd v Australian Stock Exchange Ltd* [1996] FCA 1568; 67 FCR 402 at 411 Lockhart and Hill JJ said:

It is an elementary proposition that a contract will be read as a whole giving weight to all clauses of it, where possible, in an endeavour to give effect to the intention of the parties as reflected in the language which they have used. A court will strain against interpreting a contract so that a particular clause in it is nugatory or ineffective, particularly if a meaning can be given to it consonant with other provisions in a contract. Likewise where there are general provisions in a contract and specific provisions, both will be given effect, the specific provisions being applicable to the circumstances which fall within them.

325 In the present case, the specific language of cl 18.3 reflects an intention on the parties that the right to terminate is not limited by any requirement for the previous compliance with the dispute resolution procedure specified in cl 19.1. In this regard I accept the submission advanced on behalf of the University that this construction is consistent with the commercial need of the parties to have certainty as to the events of contractual termination, such that the status of the contract as terminated does not depend on whether the parties have first engaged in a dispute resolution process. See *JR Consulting & Drafting Pty Ltd v Cummings* [2014] NSWSC 1252 at [188] where Black J arrived at a similar conclusion.

326 Finally, ObjectiVision contends that the University waived or lost any right to terminate the first or second Licence Agreements for non-payment by reason of (a) insisting on performance of the Heads of Agreement in its letters of 30 November 2000 and/or 8 December 2010; (b) electing to extend the exclusivity period in its 8 December 2010 letter; and (c) failing to exercise its notice of termination within a reasonable time (issue 2(e)).

327 In ***Sargent*** *v ASL Developments Ltd* [1974] HCA 40; 131 CLR 634 at 656 [28], Mason J considered the question of the conduct that is necessary to amount to an election:

A person confronted with a choice between the exercise of alternative and inconsistent rights is not bound to elect at once. He may keep the question open, so long as he does not affirm the contract or continuance of the estate and so long as the delay does not cause prejudice to the other side. An election takes place when the conduct of the party is such that it would be justifiable only if an election had been made one way or the other (*Tropical Traders Ltd. v. Goonan* (1964) 111 CLR 41). So, words or conduct which do not constitute the exercise of a right conferred by or under a contract and merely involve a recognition of the contract may not amount to an election to affirm the contract.

328 To this may be added the uncontroversial proposition that a party can only be held to have elected to affirm a contract if it has communicated its election to the other party in clear and unequivocal terms; *Immer (No 145) Pty Ltd v The Uniting Church in Australia Property Trust (NSW)* [1993] HCA 27; 182 CLR 26 at 39 (per Deane, Toohey, Gaudron and McHugh JJ).

329 In my view neither by insisting on performance of the Heads of Agreement in its letters dated 30 November 2010 or 8 December 2010, nor by electing to extend the exclusivity period, did the University engage in such conduct as to enable an inference to be drawn that it did not intend to terminate the Licensing Agreement for non-payment of the 27 July 2010 invoice. At most, it may be said that the University was waiting to see what transpired in the performance of the Heads of Agreement before it determined what it should do. Hedging one’s bets does not amount to an unequivocal communication of an election.

330 Nor in my view does the election to terminate on 20 January 2011 amount to failure to exercise a right of termination within a reasonable period of time. The right of termination became available 45 days after notice was given on 20 September 2010, being in early November 2010. The University was entitled to keeps its position open, so long so long as the delay does not cause prejudice to the other side; *Sargent* at 656.

###### 6.4 Alternatively, did the University validly terminate by the commencement of these proceedings on 16 April 2014 (issue 3)?

331 The University contends that in the alternative to issues 1 and 2, it validly terminated the First and Second Licences on 16 April 2014, when it commenced these proceedings. The facts relevant to this contention overlap with previous issues.

332 On 27 July 2010, 13 January 2011, 17 January 2011, and 2 December 2012, the University issued invoices to ObjectiVision in respect of costs that it incurred totalling $19,219. These are detailed in the particulars to its statement of claim and were called in the submissions the **paragraph 23 invoices**, the first of which is the 27 July 2010 invoice. With the exception of the Japanese Application assignment aspects of the 27 July 2010 invoice, ObjectiVision does not dispute that these invoices were due to be paid.

333 On 3 February 2011 the University via KWM wrote to ObjectiVision requiring payment in full. On 16 April 2014 the University commenced the current proceedings alleging that since 20 March 2011 the University had the right to terminate the Licensing Agreements, seeking a declaration that the Licensing Agreements terminated on 19 or 20 January 2011, and judgment in the amount of $19,219.

334 ObjectiVision maintains its dispute as to liability for the costs associated with the assignment of the Japanese Application (issue 3(a)), contends that the 3 February 2011 letter is not a valid and effective notice in writing in accordance with cl 18.3 (issue 3(b)), contends that the University did not validly exercise an election to terminate by the commencement of proceedings because it waited an unreasonably long period to do so (issues 3(c) and 3(e)), and contends that the University failed to comply with its obligations to mediate prior to electing to terminate within cl 19.1.

335 The substance of many of these arguments have been addressed earlier. It is not necessary to return to the question of the indebtedness of ObjectiVision in respect of the recordal of the assignment of the Japanese Application. Nor is it necessary to return to the question of whether the conduct of a mediation was required before termination. In addition, in my view the letter of 3 February 2011 was an effective notice.

336 There is no real dispute that a party may validly exercise an election to terminate an agreement by the commencement of proceedings: *Lakshmijit* at [616](https://jade.io/citation/2861787/section/140439); *Janos v Chama Motors Pty Ltd* [2011] NSWCA 238 at [23] (Handley AJA, Giles and Young JJA agreeing). In the present case the pleading served that requirement. By [37] of the Amended Statement of Claim the right to terminate is asserted. But that right is not said expressly to have converted to an election to terminate, and the plaint for relief does not make that claim. However, in [19(b)] of the University’s Reply to the Amended Defence, which is dated 10 October 2014, the University expressly states that the statement of claim filed in the proceedings constituted an election to terminate and I consider that this document satisfies the requirements of a clear and unequivocal election. It is true that the delay between the right to terminate arising and the termination being elected was significant (on this third alternative count) but ObjectiVision does not plead or argue that it was prejudiced by the delay; *Sargent* at 656. Accordingly, to the extent that I am wrong in the conclusions that I have expressed in relation to the first two alternatives, in my view the University would also have effectively terminated the first and second Licensing Agreements by 10 October 2014.

###### 6.5 Conclusions in relation to the University’s claim

337 In relation to issue 1, for the reasons set out above, the University has established that ObjectiVision failed to enter into a binding agreement providing for the acquisition of the majority of shares in ObjectiVision with a third party, in accordance with cl 1.6 of the Heads of Agreement, within the exclusivity period. It failed to do so by failing to satisfy the condition set out in cl 1.9 that it first assign the stepped stimulus and flexible electrode patents. It also failed to comply with the requirement in cl 1.6(2). Furthermore, had ObjectiVision complied with these requirements and validly sought the University’s consent under cl 1.6(2), I have found that any refusal of consent by the University would not have been withheld unreasonably. The consequence is that the Licensing Agreement terminated after the expiration of the exclusivity period on 19 January 2011.

338 In relation to issues 2 and 3, I have found that the cost of the recordal of the assignment of the Japanese Application was due and payable by ObjectiVision and that by reason of the KWM letter of 20 September 2010 and 20 January 2011, had the Licensing Agreement not already been terminated, then the University had terminated the Licensing Agreement by the later date. The total amount due from ObjectiVision to the University is $19,219.

339 I further find that to the extent that the University had not terminated the Licensing Agreement for breach by 20 January 2011, it did so by service of its Reply on 10 October 2014.

##### 7. THE OBJECTIVISION CROSS CLAIM: CONTRACT

###### 7.1 The issues

340 ObjectiVision’s contract cross claim at the time of its opening submissions was extensive. It involved allegations of numerous breaches of express and implied terms of: the Licensing Agreement, the Shareholder’s Agreement, the Heads of Agreement, and a Consultancy Agreement entered into pursuant to the terms of the Heads of Agreement. In total, the claims of breach exceeded 70 in number. During the trial, these were progressively abandoned. By the time of the Sixth Further Amended Cross Claim, the issues were reduced to four. These can be summarised as follows.

341 First, ObjectiVision claims that the University fell into breach by wrongfully refusing consent to its entry into the Hamisa Third Party Agreement pursuant to cl 1.6 of the Heads of Agreement. I have addressed and rejected this argument in the context of consideration of the University’s claim to be entitled to terminate the Licensing Agreements pursuant to cl 1.7 of the Heads of Agreement.

342 Secondly, ObjectiVision contends that two forms of conduct by the University amounted to a breach of clauses 5.1(a) and 5.1(e) of the Shareholders’ Agreement. The first is by meeting with representatives of Biogen in about July 2010 and failing to disclose an opportunity to supply mfVEP machines to Biogen, and by taking steps itself to investigate the development of an alternative mfVEP device to Biogen (issue 6(b)). The second is by failing or refusing to provide its consent for ObjectiVision to enter into the Hamisa Third Party Agreement (part of issue 6(a)).

343 Thirdly, ObjectiVision submits that the University was estopped from relying on ObjectiVision’s failure to meet the specified minimum performance criteria in Schedule 7 of the Licensing Agreement (as amended). In broad terms, it contends that the University approved the decision of the board of ObjectiVision to abandon the promotion of the AccuMap 1 device and move to the development of the AccuMap 2. In so doing, the University made it plain by inference to ObjectiVision that it would not enforce the minimum performance criteria (issue 9(c)). This is said to be relevant first to whether on the balance of probabilities, had the Licensing Agreements not been wrongfully terminated under the Heads of Agreement, ObjectiVision would have commercialised the AccuMap 2 to the point of turning a profit such as to enliven a claim to reliance damages. Secondly, it is said to be relevant to the calculation of reliance damages by the University’s expert Mr Potter, who excluded the exclusivity period in some of his hypothetical scenarios.

###### 7.2 Alleged breaches of clause 5 of the Shareholders' Agreement

7.2.1 The arguments

344 The arguments as framed by ObjectiVision concerning cll 5.1(a) and (e) of the Shareholders’ Agreement are based on the contention that the University owed obligations to it to behave in a certain way in the conduct of its “Business” as defined under that agreement. It submits that the University’s breaches under cl 5.1(a) of failure to co-operate and use its best endeavours to ensure that ObjectiVision successfully carried on its business, and under 5.1(e) to be just and faithful in its activities and dealings with ObjectiVision and the business of ObjectiVision, arise in two circumstances. First, the University acted in breach of cl 5.1(a) and (e) of the Shareholders’ Agreement as a result of certain discussions and negotiations entered into between Biogen and the University concerning the supply of devices to assist Biogen in the conduct of certain clinical trials. ObjectiVision alleges that it could have supplied the AccuMap 1 device to Biogen, or alternatively developed the AccuMap 2 device for the purpose of supplying it pursuant to the request. It submits that the breaches arose when the University omitted to inform ObjectiVision of the Biogen request at any time before 4 February 2013 and/or when it failed to inquire of ObjectiVision whether it was able to satisfy the Biogen request by supplying AccuMap 1, or alternatively developing AccuMap 2, devices for that purpose. Secondly, in an allegation not developed in the course of submissions, ObjectiVision contends that by failing to consent to the Hamisa Third Party Agreement, the University not only acted in breach of the Heads of Agreement but also clauses 5.1(a) and (e) of the Shareholders' Agreement.

345 The University submits that as a matter of construction of the terms of the Shareholders' Agreement, the obligations said to apply pursuant to cl 5.1(a) and (e) do not arise. It also contends that as a matter of fact, the prospect that ObjectiVision would or may have been in a position to supply an AccuMap 1 device or develop an AccuMap 2, or that Biogen would or may have been interested in dealing with ObjectiVision in circumstances when Associate Professor Klistorner refused to work any longer with ObjectiVision and Mr Cheng, is remote. Further, it submits that the terms of cl 17.1 of the Licensing Agreement would operate to preclude any entitlement to damages arising from this claim.

7.2.2 Dealings with Biogen

346 The following findings are relevant to the claim of breach arising from the dealings of the University with Biogen.

347 In February 2009 Associate Professor Klistorner was invited to and attended a conference sponsored by Biogen. Biogen was interested in research work that he had been doing with two neurologists, Professor Yiannikas and Dr Garrick, about mfVEP and optic neuritis. This concerned a project that Associate Professor Klistorner had been involved with from early 2007, using mfVEP to investigate demyelination (a process in which the myelin sheath around a nerve is damaged or destroyed) by recording a patient’s response time to a stimulus. As optic neuritis progresses, demyelination increases and signal latency increases; that is, a patient’s response time is slower. Associate Professor Klistorner’s involvement was to measure the degree of demyelination of the optic nerve in patients with optic neuritis. He took measurements with the AccuMap 1 machine that the SSI had purchased.

348 After some discussions over the intervening period, in September 2009 Associate Professor Klistorner met with Dr Diego Cadavid, Associate Director Experimental Neurology at Biogen Idec, during a conference in Germany. On 4 November 2009 Associate Professor Klistorner was invited to prepare a draft study design for using mfVEP in clinical trials of Biogen’s candidate drug, BIIB033, an experimental treatment to increase or initiate remyelination of the optic nerve.

349 In June 2010 Associate Professor Klistorner was invited to visit Biogen in the United States and was asked whether he could supply mfVEP machines if the trial went ahead. After obtaining permission from Mr Greg Ward, the Business Development Manager at Sydnovate, Associate Professor Klistorner visited Biogen and then on 3 July 2010 received an email from that company outlining steps for the clinical trial. Shortly thereafter, later in July 2010, Associate Professor Klistorner met with Professor McCluskey, Associate Professor Grigg, Dr Chris Peterson and Ken Coles (all members of the SSI) and informed them about his meeting, asking whether and how the University might supply Biogen with mfVEP devices to support its clinical trial. Mr Coles and Mr Petersen suggested that it might be possible for for the SSI or a new company to be set up to build the machines.

350 An exchange of emails between Associate Professor Klistorner and Mr Ward on 26 July 2010 indicates that Mr Ward was conducting enquiries into the freedom of the University to assist Biogen, having regard to the exclusive licence arrangements it had with ObjectiVision. At this time, Mr Ward refers to obtaining patent attorney advice on the subject, and seeks information about the type of device that would be required. In response to a request from Mr Ward, Associate Professor Klistorner provides a summary of the coverage of the existing patents, being:

1. Multiple channels around inion (the inion is the protuberant part of the occipital bone at the base of the skull)

2. Inter-eye asymmetry analysis

3. EEG scaling algorithm

351 Associate Professor Klistorner says that none of these will be used for Biogen in the trials (which study optic neuritis) because (1) they will use a single bipolar channel with electrodes positioned vertically on each side of the inion, described in a February 1998 publication (that being before the priority date of the patents), (2) no inter-eye asymmetry analysis will be required since it analyses variation in amplitude, and the study will be concerned with progressive change in latency; and (3) EEG scaling will not be used because it only affects amplitude, not latency of mfVEP (latency is the component affected by demyelination, and was therefore the aspect being studied by Biogen). Associate Professor Klistorner further states in his note that the software will be completely new, written in different computer language and providing specific analysis for latency progression. Associate Professor Klistorner deposed to the factual correctness of these propositions in his written and oral evidence in chief. He further gave evidence in re-examination that inter-eye analysis was not the subject of any of the patents of which he and Professor Graham were inventors.

352 ObjectiVision referred in its submissions to a presentation given by Associate Professor Klistorner to Biogen in 2009, where the slides described how mfVEP allows monitoring of optic nerve function in terms of both amplitude and latency. This, it submits, shows that the University was aiming to deliver to Biogen a product that was “the equivalent of the AccuMap 1, but better”. However, at the end of that slideshow presentation, a scenario for clinical trials is given, which refers only to latency. Associate Professor Klistorner was no doubt aware that amplitude could be used in monitoring the optic nerve function. But the path chosen by the University was one which intentionally avoided doing so, in order to avoid using the patents in question.

353 On 1 October 2010 Associate Professor Klistorner attended a meeting with Professor McCluskey, Dr Peterson and Mr Coles, the minutes of which record that there were two distinct commercialisation opportunities for the mfVEP technologies. The first is full field retinal measurement using the University’s patents that have been licensed to ObjectiVision. That is noted to be the subject of disagreement with ObjectiVision and “is being resolved under a Heads of Agreement and is completely in the hands of Sydnovate. Until this is resolved the SSI can take no commercial action related to that technology”. The second is the subject of the meeting, and concerns the desire for Biogen to acquire machines to assist in clinical measurements associated with clinical trials. The minutes note:

It has been determined that these machines can be constructed with no involvement or use of the University patents that are licensed to ObjectiVision. The technology used is in the public domain. Biogen are motivated in part by their desire to have Sasha analyse the patient measurements.

354 The minutes go on to propose that a new start-up company could be developed to enter into a contract with Biogen, noting reservations about the University engaging in product manufacture. That proposal met with the favour of the meeting, and the action items involve obtaining the Dean’s approval for the proposal and discussing it with Sydnovate. The tabled papers include a “code review of the TERRA software”.

355 Following this meeting Mr Coles and Dr Peterson contributed funds to set up a company to build the devices for Biogen. A later email (dated 2 February 2011) from Dr Peterson to Professor McCluskey, Associate Professor Klistorner, Mr Coles and Associate Professor Grigg summarises the steps that followed:

(a) in mid-November 2010 a draft contract was sent to Biogen naming an independent but as yet unformed company as the entity to build and deliver the machines;

(b) on 15 December 2010 the parties had a discussion with Biogen indicating that it initially wanted only 2 machines for trials and if they were satisfactory it would order another 6;

(c) in January 2011 there were contract discussions including as to price, with Dr Petersen using the price of the VERIS software as a base;

(d) the email concludes with the statement that “this is all quite independent of ObjectiVision, the proposed mfVEP system does not use any to their licensed IP.”

356 On 19 March 2011 Associate Professor Klistorner received an email from Dr Cadavid informing him that Biogen had approval to move forward with the trial.

357 On 28 March 2011 Dr Peterson circulated an email to the same recipients as with the 2 February 2011 email, confirming: that Visionsearch has been incorporated, that access to the TERRA software needs to be arranged, and access of the new company to the services of Mr Alkhimov needs to be confirmed. The email then discusses the proposed terms of an exclusive licence for the TERRA software. The email includes the following: “The TERRA software has never been operational, has never been tested, it may not work, it is known to be incomplete”. On the same day Associate Professor Klistorner responded, saying that it is a “second chance” to get the technology to market, and saying that it is important to access the best technology “including our patents and best human resources”. It is to be noted that by this point, the University had terminated the licence with ObjectiVision.

7.2.3 Consideration of the claim of breach of cl 5.1(a) and (e) of the Shareholders’ Agreement

358 The Shareholders’ Agreement was entered on the same day as the Licensing Agreement and each refers to the other. The Shareholders’ Agreement provides for the University and Medcorp, as the first and second subscribers, to acquire shares in ObjectiVision in 9 tranches (clause 2) raising a total of $2 million. The University would ultimately have 24% of the shareholding and Medcorp would have 40%. Clause 5 records the Shareholders’ Objectives and Commitments. Clause 6 concerns internal administration, including the appointment of a board of directors and provides that for each 18% of the total shareholding, the holder has the right to appoint and remove one director. The initial shareholders (being the 6 individuals who owned the shares: Professor Billson, Dr Graham, Associate Professor Klistorner, Mr Meek, Dr Malov and Mr Kozlovski) collectively had 36% of the shareholding and accordingly had the right, as a group, to appoint two directors; the incoming shareholders (being the University and Medcorp) receive the right to appoint one and two directors respectively. Clause 7 provides for each of the parties to give certain warranties. Clause 9 provides certain financial reporting obligations, which include the requirement that the shareholders ensure that the board adopts a Business Plan, one of which is an annexure to the agreement.

359 The Business Plan is defined to mean the business plan for ObjectiVision as amended from time to time, the current (4 September 2000) version of which is attached. In broad terms it refers to the intention of ObjectiVision to bring the MOP device to market using the two key patents. The plan refers to the patents being “assigned” to ObjectiVision, although the terms of the Licensing Agreement make plain that this is not so.

360 Clauses 5.1(a) and (e) are repeated below for convenience:

Each Shareholder agrees:

(a) to cooperate and use its best endeavours to ensure that the Company successfully carries on the Business;

...

(e) to be just and faithful in the Shareholder’s activities and dealings with the company, the business and the other Shareholders.

361 The scope of a “best endeavours” clause is to be construed having regard to what is reasonable in the circumstances, having regard to the nature, capacity, qualifications and responsibilities of the licensee viewed in the light of the particular contract: ***Transfield*** *Pty Ltd v Arlo International Ltd* [1980] HCA 15; 144 CLR 83 at 101 (Mason J).

362 ObjectiVision contends that the obligations arising from cl 5.1(a) and (e) extend to a requirement on the part of the University to notify ObjectiVision of opportunities to sell either the AccuMap 1 or 2 to a third party and to cede to ObjectiVision all opportunities in relation to that technology. This is in effect an obligation on the University not to compete with ObjectiVision.

363 For the following reasons I disagree with that construction.

364 First, it is apparent that the Shareholders’ Agreement is directed towards the obligations that the shareholders have between themselves as shareholders. This is in contradistinction to their obligations to each other as the owner and licensee of the technology the subject of the operations of ObjectiVision, which are governed by the Licensing Agreement. The interrelationship between the two was considered by the parties at the time that they entered into those agreements. Clause 20.15 of the Shareholders’ Agreement provides expressly that the Shareholders’ Agreement and the Licensing Agreement are “separate and distinct agreements relating to separate and distinct subject matters”. Clause 20.10 of the Licensing Agreement contains equivalent wording but adds “In the event that there is any provision of the [Shareholders’ Agreement] which bears upon the interpretation of the Licensing Agreement and such provision is inconsistent with the provisions of the Licensing Agreement, the provision in the Licensing Agreement shall prevail”.

365 The Licensing Agreement provides the terms governing the provision by the University to ObjectiVision of a licence to use the mfVEP technology identified by reference to the EVFM patent identified in Schedule 1. The rights and obligations of the parties as licensor and licensee are to be understood by reference to that agreement. For instance, cl 7 provides for the introduction by ObjectiVision of the AccuMap product into the market. Clause 7.3 provides that the University may terminate the exclusivity of the licence if ObjectiVision fails to reach minimum performance requirements. By contrast, the Shareholders’ Agreement governs the behaviour of the shareholders *qua* shareholders. These matters tell against a construction of cll 5.1(a) and (e) that impose restrictions on the University in the manner in which it deals with the technology the subject of the Licensing Agreement. The obligations under cll 5.1(a) and (e) of the Shareholders’ Agreement are not at large. They are confined to behaviour of the parties between each other as shareholders and may concern matters such as governance, sale of shares and the like. The other commitments under cl 5.1 provide an indication of the type of obligations imposed by the Shareholders’ Agreement. Shareholders agree, for example, not to use confidential information in a way which damages the company (cl 5.1(b)), and not to delay unreasonably any action or approval required of them (cl 5.1(c)).

366 Secondly, the construction for which ObjectiVision contends ignores the fact that the Licensing Agreement makes provision for the termination of the exclusivity of ObjectiVision. On the construction proposed by ObjectiVision, if exclusivity was terminated under the Licensing Agreement, the University would still be obliged to notify ObjectiVision of opportunities that were to be given to a new licensee, and possibly even to cede those opportunities to ObjectiVision. Such an approach is not commercially realistic. Had the parties contemplated that such obligations arose, then one would expect them to have been made express, and be contained within the term of the Licensing Agreement. Furthermore, a non-exclusive licence would permit the University to compete directly with ObjectiVision. It would be odd (and contrary to cl 20.10 of the Licensing Agreement) if the Shareholders’ Agreement precluded that outcome.

367 Thirdly, ObjectiVision’s construction of cl 5.1(a) and (e) is tantamount to construing each as imposing a restrictive covenant, restraining the University from competing with ObjectiVision. Yet it cannot be the case that cl 5.1 was intended to restrict the shareholders from engaging in activities within the field of technology the subject of the licence. The University persuasively provides an example. A number of the individual shareholders who are parties to the Shareholders’ Agreement are highly trained ophthalmologists. The mfVEP technology falls within that field. Clause 5.1(a) plainly did not require individual shareholders to work for ObjectiVision if they wished to pursue other endeavours in the field. One reason for concluding this is that the shareholder would not be acting in his capacity as a shareholder in conducting his work in the field.

368 ObjectiVision relies on the warranties set out in cl 7 of the Shareholders’ Agreement as supporting its argument. It submits that the terms of the warranties confirm that the agreement is not confined to governing the rights of the parties as shareholders alone. It also submits that the scope of the warranties provided by Medcorp in cll 7.7, 7.8 and 7.12 are such that cl 5.1(a) still has work to do. Neither of these arguments is persuasive. The warranties are provided in the right of the University and others as shareholders. By cl 7.4(b) the University warrants that it had no interest in any company or business which has a close trading relationship with or which is in competition with the Business conducted by ObjectiVision. That warranty was expressed to subsist until the ninth tranche subscription date (cl 7.6), an event that has not taken place because that date was conditional upon the sale of 80 units of the AccuMap. The existence of a specific non-compete warranty suggests that clauses 5.1(a) and (e) are not to be understood as non-compete clauses. Accordingly, to the extent that the warranty clauses are relevant to the construction of the Shareholders’ Agreement, they tend in favour of the position adopted by the University.

369 It is now necessary to turn to the factual aspects of the breaches alleged by ObjectiVision.

370 In relation to the **first alleged breach**, ObjectiVision contends that the University departed from its obligation to use its best endeavours to ensure that ObjectiVision successfully carried on its business. The nature of the breach alleged as set out in its closing written submissions is as follows:

ObjectiVision’s complaint for this purpose is not that ObjectiVision [sic, the University] rendered the licensing agreement non-exclusive, or that it, in effect, licensed Visionsearch to use the licensed patents for the purposes of supplying mfVEP machines to Biogen. The complaint is simply that, pursuant to cll 5.1(a) and 5.1(e) of the Shareholders' Agreement, the University had an obligation to inform ObjectiVision of the Biogen opportunity and allow ObjectiVision a reasonable opportunity to take advantage of it. The University breached that obligation.

371 For the reasons set out above in relation to the correct construction of cl 5.1(a) and 5.1(e), in my view this argument must fail. The University owed no obligation to inform ObjectiVision of opportunities that may arise under the terms of the Licensing Agreement. The terms of the Shareholders' Agreement did not govern the obligations owed by the University pursuant to the Licensing Agreement. However, against the prospect that I am incorrect in this view, I turn to consider the factual matters leading to the alleged breach. I have summarised some of them, and my findings of fact, in section 7.2.2 above.

372 First, ObjectiVision’s contention that the University owed an obligation to inform ObjectiVision of the Biogen opportunity is predicated on the assumption that the opportunity must necessarily have utilised the licensed technology. Even were the Shareholders’ Agreement to be interpreted in a manner that obliged the University to notify ObjectiVision of business opportunities, and forgo opportunities for itself, the scope of that obligation could not extend beyond the scope of the Licences.

373 In its submissions ObjectiVision relies on several matters to support the contention that the University represented to Biogen that it would provide an mfVEP machine that used the licensed patents or had the same functionality as the AccuMap. However, none establish (as ObjectiVision submits) on the balance of probabilities that during the exclusivity period reinstated by the Heads of Agreement (from 22 March 2010 to 19 January 2011), the University proposed to licence or use in a device supplied to Biogen, the technology the subject to the Licensing Agreement (as amended).

374 In this regard ObjectiVision draws particular attention to emails from Dr Peterson to representatives of Biogen dated 12 November 2010, 26 November 2010, 13 January 2011, 16 February 2011 and 5 April 2011. In my view these serve to confirm the content of the internal communications within the University to which I have referred in section 7.2.2 above, to the effect that the University was acutely aware of the terms of its agreement with ObjectiVision and that it could not have access to the licensed technology. As an example, in the email of 26 November 2010, Dr Peterson refers a Biogen representative to the SSI’s work in “enhancing the software for a new mfVEP machine with all the characteristics and properties essential for ON studies”. The reference to optic neuritis studies draws attention to the characteristics required for that specific application which, as I have noted, the University maintained did not require the use of the licensed technology. The email goes on “This system is totally independent of any IP held or created by ObjectiVision... This process, guided by [Associate Professor Klistorner], will be eminently suitable for Biogen’s proposed clinical trial...”. This position is confirmed in other contemporaneous documents and in the cross-examination of Associate Professor Klistorner, who credibly maintained that it was his idea to proceed *without* the patented technology.

375 It is true that after its termination of the exclusive licence on 19 January 2011 the position of the University changed. It considered itself free to use and licence the use of the technology, including to Visionsearch. In this regard, in an email from Dr Peterson to SSI committee members on 5 April 2011, he refers to the fact that for Visionsearch a licence of the patents is “highly desirable, not only to satisfy Biogen completely (and we had been working on the assumption that we could just meet their needs without the patents) but they allow significant additional sales to be made”. However, the parenthetical reference serves to confirm, and I accept, that the earlier view was that the University was astute to understand the areas in which it had freedom to operate and confined its discussions with Biogen to that area. In other words, while the University may have desired to use the patented technology before 19 January 2011, it knew it could not do so, and did not suggest otherwise.

376 ObjectiVision does not submit, and has taken no steps to prove, that it was not possible to meet Biogen’s requirements without using the patented technology the subject of the Licensing Agreement. The evidence of Associate Professor Klistorner in these proceedings, which is supported by the contemporaneous note that he provided to Dr Peterson on 15 February 2011, is that the University could meet Biogen’s requirements. The onus lies on ObjectiVision to establish that latency measurements alone were not enough, or that Biogen would not have been satisfied for some other reason, and it has failed to do so. Accordingly, ObjectiVision has not established that the opportunity that arose was one that could only legitimately explored by utilising the technology the subject of the Licensing Agreements.

377 For these reasons I reject the factual basis for the contentions advanced by ObjectiVision, even assuming that I am incorrect on the question of construction of the agreements.

378 I might further observe that it is not clear where the argument advanced by ObjectiVision goes. ObjectiVision has taken no steps to prove that it was in a position to take up any opportunity presented by Biogen during the course of the reinstated exclusivity period. The premise underlying the Heads of Agreement is that ObjectiVision was in no position to conduct business at all at that time, absent the injection of significant funds.

379 In relation to the **second alleged breach**,in its written closing submissions ObjectiVision contends that if the University’s refusal to consent to the Hamisa Third Party Agreement was unreasonable, it was not only a breach of cl 1.6 of the Heads of Agreement but also a breach of cl 5.1(a) and (e) of the Shareholders’ Agreement. One immediately notes that the Shareholders’ Agreement contains no mechanism for the grant or refusal of consent to a majority shareholder or sublicensee. Clause 5.1(a) concerns the co-operation between each shareholder and ObjectiVision in the carrying on of the Business. It is difficult to see how that clause can be concerned with consent or otherwise to a proposal to take a majority shareholding in ObjectiVision. Likewise, cl 5.1(e). Furthermore, the point made above about the separate operation of the Shareholders’ Agreement compared to the Licensing Agreement applies equally here. To the extent that the operation of the Licence is affected by a change in shareholding, it is to be understood in the context of the terms of the Licensing Agreement, which exclusively addresses the subject matter of the licence terms. As it happens, the parties considered that the additional terms set out in the 2010 Heads of Agreement were required to govern the effect on the licence of a change of shareholding (or approval of a sublicensee) in ObjectiVision. In my view that agreement is the sole contractual prism through which the conduct of the parties should be considered. In any event, for the reasons that I have set out in section 6.2.4.2, I have concluded that the University did not unreasonably withhold its consent to Objectivision’s entry into the Hamisa Third Party Agreement. To the extent (contrary to my view) that an obligation upon the University arises from cl 5.1(a) or (e) to not unreasonably withhold its consent to the Hamisa Third Party Agreement, that has been satisfied.

###### 7.3 Estoppel

7.3.1 The arguments

380 In its earlier pleadings, and in its opening submissions, ObjectiVision advanced a claim that the University acted in breach of various express and implied terms of the Licensing Agreement by wrongfully purporting to terminate the exclusivity of that agreement in its letter dated 27 August 2008, for failure on the part of ObjectiVision to satisfy the minimum performance requirements set out in that agreement. ObjectiVision contended that by reason of the University’s approval of ObjectiVision’s conduct, particularly in switching its focus from the development of AccuMap 1 to the design and development of the AccuMap 2 product, the University was estopped from relying on the failure to meet those minimum performance requirements. By the time of its closing submissions, the breach of contract claim on this point had been abandoned. However, the estoppel contention remains.

381 As now advanced, it does not relate to allegations of breach of any contractual terms. Rather, ObjectiVision contends that it is relevant to two factual matters. First, whether, on the balance of probabilities, had the Licensing Agreement not been wrongfully terminated under the Heads of Agreement, ObjectiVision would have commercialised the AccuMap 2 to the point of turning a profit so as to enliven a claim to damages. Secondly, it is relevant to the calculation of reliance damages conducted by Mr Potter, the expert retained on behalf of the University. This is because he was instructed to exclude the non-exclusivity period in some of his scenarios for the calculation of damages.

382 I have found that the Licensing Agreement was not wrongfully terminated and that ObjectiVision has failed to establish an entitlement to any damages. As a result, it is unnecessary for me to decide the remaining estoppel point. Nevertheless, as it was argued in full I now address the point.

383 ObjectiVision structures its estoppel argument around the six matters required to establish a promissory estoppel set out by Brennan J in ***Waltons Stores*** *(Interstate) Ltd v Maher* [1988] HCA 7; 164 CLR 387 at 428 – 429:

In my opinion, to establish an equitable estoppel, it is necessary for a plaintiff to prove that (1) the plaintiff assumed that a particular legal relationship then existed between the plaintiff and the defendant or expected that a particular legal relationship would exist between them and, in the latter case, that the defendant would not be free to withdraw from the expected legal relationship; (2) the defendant has induced the plaintiff to adopt that assumption or expectation; (3) the plaintiff acts or abstains from acting in reliance on the assumption or expectation; (4) the defendant knew or intended him to do so; (5) the plaintiff's action or inaction will occasion detriment if the assumption or expectation is not fulfilled; and (6) the defendant has failed to act to avoid that detriment whether by fulfilling the assumption or expectation or otherwise. For the purposes of the second element, a defendant who has not actively induced the plaintiff to adopt an assumption or expectation will nevertheless be held to have done so if the assumption or expectation can be fulfilled only by a transfer of the defendant's property, a diminution of his rights or an increase in his obligations and he, knowing that the plaintiff's reliance on the assumption or expectation may cause detriment to the plaintiff if it is not fulfilled, fails to deny to the plaintiff the correctness of the assumption or expectation on which the plaintiff is conducting his affairs.

384 ObjectiVision contends that the six propositions are met in the following manner:

(1) ObjectiVision assumed that the University would not enforce the minimum performance criteria as set out in the Licensing Agreement (as amended);

(2) The University induced ObjectiVision to adopt that assumption or expectation, by virtue of Mr Fernance’s participation on the board of ObjectiVision;

(3) ObjectiVision acted in reliance on that assumption or expectation by investing in the AccuMap 2;

(4) The University knew or intended ObjectiVision to do so;

(5) The University’s actions occasioned detriment;

(6) The University failed to act to avoid that detriment.

385 The University submits that in (1) and (2), the assumption which the University allegedly induced ObjectiVision to adopt is absurd. It requires acceptance of the proposition that the University would abandon any reliance on the only mechanism in the Licensing Agreements to licence its technologies to third parties in the event of non-performance. It submits that ObjectiVision bears the onus of proving all elements of the alleged estoppel, yet ObjectiVision has failed to establish any. In particular, it submits that there is no evidence of a clear and unequivocal representation on the part of the University to induce the assumption in (1) and (2), and that as a matter of law the role of Mr Fernance as a nominee director means that his knowledge and approval of certain matters cannot be equated to the knowledge and approval of the University. The University submits that Mr Fernance was performing functions in his capacity as a director of ObjectiVision, not as an agent of the University. Furthermore, there is no evidence from a person with knowledge of the events at the time who as given evidence as to reliance within (3). It submits that the estoppel case must be rejected.

7.3.2 Consideration of the estoppel claim

386 The Licensing Agreement relevantly provides in cl 7.1 that ObjectiVision must take all reasonable actions to introduce the Product (relevantly, AccuMap 1) into the commercial market as soon as is practicable, and achieve at least the minimum sales and/or performance criteria stipulated in schedule 7, which was the sale of 80 units within 3 years of the agreement, being by 4 September 2003. The Second Licensing Agreement was entered on 10 May 2004 and revised the minimum performance criteria in schedule 7 such that there was to be a sale of 90 units by 30 September 2006 and 80 units per annum commencing on 1 October 2006. I refer to the minimum performance criteria below as that which applies under the Licensing Agreement as amended in this way.

387 The course of correspondence leading to the Second Notice of Breach provided by the University on 26 February 2008 has been summarised in section 4.5. After the University’s specific request, on 6 February 2008 Mr Cheng provided reports as to the sales performance of ObjectiVision for the periods from 31 December 2006 until 31 December 2007. The 26 February 2008 Second Notice of Breach observes that ObjectiVision had sold 3 units in the United States for the period ending 30 June 2005, one in China for period ending 31 December 2006 and none since. The University advises that if the breach is not remedied within 3 months, the University intends to exercise its right to render the Licences non-exclusive or otherwise review them. It is not controversial that the failure to meet the minimum performance criteria was not subsequently rectified. On 27 August 2008 the University wrote to Mr Cheng at ObjectiVision, advising him that as a result of the breach, the Licences had been made non-exclusive pursuant to cl 7.3 from the date of the letter. It is not now alleged that the University acted in breach of the Licensing Agreements by effecting this termination.

388 ObjectiVision relies on the conduct of Mr Fernance as a director of ObjectiVision in the period from 24 August 2004 until his resignation on 20 September 2007. The company search results reveal that after his resignation, the University had no nominee director on the board of ObjectiVision and that the two directors were Mr Cheng and Mr Mark Clements, a representative of Medcorp.

389 Mr Fernance’s role within the University was Head of the Investment and Capital Management Office, a senior position. He was present at board meetings where the future of ObjectiVision was discussed.

390 The chain of events from early November 2004 until December 2006 is summarised in sections 4.2 – 4.3 above. ObjectiVision submits that Mr Fernance was:

(1) a recipient of, and agreed on 12 November 2004 to, a circular resolution to co-operate with Medcorp in conducting a review of expenditure required to proceed with the commercialisation of AccuMap 1;

(2) present at a board meeting on 13 January 2005 where a proposal was made to develop a new product in lieu of the AccuMap 1;

(3) present at a board meeting on 30 March 2005 where it was agreed to place the US trials of AccuMap 1 on hold for 6 months;

(4) present at the board meeting of 14 April 2005 when it was resolved to approve Mr Cheng’s recommendation to terminate the clinical trials and that a revised product be launched later in 2005 or early 2006; and

(5) present at numerous other board meetings in the period from 31 May 2005 until 19 December 2006 where the plans of the company were discussed and budget and product proposals were considered. The minutes of these meetings record the as yet incomplete progress of the development of AccuMap 2 and the budgeting and other plans for its completion.

391 The upshot of the sequence of events is, ObjectiVision submits, that no responsible director such as Mr Fernance could possibly have concluded other than that there would be no further sales of any AccuMap device before 2008 (at the earliest) and that the other directors and the CEO of ObjectiVision would also hold that view.

392 There is no dispute as to the events that happened, as summarised above. The question is whether ObjectiVision has established the requirements for an equitable estoppel to apply such that the University is precluded from relying on its rights under the Licensing Agreements. In my view, for the following reasons, it has not.

393 The assumption upon which ObjectiVision relies is that that the University would not enforce the minimum performance criteria as set out in the Licensing Agreement. The Licensing Agreement was first entered on 4 September 2000 and varied on 10 May 2004 explicitly to adjust the minimum performance requirement. Clause 7 provides the only mechanism by which the performance of ObjectiVision, in bringing the AccuMap products to market, can be accounted for to the University. Abrogation of the minimum performance criteria would remove from the University its only means for ensuring that its technology was commercialised in the event that ObjectiVision failed to perform.

394 ObjectiVision does not rely on any express representation in support of its contention that the University induced ObjectiVision. It contends that a representation is to be inferred from the conduct of Mr Fernance.

395 A representation must be clear and unambiguous before it can found an estoppel. It is essential to show that the statement was of such a nature that it would have misled any reasonable person and that the plaintiff was in fact misled by it: ***Legione*** *v Hateley* (1983) 152 CLR 406 at 435 – 437 (per Mason and Deane JJ). Where the allegation is that a representation is put forward as in effect a variation of a contract, the standard of clarity required of a promissory representation is higher. In *Legione*,Mason and Deane JJ endorsed the following passage from the judgment of Lord Denning M.R. in *Woodhouse AC Israel Cocoa Ltd SA v Nigerian Produce Marketing Co Ltd* in the United Kingdom Court of Appeal [1971] 2 QB 23 at 60 (emphasis in original):

... If the representation is put forward as a *variation*, and is fairly capable of one or other of two meanings, the judge will decide between those two meanings and say which is right. But, if it is put forward as an *estoppel*, the judge will not decide between the two meanings. He will reject it as an estoppel because it is not precise and unambiguous. There is good sense in this difference. When a contract is varied by correspondence, it is an *agreed* variation. It is the duty of the court to give effect to the agreement if it possibly can; and it does so by resolving ambiguities, no matter how difficult it may be. But, when a man is *estopped*, he has not agreed to anything. Quite the reverse. He is stopped from telling the truth. He should not be stopped on an ambiguity. To work an estoppel, the representation must be clear and unequivocal.

See also *Foran v Wight* [1989] HCA 51; 168 CR 385 at 411 (Mason CJ).

396 In submissions ObjectiVision contends that the unequivocal representation was that the University would not enforce the minimum performance criteria and that it was satisfied with ObjectiVision’s plans to develop the AccuMap 2 and cease commercialisation of AccuMap 1. It submits that the representation is to be implied from the materials put to the board of ObjectiVision to which I have referred above.

397 However, in May 2004 the University and ObjectiVision expressly agreed to amend the performance criteria in the Licensing Agreement by adjusting the requirements to sale of 90 units by September 2006. It is difficult to consider that by resolving a few months later, in November 2004, to conduct a review of expenditure on AccuMap 1, and then in early 2005 to abandon US clinical trials for AccuMap 1, ObjectiVision itself contemplated that there was to be a variation of the agreements, let alone that somehow the University did so. Nor is it apparent that by agreeing to various plans put forward by Mr Cheng for the development of AccuMap 2 in the period from 31 May 2005 19 December 2006, such a representation is to be found. No reference is made at all in any of the materials to the contractual obligations owed by ObjectiVision to the University.

398 Another difficulty is that in 2004 and 2005 the conduct of Mr Fernance in agreeing to the plans of ObjectiVision could not rationally be regarded as consent to the abrogation of the terms of the minimum performance criteria, given that at that point the criteria were not required to be fulfilled until September 2006. If anything, any assent to the proposals put would be taken to mean that it was *more likely* that ObjectiVision would be able to fulfil its contractual obligations to the University. I can see no point in time in the continuum from November 2004 until 19 December 2006 when the position of the University would have changed in that regard. ObjectiVision does not point to any. In other words, no express or inferred representation arises. For these reasons alone the estoppel case must fail.

399 Furthermore, the role of Mr Fernance as a director of ObjectiVision was not such that his knowledge and actions could be imputed to the University. Mr Fernance was not acting as an agent of the University, but rather as an officer of ObjectiVision. This meant that he was obliged, in that role, to ignore the interests of the University: see *Australian Orthopaedic Fixations Pty Ltd v Amplitude Australia Pty Ltd* [2017] SASC 88 (Doyle J) at [494]. Accordingly, his knowledge would not be imputed to the University. Further, a director installed as such on the board of another company by his or her employer is in general presumed not to be subject to the employer’s direction when performing functions as a director, so that no vicarious liability attaches to the employer for the employee’s conduct in that capacity. In general, the duty of a director is personal, and he or she will be presumed to perform that duty irrespective of the reason for appointment: *Kuwait Asia Bank EC v National Mutual Life Nominees Ltd* [1991] 1 AC 187 at 194, cited in *LMI Australasia v Baulderstone Hornibrook Pty Ltd* [2001] NSWSC 886 (Barrett J) at [79] and in *Australia China Business Bureau Pty Ltd v MCP Australia Pty Ltd* [2003] FCA 934 (Hely J) at [269].

400 There are other difficulties with the estoppel argument presented by ObjectiVision. Even assuming, contrary to my finding, that it may be inferred that there was a clear and unambiguous representation made to ObjectiVision that the minimum performance criteria would be set to one side from the time that the development of the AccuMap 1 was abandoned, no contemporaneous evidence supports the proposition that this was done in reliance on such a representation. A better inference to draw is that it was done from the commercial necessity of producing a viable product in lieu of the failing and expensive AccuMap 1 product. There are suggestions in Mr Cheng’s written evidence that the AccuMap 1 machine was not a failure. However, as I set out in section 4.2, the rational inference to draw from the matters leading up to the abandonment of AccuMap 1 in favour of AccuMap 2 points to a different conclusion. Nor was ObjectiVision in closing submissions able to draw attention to any evidence from Mr Cheng or otherwise speaking to reliance, although Mr Cheng’s evidence would have been of little assistance to ObjectiVision, as the AccuMap 1 was withdrawn from the market before he joined ObjectiVision.

401 Accordingly, I reject the estoppel argument.

##### 8. THE OBJECTIVISION CONTRACT CROSS-CLAIM: DAMAGES

###### 8.1 Introduction

402 I have concluded above that the University succeeds in its claim that the Licensing Agreement terminated on 19 January 2011. I have also concluded that that ObjectiVision’s cross claim for breach by the University fails. The consequence is that ObjectiVision is not entitled to any damages on this aspect of its cross claim. In these circumstances it is not necessary to address the damages claim at length, but in deference to the arguments raise, and against the prospect that my other conclusions are incorrect, I turn to these now.

403 In its opening submissions ObjectiVision presented its damages case in two ways. The first was on the basis that it was entitled to damages for lost opportunity. That was said to be supported primarily by the expert evidence of Mr Aroy, together with expert evidence from Dr Sinai, Dr Bowd and Mr Eversgerd. As it happened, the lost opportunity argument was abandoned by the time of closing submissions, following the rejection of a paragraph of the expert evidence of Mr Aroy, a subject to which I return later. The second part, and the only one now advanced, is for reliance damages. ObjectiVision relied on the expert evidence of Mr Eversgerd and Ford, to which the University responded with the expert evidence of Mr Potter. A significant body of lay evidence was also relied upon by both sides.

###### 8.2 The arguments

404 ObjectiVision submits that if the University had not unreasonably refused to consent to Hamisa’s investment in ObjectiVision, thereby breaching the Heads of Agreement and the Shareholders’ Agreement, ObjectiVision would have successfully completed the AccuMap 2 and there would have been a market for the device. ObjectiVision submits that it is entitled the costs wasted as a result of the University’s unreasonable refusal, being $25,946,024 of which $12,172,000 was expenditure on the development of the AccuMap 1 and AccuMap 2 and the balance pre-judgment interest (as calculated in Scenario 1 of Mr Eversgerd’s expert report).

405 ObjectiVision relies on the principles set out in *Commonwealth v* ***Amann*** *Aviation Pty Ltd* [1991] HCA 54; 174 CLR 64 at 81 and 87 (Mason CJ and Dawson J), as summarised by McMurdo JA (Philippides JA and Bond J agreeing) in *Zahedpur v Idameneo (No 123) Pty Ltd* [2016] QCA 134 and emphasises the underlined passages below:

74 But it does not follow that the respondent, having suffered a loss, was not entitled to a substantial award of damages. Where the amount of profit from the performance of the contract cannot be demonstrated, the innocent party can still recover damages assessed by reference to the expenditure incurred by that party in its performance of the contract. In *Commonwealth of Australia v Amann Aviation Pty Ltd*, it was explained that this was an application of the general rule of *Robinson v Harman*. Mason CJ and Dawson J there said:

“It would be an invitation to the repudiation of contractual obligations if the law were to deny to an innocent plaintiff the right to recoupment by an award of damages of expenditure justifiably incurred for the purpose of discharging contractual obligations simply on the ground that the contract breached would not have been or could not be shown to have been profitable. If the performance of a contract would have resulted in a plaintiff, while not making a profit, nevertheless recovering costs incurred in the course of performing contractual obligations, then that plaintiff is entitled to recover damages in an amount equal to those costs in accordance with *Robinson v Harman*, as those costs would have been recovered had the contract been fully performed. Similarly, where it is not possible for a plaintiff to demonstrate whether or to what extent the performance of a contract would have resulted in a profit for the plaintiff, it will be open to a plaintiff to seek to recoup expenses incurred, damages in such a case being described as reliance damages or damages for wasted expenditure.”

75 Further, the law assumes that from the defendant’s due performance of the contract the plaintiff would have recovered at least its expenses of its own performance unless the defendant proves otherwise, because it is presumed that “a party would not enter into a contract in which its costs were not recoverable.”

406 The steps relied upon by ObjectiVision may be summarised as follows.

407 First, by January 2011 ObjectiVision had performed the Heads of Agreement by obtaining an investor with resources to commercialise the AccuMap 2. With the benefit of the funds available from Hamisa and an exclusive licence of the patents, it was ready to continue to perform the Licensing Agreement and the Shareholders’ Agreement by progressing the commercialisation of the AccuMap 2.

408 Secondly, were it not for the University’s breach, the likely result would have been the successful commercialisation of the AccuMap 2. In this regard it submits that three significant matters of fact should be resolved in its favour:

(1) by the beginning of 2008 the AccuMap 2 was “working well”;

(2) ObjectiVision had access to the resources required to complete the development and commercialisation of the AccuMap 2; and

(3) the mfVEP technology licensed and used in the AccuMap 2 had significant clinical potential as a clinical and research tool,

(**the causation contentions**).

409 Thirdly, the evidence indicates that the AccuMap 2 development “built directly” on the AccuMap 1 development, such that the commercial success of the AccuMap 2 should be seen as a consequence of the funds invested in the development of both AccuMap products. Accordingly, the development costs of the AccuMap 1 should logically be included in the wasted expenditure.

410 The University contends that a number of obstacles lie in the way of any reliance damages, assuming a finding of breach of the Heads of Agreement and/or the Shareholders’ Agreement. These may be summarised as follows.

411 First, despite the claim being based on breaches of the Heads of Agreement and/or the Shareholders’ Agreement, the damages sought are based on the operation of the Licensing Agreement. Clause 17.1 of that agreement provides an exclusion of liability for damages on the part of the University. This represents an insuperable impediment to the damages claimed. I refer to this argument as the **clause 17.1 exclusion argument**.

412 Secondly, ObjectiVision has not pleaded or advanced with proper notice the case that it seeks to run on causation and should not be permitted to do so (the **threshold causation argument**).

413 Thirdly, the causation contentions are not well founded. ObjectiVision has not established that any wrongful conduct of the University caused any loss.

414 Fourthly, ObjectiVision is precluded from advancing its present claim because a further precondition to the availability of damages for wasted expenditure is that by reason of the respondent’s breach it is difficult or impossible for the Court to assess what profits, if any, the claimant would have made had the contract been fully performed. That is not met here because ObjectiVision at all times asserted that it could prove its loss of profit, but failed to do so because of the inadmissibility of its evidence (the **threshold reliance damages issue**).

415 Fifthly, the claim must also be rejected because ObjectiVision pleads and maintains in its submissions that the Licensing Agreement remains on foot. For the purposes of the hypothetical damages case, it must be assumed that this is so. However, damages for loss of bargain (of which reliance damages are a manifestation) are not available whilst the bargain remains on foot, citing *Sunbird Plaza Pty Ltd v Maloney* [1988] HCA 11; (1989) 166 CLR 245 at 273 (Gaudron J) (the ***Sunbird* argument**).

416 Sixthly, in any event ObjectiVision would not be entitled to damages for expenditure on the development of AccuMap 1 because it was not ready or able to introduce the AccuMap 2 to the market, and therefore was not ready, willing or able to perform its part of the Licensing Agreement to the extent necessary to entitle it to benefits which could have covered its expenses. Further, it has not established that the expenses the subject of the claim were reasonable (the **quantification issues**).

###### 8.3 Summary of conclusions in relation to damages

417 Having regard to the lack of success of ObjectiVision in its contract cross claim, I do not here address all of the arguments between the parties. In my reasons below I indicate my view that the cl 17.1 exclusion argument has merit, and provides yet a further reason why ObjectiVision is not entitled to damages. In the event that I held a different view, I would reject the University’s threshold causation argument. However, I accept the University’s submission that ObjectiVision has not established that any hypothetical breach (assuming that the Licensing Agreement was not terminated) caused loss.

###### 8.4 Consideration of the clause 17.1 exclusion argument

418 Clause 17.1 of the Licensing Agreement provides (emphasis added):

The University, its servants and agents shall not be liable to the Licensee and the Licensee hereby releases and agrees to keep released the University its servants and agents for any loss, damages, costs, or expenses arising directly or indirectly from or in relation to this Agreement *except to the extent that such loss, damages, costs or expenses arise out of negligent or unlawful acts or omissions by the University, its servants or agents*.

419 The University contends that the damages case advanced by ObjectiVision concerns loss, damages, costs or expenses arising directly or indirectly from the Licensing Agreement, thereby attracting the exclusion under cl 17.1. First, in relation to the (assumed) breach of the Heads of Agreement, the University submits that by cl 1.1 the terms of the Licensing Agreement are incorporated by reference into the Heads of Agreement. Secondly, in relation to each of the Heads of Agreement and the Shareholders’ Agreement, it contends that the breadth of the words “arising directly or indirectly from or in relation to this Agreement” is sufficient to encompass the breaches alleged. ObjectiVision contends to the contrary, although it agrees that the exception in the clause (concerning negligent or unlawful acts as italicised above) does not apply.

420 Clause 1.1 of the Heads of Agreement provides:

Subject to the terms of this Heads of Agreement the University agrees to reinstate ObjectiVision’s exclusive licence under the terms of the agreement dated 4 September 2000 (as amended) (**Licence Agreement**) for the Exclusivity Period (as defined below).

421 In my view, contrary to the first argument advanced by the University, this language does not serve to incorporate, by reference, the terms of the Licensing Agreement into the Heads of Agreement. Rather, it creates a new agreement that is supplementary to and separate from the Licensing Agreement. In particular, although it refers to the Licensing Agreement, it also addresses subject matter foreign to that agreement, including the assignment of certain patents (cl 1.9), the payment of outstanding fees (cl 1.8) and the entry into additional agreements (cl 1.3, 1.4). The incorporation of the Licensing Agreement is impractical and in my view unrealistic. It does not arise by implication from the language used. The reference to “reinstate” in cl 1.1 conveys that the exclusive licence provided for in cl 7.1 of that agreement returns to have effect, a matter that was in dispute at the time that the Heads of Agreement were entered.

422 I turn now to the second of the arguments advanced by the University. The interpretation of an exclusion clause is to be determined by construing the clause according to its natural and ordinary meaning, read in the light of the contract as a whole, thereby giving due weight to the context in which the clause appears, including the nature and object of the contract, and, where appropriate, construing the clause contra proferentem in the case of ambiguity; ***Darlington Futures*** *Ltd v Delco Australia Pty Ltd* [1986] 82; 161 CLR 500 at 510.

423 ObjectiVision submits that by acting in breach of cl 1.6 of the Heads of Agreement by refusing consent to Hamisa’s investment in ObjectiVision and instead relying on cl 1.7 as having brought about the termination of the Licensing Agreement, the University committed a breach of the Heads of Agreement, but *not* the Licensing Agreement. It is that breach that is the cause of the wasted expenditure claimed. Accordingly it submits that the claim for damages under the Heads of Agreement is the not subject of the exclusion.

424 The word ‘indirectly’ in cl 17.1 expands the reach of the exclusion clause beyond the corners of the Licensing Agreement. The point of the University being asked under cl 1.7 of the Heads of Agreement to consent to the Hamisa Third Party Agreement was to ensure the continuation of the Licensing Agreement. One indication that this is so may be seen from the claim advanced by ObjectiVision. Although it carefully submits that its case on damages is *based on* breach of the Heads of Agreement and Shareholders’ Agreement, the claim for damages manifestly is not. Save for expenses incurred from the date when the Heads of Agreement was executed on 19 January 2010 until 19 January 2011, ObjectiVision did not incur any expenses under the Heads of Agreement. Similarly, the Shareholders’ Agreement does not impose any obligations to commercialise the licensed intellectual property. That is expressly the exclusive domain of the Licensing Agreement. In fact all of the damages sought by ObjectiVision pursuant to the abandoned loss of opportunity claim, and for the wasted expenditure or reliance damages claim, arise from the performance of the Licensing Agreement. The artificiality of claiming that the damage arose from breach of the Heads of Agreement and Shareholders’ Agreement, but not indirectly from the Licensing Agreement, is made clear by having regard to the factual scenarios considered by Mr Eversgerd in his report. Wasted expenditure was calculated from September 2000 until 19 January 2011. The expenditure during this time period relates to commercialisation of the AccuMap technology.

425 There is some logic in the argument that ObjectiVision had spent years commercialising the technology, only to be stopped at the final threshold by the University’s breach of the Heads of Agreement. However, such a claim for damages would still indirectly relate to the Licensing Agreement, because the ultimate aim of the Heads of Agreement is to enable the continuation of the Licensing Agreement.

426 The position under the (assumed) breach of cl 5.1(a) and (e) of the Shareholders’ Agreement is logically no different having regard to the manner in which ObjectiVision seeks to quantify its loss.

427 Accordingly, in my view the exclusion under cl 17.1 applies to the whole of the contract cross-claim for damages and for this reason the claim must fail, quite separately from the reasons set out in section 7.

###### 8.5 The threshold causation argument

428 As I have noted, ObjectiVision ultimately confined its case to breach of cl 1.6 of the Heads of Agreement and cls 5.1(a) and (e) of the Shareholders’ Agreement. The case as opened by ObjectiVision was far broader and included alleged breaches of the Licensing Agreement and breaches of in excess of 70 different express and implied contractual terms in each of these and other agreements. The University submits that in neither its pleadings nor its oral opening submissions did ObjectiVision explain how each pleaded claim caused ObjectiVision’s loss. Rather, in opening written submissions ObjectiVision asserted that “the whole of the University’s and Visionsearch’s wrongful conduct caused ObjectiVision’s loss”. The University put ObjectiVision on notice that it was approaching the damages claim on the footing that ObjectiVision needed to succeed in each of the breaches asserted in order to obtain any losses and now contends that, ObjectiVision having abandoned most of these, its claim for damages must be rejected at the threshold. In this regard the University’s primary contention is that a party claiming damages must properly plead and particularise its claim, including the material facts necessary to establish how the breach is caused, citing ***Barnes*** *v Forty Two International Pty Ltd* [2014] FCAFC 152; 316 ALR 408 (Siopis, Flick and Beach JJ).

429 In *Barnes* the complaint on appeal was that the claimant in the action had not pleaded and given particulars of the heads of damage relied upon (there, loss of opportunity) and also had made no express allegation of causation ([80], [83]). The first is not the subject of complaint here. In relation to the issue of causation, Beach J said (Siopis and Flick JJ agreeing):

83 There is a further fundamental problem with the pleading. There was no express allegation of causation. There was no pleading to the effect that if the breach of the implied term had not occurred, then BlueFreeway would have sought to negotiate an alternative form of exit agreement with a lower additional payment. Sometimes the causal link between a breach of contract and the particular head of damages may be obvious. In such a scenario, an expressly pleaded causal link may be unnecessary beyond a general plea such as “In consequence of…”. But this was not such a case. There was nothing obvious about the causal “loss of opportunity” link in the present case. Indeed, it was only raised for the first time in written closing submissions. Further, there is even an issue as to whether it fits within either limb of *Hadley v Baxendale*, whichis dealt with later.

430 In its cross claim at [54], ObjectiVision states that by reason of the facts, matters and circumstances set out in the prior paragraphs, ObjectiVision has been unable to remedy the deficiencies in the prototype AccuMap 2, unable to complete the Hamisa Third Party Agreement, unable to proceed to have the AccuMap 2 clinically tested, lost the opportunity to make sales of the AccuMap 2 and so on. In other words, it is a broad pleading of a causal link of the type described by Beach J. In the version of the cross claim relied upon in opening (the fourth further amended cross claim), a smorgasbord of claims of breach were advanced, which were then reduced to the final form. Nevertheless, the claim for damages in [54] was unchanged.

431 Having regard to the evidence filed before hearing, it is apparent that ObjectiVision maintained that regardless of the contractual terms that were the subject of breach, the damages ended up at the same point, meaning that the contraction of claims did not alter the approach that it intended to take to the quantification of damages. That produces an air of artificiality about the claim that has consequences in other areas, but in my view it is not such that ObjectiVision is unable to advance its case for damages at this threshold level.

###### 8.6 The causation contentions

8.6.1 The arguments

432 ObjectiVision submits that were it not for the University’s breach, the highly likely result would have been the successful commercialisation of the AccuMap 2. In this regard it submits that three significant matters of fact should be resolved in its favour:

(1) By the beginning of 2008 the AccuMap 2 was “working well”, with the principal obstacles remaining for its completion being hardware issues, which could be resolved by an appropriate application of financial resources and hired external expertise.

(2) ObjectiVision had access to the resources required to complete the development and commercialisation of the AccuMap 2. In June 2008 it had estimated that it would cost $15,000 to finalise a functional prototype within 3 months and an additional $135,000 to take it to completion of clinical trials within 9 months. That was the amount available under the First Subscription Deed. Further, if the University had disclosed the Biogen opportunity to ObjectiVision during the course of 2010, the funds that ObjectiVision would have received would have provided an additional source of revenue to be used in completing the AccuMap 2.

(3) The mfVEP technology licensed and used in the AccuMap 2 had significant clinical potential as a clinical and research tool including for glaucoma, age-related macular degeneration, optic neuritis and multiple sclerosis which meant that there was a likelihood of making a profit or at least recovering costs.

433 The University contends that ObjectiVision has not established that any wrongful conduct of the University caused any loss, because, contrary to ObjectiVision’s arguments: first, the AccuMap 2 was only at prototype stage and was not even close to production; secondly, ObjectiVision lacked the necessary expertise to complete and commercialise the product; thirdly, ObjectiVision was chronically short of funds from 2007 onwards and had no prospect of raising sufficient funds to complete the product, either from August 2008 until January 2010 (when the exclusivity period was terminated) or from January 2010 until January 2011 (when the only investor found was Hamisa). Accordingly, the University contends that ObjectiVision was not ready, willing, and able to perform the Licensing Agreement by January 2011, citing ***Macquarie International Health*** *Clinic Pty Ltd v Sydney South West Area Health Service* [2010] NSWCA 268 at [165], [166] (per Hodgson JA, Allsop P and Macfarlan JA agreeing). I note that ObjectiVision contends that before and during the non-exclusive period (August 2008 to January 2010), the University represented that it would not enforce the minimum performance criteria and should be estopped from resiling from that representation. The estoppel argument is relevant to the causation question because ObjectiVision submits that it could have commercialised the AccuMap 2 if it had retained exclusivity. Also, the University’s expert (Mr Potter) calculated reliance damages by excluding the non-exclusive period in some of his scenarios. I have dismissed the estoppel argument in section 7.3.2 above. Accordingly, the counterfactual (where exclusivity was not removed) does not need to be considered. In any event, the University submits that even with exclusivity of the licence, ObjectiVision would have struggled to secure investors.

434 Furthermore, contrary to the position advanced by ObjectiVision, the University submits that the potential for it to make a profit from the AccuMap 2 was very limited and that ObjectiVision has not established that it would be in a position to make a profit, what that profit might have been, and how much of the wasted expenditure might have been recovered. This is a necessary precondition to an award of reliance damages, especially given that the evidence of Mr Aroy was not advanced (citing ***Shield Mercantile*** *v Citigroup* [2013] NSWSC 117 at [459] (McDougall J)).

###### 8.7 Consideration of the causation contentions

435 The principles underpinning reliance damages are set out in *Amann* by Mason CJ and Dawson J at 80 – 81 (footnote citations omitted):

The general rule at common law, as stated by Parke B. in *Robinson v. Harman*, is “that where a party sustains a loss by reason of a breach of contract, he is, so far as money can do it, to be placed in the same situation, with respect to damages, as if the contract had been performed”. This statement of principle has been accepted and applied in Australia.

The award of damages for breach of contract protects a plaintiff’s expectation of receiving the defendant’s performance. That expectation arises out of or is created by the contract. Hence, damages for breach of contract are often described as “expectation damages”. The onus of proving damages sustained lies on a plaintiff and the amount of damages awarded will be commensurate with the plaintiff’s expectation, objectively determined, rather than subjectively ascertained. That is to say, a plaintiff must prove, on the balance of probabilities, that his or her expectation of a certain outcome, as a result of performance of the contract, had a likelihood of attainment rather than being mere expectation.

In the ordinary course of commercial dealings, a party supplying goods or rendering services will enter into a contract with a view to securing a profit, that is to say, that party will expect a certain margin of gain to be achieved in addition to the recouping of any expenses reasonably incurred by it in the discharge of its contractual obligations. It is for this reason that expectation damages are often described as damages for loss of profits. Damages recoverable as lost profits are constituted by the combination of expenses justifiably incurred by a plaintiff in the discharge of contractual obligations and any amount by which gross receipts would have exceeded those expenses. This second amount is the net profit.

The expression “damages for loss of profits” should not be understood as carrying with it the implication that no damages are recoverable either in the case of a contract in which no net profit would have been generated or in the case of a contract in which the amount of profit cannot be demonstrated.

8.7.1 Had the white prototype been completed?

436 In my view ObjectiVision’s contention that the AccuMap 2 was “working well” by the beginning of 2008 is not supported by the evidence. I have referred at length in section 4 above to the evidence concerning when ObjectiVision stopped working on the white prototype in January 2008. Those materials indicate that no prototype had yet been completed, and that several further steps were required, after a prototype was finished, before a product could be ready for market including: the preparation of a production prototype, the building of production-ready devices suitable for use in clinical trials, obtaining of necessary FDA, CE Marking and TGA regulatory approvals, the maintenance of intellectual property in the devices, and the presentation of credible independent clinical validation. All of these were identified by Mr Cheng as necessary steps before financing could be obtained in his 7 December 2007 report to the board.

437 To the extent that Mr Cheng’s evidence in these proceedings suggests that a prototype was complete, I prefer the evidence of Associate Professor Klistorner, whose technical expertise and objectivity as to the state of readiness of the project in my view exceeds that of Mr Cheng. As an expert in mfVEP technology, he was familiar with the strengths and the shortfalls in the development process. His evidence is that there were unresolved heating issues, issues with noise in the signal as a result of problems with cabling, problems with synchronisation of the stimulus with the data acquisition, problems with the amplifier, and problems with the adjustment of the patient monitor.

438 An issue that adopted some significance at the hearing was the question of whether a normative database had been completed for the white prototype. The evidence was somewhat confusing because it appears that at various stages, and for some of the earlier prototypes, some database collection was undertaken. However, I am quite satisfied that the evidence does not support the contention that a normative database was completed for the white prototype. It will be recalled that a normative database is a set of values such as amplitude or latency values for each channel and segment of stimulus obtained from a population of normal subjects, which is then used to determine whether a patient’s test results are normal or abnormal. There is no dispute that at least 30 subjects are needed to create such a database in order for it to have statistical power in medical research. For the purpose of the commercially released AccuMap 1, Associate Professor Klistorner collected data from over 100 subjects. Collection of data is specific to the stimulus and the hardware, such as the monitor or amplifier being used. It is Associate Professor Klistorner’s view, which I accept, that any time a change is made to the stimulus or the hardware, or new stimulus or hardware is tested, data must be collected from normal subjects to collect a new normative database. Furthermore, for each different modality of testing, or each different form of stimulus, a different normal database is required. It is apparent to me that by February 2008 such a normative database had not been collected for the white prototype. Although it is likely that normal data was collected earlier, that was in relation to earlier versions of the prototype, or different prototypes. The documentary material to which I have referred in the period from September 2007 to December 2007 indicates that Associate Professor Klistorner was preparing to conduct some tests, but it does not indicate that they proceeded far. He gives evidence that it did not, and I accept that evidence.

439 My view as to the lack of completion of the AccuMap 2 white prototype is supported by the content of a technical assessment performed by Associate Professor Klistorner, Mr Alkhimov and Mr Peterson with Dr Mount, a consultant, present as an observer on behalf of ObjectiVision in March 2010. The report of the assessment indicates that there were a number of hardware faults detected including:

(1) The stimulus screen and video card in use produced incorrect latency measurements. The problem was resolved to enable testing to take place but the fault needed to be properly diagnosed and fixed. This was a synchronisation problem that Mr Cheng complained in a subsequent letter had not been resolved in the report and was ‘critical’ to the operation of the prototype. It might be noted that this problem permeated earlier prototypes of the AccuMap 2. In cross examination Mr Cheng accepted was the same issue that he instructed Mr Alvarez to mask in August 2006.

(2) Out of four amplifiers supplied, two were tested and only one of those was satisfactory for latency and amplification stability, but it was not shown to meet the required specifications and the casing did not fit correctly, which needed resolution.

(3) Some test runs produced false positives from ‘noisy’ (poor signal quality) results, others showed push button responses to the stimulus when the button was not pushed. No clear interrelationship between these false positives with the false push button responses was diagnosed, but the false push button responses were associated with decreased signal quality.

440 Furthermore, in testing the AccuMap 2 device, a number of analysis routines could not operate because no normative database was installed. Although not determinative, this suggests that ObjectiVision did not have such a database to operate with the white prototype at that time.

441 An additional indication that the white prototype was not completed is a much later application for a grant from the NSW Medical Devices Fund prepared by Mr Cheng for ObjectiVision and dated 9 October 2012. In it he says that “ObjectiVision seeks the funds necessary to rapidly complete the clinical validation and regulatory approval of the AccuMap 2. This process is expected to take about 6 – 9 months and cost $250,000. In particular, ObjectiVision has been unable to access development expertise in critical areas such as algorithm and software development necessary to complete the product. It is expected to be a 6 – 9 month project and cost $200,000.”

442 Taken collectively, with the evidence to which I have referred in Section 4 above, these matters lead me to the view that the AccuMap 2 prototype was not completed and required an uncertain amount of time and what was likely to be a considerable amount of funds to be able to be completed.

443 ObjectiVision points to some contemporaneous documents, including a draft Commercial Ready Grant application dated 1 March 2007 prepared by Professor Graham, and an October 2007 BIO grant application, that indicate that in the view of Associate Professor Klistorner and Professor Graham the AccuMap 2 prototype was ready to proceed to a final production model. The 1 March 2007 application says “we now seek to finalise a production model of the Accumap 2”, and refers to a “working prototype” of the AccuMap 2. The October 2007 application says “we have now completed our R&D for a vastly improved system” and that the AccuMap 2 is “close to completion”. On 19 February 2008 Professor Graham says in an email to Dr Don Hood that “Confidentially, AccuMap 2 got very close to being finished”. However, to an objective observer, optimistic statements like this appear to be part of the development process. The chronology of events set out in detail in section 4 demonstrates that the horizon constantly receded. That development is “close” to completion says little about how far from the horizon it was. I do not consider that these statements are sufficient to alter the conclusions, based on a more detailed review of the materials, which I have expressed above.

8.7.2 Could ObjectiVision have commercialised AccuMap 2?

444 The next issue is whether or not ObjectiVision has established that it would have had access to sufficient funds in order to proceed with the project of completing the AccuMap 2 prototype and getting it to market, either from its own resources or with the assistance of a third party funder. I am not satisfied that the evidence establishes that it would have done so.

445 First, there is no dispute that by January 2011 ObjectiVision no longer had the assistance of Associate Professor Klistorner or Professor Graham. The absence of these experts, and particularly Associate Professor Klistorner, was a crucial problem for taking the project forward in any cost-effective way.

446 Secondly, in the period from January 2008 until 2011 ObjectiVision was in a dire financial situation. The insolvency experts, Mr Potter and Mr Ford, were taken to a 14 November 2007 cash flow forecast for the period November 2007 to June 2008, prepared by ObjectiVision. That document indicates that the company was spending no money on marketing and that it had a total deficit of $10,408 over the time period. At that point it was living hand to mouth, fishing around for finance and relying on deferring its due debts. On the basis of his assumption that there would be some way of deferring or eliminating the debts recorded in the forecast or some alternatives of funding, Mr Ford considered that ObjectiVision was solvent. He accepted, however, that if the assumption were not made, then at that point ObjectiVision was insolvent. Mr Potter was of the view that the November 2007 cash flow document reflected what he called “a doomsday type projection”. It showed that starting with $131,000 cash at bank at November 2007, there was no really additional inflow of cash of any substantial amount and by March or April 2008 all expenditure of the company is assumed to cease, and that is the only way to avoid too much of a shortfall by June 2008. Read in the context of Mr Cheng’s note to the board in December 2007, the position was dire. This was a view with which Mr Ford agreed.

447 Furthermore, the position did not improve. The materials indicate that by 1 January 2008 Mr Cheng had been given notice as CEO, and Mr Alkhimov’s services had been terminated. On 3 January 2008 Mr Cheng wrote to the University referring the “inevitability and imminence of ObjectiVision’s demise”. He was instructed to wind up the company, and (he agreed in cross-examination) it was without funds to complete the development of AccuMap 2. As at 30 June 2008 ObjectiVision had a cash balance of $45,285. By 30 June 2009 and 30 June 2010, it had cash balances of $129 and $36 respectively.

448 Mr Potter considered that following December 2007 ObjectiVision was, in effect, “a dead man walking with no real prospects of ending the shortage of working capital that constrained it from developing and commercialising the intellectual property. That development and commercialising of the intellectual property was the sole purpose of the company and, as such, the business that it was in was not viable”. He considered that from that date the company was insolvent. Mr Ford disagreed that the company was insolvent, although he accepted that contributions to equity made by Mr Cheng ($103,000 on 29 April 2008 and $100,000 on 3 September 2008) amounted to the bare minimum to keep ObjectiVision afloat, but were not sufficient to progress the development of a product to put the company in a “commercial state”. It is clear that the position of ObjectiVision at this time was parlous.

449 Thirdly, there was no real access to funding available to ObjectiVision prior to the interest expressed by Hamisa. That funding was highly conditional and, for the reasons stated in section 6.2.4 of my reasons, inadequate. In this regard Mr Potter and Mr Ford agreed that there were three categories of funding to consider in the period prior to 2011. The first is the small amounts of capital or unsecured loans provided by Mr Cheng. The loan amounts were, by their terms, regarded by the experts as no more than a swap-in, swap-out of debt. This was in particular a reference to a $150,000 credit facility that Mr Cheng made available pursuant to terms of a loan agreement dated 18 June 2009. The second is evidence relied upon by ObjectiVision to the effect that third parties such as **Plastamatic** (Aust) Pty Ltd, who expressed what was described as “soft interest” in the company, but produced no concrete offers with concrete amounts and were subject to a broad range of issues yet to be discussed and so should not be considered in an analysis of the solvency of the company. The third is the funds raised from Hamisa and the subject of the Hamisa Third Party Agreement. The experts agreed that the first contribution of $150,000 was unlikely to be sufficient to fully develop and commercialise the AccuMap 2 and the Hamisa Third Party Agreement was so conditional upon the completion of that development before funds would be made available that it must be significantly discounted.

450 ObjectiVision submits that as at June 2008 it had sufficient funds to complete the development of a functional prototype, and the opportunity to raise additional funds from Plastamatic to take the white prototype to production. ObjectiVision submits that by January 2011 it had sufficient funds from Hamisa to enable completion of US clinical trials of the white prototype, so that it could secure additional funding from Hamisa to take the white prototype to production. It also submits that Mr Cheng’s credit facility of $150,000 in June 2008, its rights issue to Mr Cheng of $100,000 in September 2008, and the fact that Mr Cheng has met in excess of $2 million in legal costs for ObjectiVision to date is indicative of further funds or equity available to ObjectiVision. However, for the reasons earlier given, I reject the submission that $150,000 was likely to be sufficient to take the white prototype up to completion of US clinical trials. I do not consider that this figure genuinely reflects the costs likely to be required, especially where ObjectiVision could no longer rely on the assistance of Associate Professor Klistorner or Mr Alkhimov and would face the cost of finding a new mfVEP specialist and software developer. The credit facility is, as the experts agreed, to be set to one side as it simply replaced debt. The fact that Mr Cheng was later prepared to pay legal costs does of $2 million does not indicate that he was prepared to spend the same amount on product development, and ObjectiVision relies on no evidence to suggest that in the period from January 2008 until January 2011 he offered to do so. I find that he did not.

451 These factors, taken together, lead me to the view that were I to have found that ObjectiVision had succeeded in its contract claim, and the University failed in its claim that the Licensing Agreement had been terminated, then I would have concluded that ObjectiVision fails in its claim for damages.

452 Having regard to these conclusions, I do not consider it necessary to consider the further issues raised in relation to the question of damages.

###### 8.8 The rejection of Aroy paragraph [72]

453 During the course of the hearing I rejected [72] of the first report of Mr Aroy. I was asked to provide my reasons for doing so in my judgment, which I do below.

454 In [72] of his first report Mr Aroy says as follows:

For glaucoma, I conclude AccuMap 2 had an opportunity with a high likelihood of success.

a. AccuMap 2 was building on the established technology of the first product and I have been instructed to assume that absent the University’s (assumed) wrongful conduct; ObjectiVision would have completed the prototype, gained regulatory clearance, and completed clinical studies demonstrating safety and efficacy with high likelihood.

b. mfVEP technology has a clear application to objective visual field detection for the diagnosis and monitoring of glaucoma.

c. VEP technology has been successfully adopted by clinicians as demonstrated by the success of the Diopsys and Konan products. Launching earlier than these products, AccuMap2 would have enjoyed at least similar success.

455 Subparagraphs (a) and (b) refer to matters not within Mr Aroy’s own knowledge or experience and, by the consent of the parties, they were received on a limited basis pursuant to s 136 of the ***Evidence Act*** *1995* (Cth), namely that they are assumptions that the witness was asked to make and do not stand as evidence of the factual matters to which they refer. Subparagraph (c) was not read by ObjectiVision.

456 The University submitted that the opinion expressed in the first sentence of [72] was no more than a conclusion followed by the expression of two assumptions, but is absent any explanation of the process of reasoning in which the expert has engaged or how the assumptions feed into the expert’s specialised knowledge in such a way as to produce the conclusion. It relied upon s 79 of the *Evidence Act*, ***Dasreef*** *Pty Limited v Hawchar* [2011] HCA 21; 243 CLR 588 at [32], [35] - [43], ***Museth*** *v Windsor Country Golf Club Ltd* [2016] NSWCA 327 at [35] – [43] (per McDougall J, Gleeson JA and Barrett AJA agreeing), and ***Rolleston*** *v Insurance Australia Ltd* [2017] NSWCA 168 (Beazley P, Meagher JA and Emmett AJA).

457 ObjectiVision contended that paragraph [72] is quite different in character to the evidence rejected identified in *Dasreef* and *Museth*. In the present case it is the opinion expressed by someone not as to matters of numerical or quantitative opinion, but is a broader assessment which brings to bear Mr Aroy’s expertise in a broad sense and is accordingly admissible, subject to weight.

458 One difficulty with the opinion expressed in the first sentence of [72] is that Mr Aroy is not an expert in glaucoma or in the AccuMap 2 device (whether prototype or otherwise). Another is that the prediction of a “high likelihood of success” is not expressly stated to be based on either subparagraphs (a) or (b), or (a), (b), and (c) together.

459 Further, if one were to assume that the reasoning for the “high likelihood” opinion is based on the 3 subparagraphs identified, then the exclusion of (c) presents an obvious difficulty because there is no explanation as to the relevance of that assumption to his conclusion.

460 Finally, Mr Aroy offers no process of reasoning as to why the assumed facts in (a) and (b) lead to the conclusion that the AccuMap 2 had an opportunity with a high likelihood of success. The first assumption is that the AccuMap 2 device would have been completed, gained regulatory clearance and completed clinical studies demonstrating safety and efficacy. The second is that the technology in it has “a clear application” to the field of diagnosis and monitoring of glaucoma. The objected-to sentence does not identify any metric by which Mr Aroy judges the device to have a “high likelihood” of success and it does not provide any benchmark by which Mr Aroy judged the prospects of success. Nor does the paragraph identify or refer to other products in the market, or the assumed clinical or commercial benefits or disadvantages of the AccuMap 2 over such other products. Indeed, one is left to guess as to what precisely Mr Aroy meant by “a high likelihood of success”.

461 As a consequence, it is apparent that the conclusion expressed in the first sentence of [72] fails to connect the opinion of Mr Aroy with his own specialised knowledge. The evidence does not demonstrate that his opinion is based on his own specialised knowledge; *Dasreef* at [41].

462 Further, I agree with the submission made on behalf of the University that the admission of the evidence would be prejudicial to the University. In *Museth*, McDougall JA said at [42] (Gleeson JA and Barnett AJA agreeing):

In my view, purported expert opinion evidence should not be admitted unless the requirements of s 79(1) are proved or conceded. If evidence is admitted without those requirements being proved or conceded, the opposing party is placed in a most invidious situation. Counsel for that party has two choices: to test the evidence, and risk in effect making good its defects; or not to test it, and take the risk that the trial judge might find it persuasive. In my view, it is grossly unfair to put a party in that situation. If parties and their legal advisers cannot ensure that purported expert opinion evidence meets the basic requirements for admissibility, the consequences should fall on them, not on the other party.

See also *Rolleston* at [25] - [34] (Emmett AJA, Beazley P and Meagher JA agreeing).

463 As a consequence, my rejection of this paragraph was both because it failed to satisfy the requirements of s 79 of the *Evidence Act* and also that its admission should be refused because its admission would be unfairly prejudicial to the University pursuant to s 135 of that Act. As a result of the rejection of this paragraph, the parties agreed upon the effect of this ruling on other parts of the report, with the result that the entire first report was rejected. The second report of Mr Aroy was not read. Accordingly, the lost opportunity claim was abandoned.

##### 9. COPYRIGHT INFRINGEMENT: INTRODUCTION

###### 9.1 Introduction to the copyright claim

464 ObjectiVision pleads in its cross claim that it is the owner of copyright in OPERA v2.3 and that the University infringed that copyright, in breach of s 36(1) and/or s 38(1) of the ***Copyright Act*** *1968* (Cth), by :

(1) at various times from July 2007 until April 2011, reproducing it into AccuMap 1 devices held by it (**the AccuMap 1 infringement claim**);

(2) reproducing OPERA v2.3 in a material form by creating the TERRA software (**the TERRA infringement claim**);

(3) selling or offering for hire or sale electronic articles in the form of TERRA to Visionsearch in about April 2011, for a purpose that affects prejudicially the rights of ObjectiVision; and

(4) providing a copy of TERRA to Visionsearch in circumstances where it knew or ought to have known no there was no licence between ObjectiVision and Visionsearch and thereby authorising Visionsearch to infringe.

465 ObjectiVision pleads that Visionsearch also infringed copyright in OPERA v2.3: first, in further developing TERRA after April 2011 and thereby reproducing in a material form a substantial part of OPERA v2.3; secondly, from April 2011, by reproducing the TERRA software in the Visionsearch 1 device; and thirdly, by selling or offering for hire or sale systems containing the TERRA software (**the Visionsearch infringement claims**).

466 The University and Visionsearch defend the infringement allegations on the basis that ObjectiVision has not established authorship, ownership, or subsistence of copyright in OPERA v2.3 and because ObjectiVision has not established that TERRA reproduces OPERA v2.3 in a material form. They also contend that ObjectiVision has not made out the requirements of s 38 of the *Copyright Act*.

467 In its evidence in chief ObjectiVision relies on the expert report of Mr Zeidman of 17 November 2015. Mr Zeidman was supplied with the pleaded copyright work in an electronic file “FEB\_Last OPERA v2.3” (**final OPERA v2.3**) which was the subject of his report, where he compared that with TERRA (**Zeidman Report**). It was this material to which the experts retained by the University and Visionsearch (Professor Zobel and Dr Dart) replied. There is no dispute that the final OPERA v2.3 represents the copyright work in suit.

468 Although ObjectiVision commenced the proceedings with a very substantial claim for damages for infringement of copyright, by the time of closing submissions that claim was not pressed, and the copyright infringement case is pressed on the basis that ObjectiVision is entitled to nominal damages and declaratory and injunctive relief.

469 Before addressing the parties’ contentions in relation to the ownership and subsistence of the copyright work, it is convenient to refer to some relevant propositions of law and make findings concerning the development of the software and the nature and identity of the work in suit. The University and Visionsearch largely adopt each other’s submissions and for convenience, unless otherwise noted, are referred to as “the University”.

###### 9.2 Legal propositions

470 Part III (ss 31 – 83) of the *Copyright Act* provides for the subsistence of copyright in “works”, including “literary works”, which are “original”. Copyright in the case of a literary work includes the exclusive right to reproduce the work in a material form (s 31(1)(a)(i)). This includes reproduction of a “substantial part of the work” (s 14(1)(a)). Copyright in a literary work is infringed by a person who, not being the owner and not having the licence of the owner, does in Australia, or authorises the doing in Australia or any act comprised in the copyright: s 36(1).

471 The “author” of a literary work and the concept of “authorship” are central to the statutory protection given by the *Copyright Act*: ***IceTV*** *Pty Limited v Nine Network Australia Pty Limited* [2009] HCA 14; 239 CLR 458at [22] (French CJ, Crennan, Kiefel JJ) and [97] (Gummow, Hayne and Heydon JJ). Original works emanate from authors. The question concerning originality is whether the work originated from the author in the sense that it was not copied by the author. That question is directed to the work to which it is said the legislation attributes copyright protection: ***Dynamic Supplies*** *Pty Ltd v Tonnex International Pty Ltd* [2011] FCA 362; 91 IPR 488 (Yates J) at [48] and the cases cited there. In the present case, the relevant copyright work that is the subject of the infringement claim is final OPERA v2.3, a “computer program”, the form and characteristics of which are identified in section 9.4 below.

472 Section 10(1) supplies a definition of “computer program”:

***computer program*** means a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result.

473 In ***Data Access*** *v Powerflex Services* [1999] HCA 49; 202 CLR 1 the High Court (Gleeson CJ, Gaudron, McHugh, Gummow and Hayne JJ) considered, in relation to an earlier definition of computer program in the *Copyright Act* (at [54]):

It is the particular selection, ordering, combination and arrangement of instructions within a computer program which provide its expression. A computer program in a particular language may be relatively inefficient because it uses many instructions to achieve the function that a single instruction could achieve. A computer program in a particular language may also operate relatively inefficiently because of the way it is structured, in terms of the ordering of the instructions and the sequence in which they are executed. Considerations of efficiency are largely a function of the particular language which is used. It is the skill of the programmer in a particular language which determines the expression of the program in that language.

474 In *Data Access,* the High Court said in relation to the nature of copyright in a computer program (at [85]):

In order for an item in a particular language to be a computer program, it must intend to express, either directly or indirectly, an algorithmic or logical relationship between the function desired to be performed and the physical capabilities of the “device having digital information processing capabilities”. It follows that the originality of what was allegedly taken from a computer program must be assessed with respect to the originality with which it expresses that algorithmic or logical relationship or part thereof. The structure of what was allegedly taken, its choice of commands, and its combination and sequencing of commands, when compared, at the same level of abstraction, with the original, would all be relevant to this inquiry.

475 Section 32(1) of the *Copyright Act* relevantly provides that copyright subsists in an originalliterary work that is unpublishedand of which the author was qualified at the time when the work was made,or, if the making of the work extended over a period, was a qualified person for a substantial part of that period. There is no dispute that final OPERA v2.3 was not a published work.

476 The “author” is to be understood as the person who brings the copyright work into existence in its material form: *IceTV at* [98]. Where a literary work is brought into existence by the efforts of more than one individual, it will be a question of fact and degree which one or more of them have expended sufficient effort of a literary nature to be considered an author of that work within the meaning of the Act: *IceTV* at [99].

477 While the *Copyright Act* speaks of “the author”, it affords protection to works of “joint authorship” by operation of ss 78 – 83. The term is defined in s 10(1):

***work of joint authorship*** meansa work that has been produced by the collaboration of two or more authors and in which the contribution of each author is not separate from the contribution of the other author or the contributions of the other authors.

478 In *Dynamic Supplies*,Yates J said at [53]:

This definition makes it clear that collaboration and contribution are the central underpinning characteristics of a work of joint authorship. It also makes it clear that the contribution must be of a special type: it must be “not separate” from the contribution of others properly considered to be authors. The precise additional limit intended to be imposed by that requirement is not clear.

479 Each author of a work of joint authorship is conferred with ownership of the copyright subsisting in that work: ss 78 and 35(2); ***Milwell*** *Pty Ltd v Olympic Amusements Pty Ltd* [1999] FCA 63; 85 FCR 436 (Lee, Von Doussa and Heerey JJ)at [32].

480 In order to be a joint author, all collaborators must make some contribution to the literary work. The question is whether the contribution is of the right kind of skill and labour and in a sufficient amount to warrant the description as authorial. As couched by the authors of *Copinger and Skone James on Copyright* (Sweet and Maxwell, 16th ed, 2011) at 4-35, in the context of the similarly worded s 10(1) of the Copyright, Patents and Designs Act 1988(United Kingdom), the question is whether the collaborator takes a part in producing the matter which is the subject of copyright. This may be considered by having regard to four elements: (1) the collaborator must make a contribution of some sort; (2) it must have been significant; (3) it must have been original; and (4) it must have been a contribution to the creation of the work. In relation to the requirement of collaboration the authors note, consistent with the definition in the *Copyright Act*,that the work of the authors must be in prosecution of a joint design or joint labouring in furtherance of a common design (at 4-36).

481 In *IceTV* French CJ, Crennan and Kiefel JJ observed of the requirement that copyright subsist in a work which is original (citations omitted, emphasis in original):

33 The requirement for copyright subsistence that a literary work be “original” was first introduced into the *Copyright Act 1911* (Imp), although it had already been recognised at common law. Originality for this purpose requires that the literary work in question *originated* with the author and that it was not merely copied from another work. It is the author or joint authors who bring into existence the work protected by the Act. In that context, originality means that the creation (i.e. the production) of the work required some independent intellectual effort, but neither literary merit nor novelty or inventiveness as required in patent law.

34 There has been a long held assumption in copyright law that “authorship” and “original work” are correlatives; the legislation does not impose double conditions.

482 Accordingly, the question is not the novelty or the worth of the thought which a person injects into their work, but whether the expression is original. As Dixon J said in *Victoria Park Racing & Recreation Grounds Co Ltd v Taylor* (1937) 58 CLR 479 at 511, “…[t]he work need show no literary or other skill or judgment. But it must originate with the author and be more than a copy of other material”. For copyright to subsist in a work, one or more authors must have expended sufficient effort of a literary nature directed at the form of expression of the work (*IceTV* at [42] and [99]). The form of expression of the work must be the result of particular mental effort or exertion by the author/s and cannot be essentially dictated by the nature of the information; *Fairfax Media Publications Pty Ltd v Reed International Books Australia Pty Ltd* [2010] FCA 984; 189 FCR 109at [30] (Bennett J).

###### 9.3 The development of the different versions of OPERA

483 The evidence enables the following findings of fact to be made concerning the path to the creation of OPERA v2.3.

484 When Associate Professor Klistorner and Professor Graham decided in 1998 to build a machine that could perform mfVEP, they wanted to create a system that could use off-the-shelf hardware and bespoke software that did not infringe the stimulus method patented by Dr Sutter. Dr Kozlovski wrote the software for the first system in return for shares in ObjectiVision. This involved the writing of a pseudorandom sequence that could be used as the stimulus for the machine, and which did not infringe Dr Sutter’s patented sequence. Dr Malov was recruited to write this aspect of the software, as he had experience with pseudorandom sequences from prior work that he had done on Russian military communications systems. It took Associate Professor Klistorner about 6 months of working with Dr Kozlovski most nights, to come up with a working version of the software for the first mfVEP system that could do recordings using Dr Malov’s stimulus. The software incorporated the stimulus, asymmetry analysis, and a normative database.

485 The work done by Dr Kozlovski and Dr Malov was pursuant to consultancy agreements with ObjectiVision dated 17 May 2001, each of which included an acknowledgement that all rights in any intellectual property created or developed by them in the course of their engagement would be owned by ObjectiVision.

486 In the development of the software extending from 1998 until 2008 a common feature was the instruction provided by Associate Professor Klistorner, who provided detailed instructions to the software programmers of what he wanted the software to do and which parameters he wanted to be adjustable, such as type and frequency of stimulation, data acquisition and data analysis. These were parameters determined by his research, and were not software specific. Often this followed a trial and error approach, which involved him working with the programmers who were creating the code in order to find a solution that met the clinical or research aim that he sought.

487 When the AccuMap 1 was launched in mid to late 2001, the software used in it was the first version of OPERA. The taking of records using the software was described in a Product Guide, which was written by Professor Graham:

The AccuMap employs a spread-spectrum technique using families of binary sequences to drive the visual stimulus. Two opposite checkerboard pattern conditions undergo pseudo-random binary exchange at each of 58 sites in the visual field. Each input (stimulation site) is modulated in time according to a different sequence... The technique permits computation of the resulting signal by cross-correlating the response evoked by the sequence stimulation with the sequence itself. Short sequences of 4096 elements are used, which result in 55 seconds of recording time for each run. Further runs then use different sequences for the same stimulation site to reduce the potential for cross-contamination. Results can be viewed on the screen after each run, averaged on-line and recording ended when the signals are stable.

488 After referring to the visual stimulus, a version of which is set out in Figure 2, the Product Guide says:

The segments are cortically scaled with eccentricity to stimulate approximately equal areas of cortical (striate) surface. This scaling produces a signal of similar amplitude from each stimulated segment. Each segment contains a checkerboard pattern (16 checks) and the size of individual checks is proportional to the size of the segment and therefore also dependent on eccentricity.

489 The signals for the AccuMap 1 were captured using gold cup electrodes which were clipped into four electrode plugs placed on the head. Raw trace data were analysed using the OPERA software.

490 In about mid-2001 Mr Newton, then the CEO of ObjectiVision, decided to redevelop the software originally written by Dr Kozlovski and Dr Malov.

491 In July 2002 ObjectiVision engaged a software company, PMP, to assist in the development of the upgrade of the core software used for AccuMap 1. The existing OPERA software, named “Orienteer” (OPERA v1), was replaced by “Orienteer Upgrade” which became the first iteration of OPERA v2. PMP was to engage Nick Haan (development manager), Alex Osmakoff (technical solution design), Lance Lenehan, Jordan Langholz, and Jeff Walters (software programmers) to assist. Associate Professor Klistorner gave instructions to PMP in the preparation of the software. The existing contractors, Dr Kozlovski and Dr Malov, were also to have “significant involvement” in the project. Pursuant to the terms of an agreement between ObjectiVision and PMP, all rights in any intellectual property created or developed by PMP were to be the exclusive property of ObjectiVision.

492 Mr Langholz is the only person from PMP who gave evidence about the code writing that it did. He said in his evidence that between mid-2002 to about July 2003 he worked as the lead developer on the graphical user interface (**GUI**) for OPERA v2. This was used to display what the user and operator of the AccuMap product saw on the screen, and also to display a stimulus pattern to the patient. Mr Langholz worked with Mr Ben Tolputt and Mr Jeff Walters, who were either employees or contractors working for PMP. His evidence was that his work on the GUI was on re-designing what the user and operator saw on their screens based on a design created by ObjectiVision, and to display a stimulus pattern to the patient in the correct order and timing as specified by the researchers. In this regard he noted that OPERA v1 used a black and white pattern stimulus, and that a patent addressed the sequence of how the stimulus was displayed to the user. A problem with OPERA v1 had been that the machine could not display the frames of the stimulus sequence at a quick enough speed, and as a result the test had to be run multiple times. PMP was tasked to ensure that the stimulus was displayed in such a way as not to skip display frames. Once the stimulus was being properly displayed in OPERA v2, PMP had to ensure that the number of test runs required was at an expected level. In performing his work, and in supervising the work of Mr Tolputt and Mr Walters, Mr Langholz did not recall seeing OPERA v1 being run, but rather developed a new GUI implementation for OPERA v2, which was written “virtually from scratch”. Insofar as the GUI implemented the pattern, the input from the user was recorded and subsequently fed into an analysis algorithm, and the algorithm would produce a result.

493 Mr Langholz gave evidence that OPERA could be divided into two parts: the GUI and the mathematical part. He was not involved in the latter, which was responsible for processing brain activity signals as captured by the headpiece worn by the patient and analysing those signals to produce a conclusion. Dr Alex Osmakoff was responsible for that work, so far as Mr Langholz could recall, although he could not say exactly what Dr Osmakoff did, or venture an opinion as to the extent to which the rules or algorithms in the earlier OPERA version 1.3.25 were utilised. He gave the opinion, which I accept, that the work of Dr Osmakoff required the writing and implementation of source code for the processing and analysis algorithms responsible for processing brain activity signals. Whilst Mr Langholz did not observe Dr Osmakoff at work, his evidence is that he interacted with him to call mathematical routines from the GUI, which in my view necessarily involved some level of collaboration between the two.

494 On 28 May 2003 Dr Osmakoff entered into a consultancy agreement with ObjectiVision which included an acknowledgement that all rights in any intellectual property created or developed by him in the course of his engagement will be owned by ObjectiVision.

495 On 24 July 2003 a detailed draft “**OPERA 2** **Software Design Document**” was prepared for ObjectiVision which names as its authors various representatives of PMP, Dr Osmakoff and Dr Kozlovski. It describes the history of the development of the OPERA software to date as follows:

**Historic OPERA versions**

OPERA V2.2 is a major update from the previous commercial version V2.1. This release uses new hardware configuration and [is] significantly enriched with functionality.

OPERA v2.1 was a commercial release of OPERA Orienteer Upgrade that despite the name, was actually a completely new system, built from the ground up for the new Win32 operating system platform. The last version of the OPERA Orienteer code-base, production version 1.3.25 was used for reference purposes as the definitive specification for business rules and algorithms. The OPERA 1.3.25 branch will be archived upon release of the Orienteer Upgrade product.

496 Having regard to the named authors and also the recognition by Associate Professor Klistorner in his affidavit evidence that this was a document to which he contributed, I consider that this is a reliable source of information as to the developmental status of the various versions of OPERA. In cross-examination Mr Langholz accepted the accuracy of the third sentence quoted. Mr Zeidman relied in his expert report upon a diagram of the system overview provided in this document as an accurate description of the final OPERA v2.3 software without demur from Dr Dart and Professor Zobel. Furthermore, Mr Cheng identified this document as describing the structure and functionality of OPERA 2.0. Although Mr Cheng had no relevant expertise to give evidence about the operation of the software, taken with the other evidence to which I have referred, and the fact that his statement to this effect was made without objection, I consider that this is material. I return to the OPERA 2 Software Design Document further below. I note that there is a later version of this document, called the OPERA 2.1 Software Design Document. It is dated 15 June 2004. However, the 2003 OPERA 2 Software Design Document was the one predominantly referred to in submissions and I am satisfied from my review of the later version that the key elements and underlying structure of OPERA appear to be the same in both.

497 The arrangements between ObjectiVision and PMP continued until about July 2003, and thereafter Dr Osmakoff remained with ObjectiVision as a consultant. Weekly activity reports available in the evidence up until May 2004 indicate that Dr Osmakoff was actively involved in writing code for various software modules concerning mathematical aspects of the software, including “trace calculation” “raw data scaling” “general algorithms”, and “low frequency removal” modules.

498 Evidence in the form of a screenshot of OPERA as it would appear when first opened on a computer, and the cover of a compact disc, supports the conclusion that OPERA v2.0.1 and OPERA v2.1.1 were commercially released for use in the AccuMap 1, at least by 2002 and 2004 respectively. The evidence of sales of AccuMap 1 devices to which I have earlier referred indicates that units were sold between May 2002 and October 2005 and that from 2003 an AccuMap 1 device was in use by the University at the SSI. These matters enable me to conclude that the version of OPERA that was available on the AccuMap 1 (being a version earlier than OPERA v2.2) was published.

499 In late 2003 or early 2004 Associate Professor Klistorner asked Mr Newton whether it was possible for a research version of the OPERA software to be developed for him to use in his research with the University and to test ideas and improvements to the software and the AccuMap machine. He recalls that Mr Newton assented to this proposition. As a result, ObjectiVision developed a standalone version of the OPERA software that he referred to as “OPERA Research”, which was the subject of ongoing work. Ultimately, it is the final version of this software that was delivered to Mr Zeidman and formed the basis for ObjectiVision’s infringement case and which I refer to as **final OPERA v2.3**, and the version that was under development as **OPERA v2.3**. As “OPERA Research” was used by Associate Professor Klistorner to refer to different versions under development, including v2.1, v2.2 and v2.3, I also occasionally use that term below. From time to time it appears that the version under development was referred to as OPERA v2.2, although the evidence indicates that it was the same software under development.

500 I have noted earlier that in early 2005, work on the development of the AccuMap 1 ceased and ObjectiVision turned its focus to developing the various AccuMap 2 prototype devices. The version of OPERA that was used in the commercial release of the AccuMap 1 was put, as Mr Alkhimov colourfully described it, on “cold freeze” subject only to fixing glitches and bugs for customers (in other words, the source code could not be changed except for those purposes). The development work on code from that date proceeded on the “Research” version of the OPERA software, OPERA v2.3, under the guidance of Associate Professor Klistorner. As I have noted earlier in these reasons, in mid-2006 ObjectiVision moved its servers and AccuMap prototypes to Associate Professor Klistorner’s office and lab at the SSI. This is where the development work was conducted until 2008.

501 In about November 2005, Mr Vas Osmakoff, who was a recent science graduate, assisted his father Dr Osmakoff in writing code for ObjectiVision. In reports to the Board, Mr Cheng refers to engaging him as a stop-gap measure until March 2006.

502 Dr Osmakoff finished working at ObjectiVision at some point in 2006.

503 On 6 February 2006 Vicente Miguel Alvarez was retained by ObjectiVision to provide software development services. He is said to have entered a consultancy agreement with ObjectiVision which included an acknowledgement that all rights in any intellectual property created or developed by him in the course of his engagement would be owned by ObjectiVision. Mr Alvarez remained with the company until March 2007.

504 Upon his departure, Mr Alvarez prepared a handover note that described the state of the software that he had been working on. It describes work that he did and projects that he was working on from February 2006 until February 2007 and provides information indicating that he had a detailed involvement in the development of the software.

505 On 16 January 2007 Mr Alkhimov began to work at ObjectiVision at first on a one-week trial and then on a longer term basis. Initially he was tasked with fixing bugs or errors in the source code of OPERA. He noted that the software was written in C++ language. When Mr Alkhimov started at ObjectiVision he worked at the SSI, which was located at the Sydney Eye Hospital with Associate Professor Klistorner. Physically, there were three rooms: Associate Professor Klistorner’s office, an adjacent office where Mr Alkhimov worked which contained prototypes for the development of the AccuMap 2, and a separate room down the hall with an AccuMap 1, which was used for clinical work and research.

506 The terms of Mr Alkhimov’s engagement at ObjectiVision are controversial, and are discussed in more detail in the context of copyright ownership.

507 Mr Alkhimov’s first task was to address a loss of synchronisation issue, which was that the stimulus sequence displayed on the screen viewed by the patient was not synchronised correctly with the signal being received from the patient readings. This was one of the issues identified in Mr Alvarez’s handover note. Mr Alkhimov explains that for an mfVEP device to work, the visual stimulus sequence on the screen must be perfectly synchronised with the signal data being received from the patient, so that the correct visual nerve response can be calculated. It took him about 3 days to fix this problem, which he found was not concerned with the software, but rather with the design of the architecture of the system in that the stimulus presentation and the patient data acquisition were dependent on each other and one would not start without the other finishing. He fixed the problem as it then arose by making the two processes independent of each other. It will be recalled that synchronisation was a problem that bedevilled the development of the AccuMap 2, and remained an unresolved issue in 2010. In the March 2010 Technical Assessment report, “frame synchronisation” is listed as a deficiency, with the recommendation being “fully analyse frame synchronisation between components, requires full system investigation”.

508 Mr Alvarez left ObjectiVision in March 2007 and thereafter Mr Alkhimov was the only developer working on the software. He made ad hoc changes to the software based on instructions he was given by Associate Professor Klistorner from time to time. Often they concerned the visual stimulus generated on the patient’s screen. Mr Alkhimov wrote code to change the stimulus, compiled it into an executable file (being a file that the computer’s processor can directly execute) and then gave it to Associate Professor Klistorner to test. Mr Alkhimov worked on the whole of the OPERA v2.3 software while he worked at ObjectiVision and modified a large percentage of it. He modified certain aspects of the user interface/GUI and estimates that he experimented with 80% to 90% of the data processing, internal functionality and visual stimulus modules, although not all of his changes were saved or recorded. As a result of his work, he came to know the operation of the software thoroughly.

509 Mr Alkhimov considered that the source code for OPERA v2.3 was convoluted and complicated, particularly in the way different modules were connected and interacted with each other. This, he considered, was partially because multiple developers had worked on it and also because Associate Professor Klistorner’s requirements changed frequently. He considered that the source code was large, and bigger than anything else he had worked on at the time.

510 The evidence enables me to make the following specific findings about the versions of OPERA:

(1) A first version of OPERA (OPERA v1) was written by Dr Kozlovski and Dr Malov to operate an early model of the AccuMap 1 that was launched in mid to late 2001 and

(2) escribed in the Product Guide referred to above. This version of OPERA was used in early AccuMap 1 products.

(3) There were apparently different and later releases of OPERA v1. The OPERA 2 Software Design Document refers to OPERA v1.3.25 as “the last version of the OPERA Orienteer code-base”. The evidence, and ObjectiVision’s submissions are silent as to how, when, and by whom this version was developed. However, PMP was not involved in it.

(4) In July 2002 PMP was engaged to develop Orienteer Upgrade, which was the first OPERA v2. The OPERA 2 Software Design Document describes version 2.1 as “a completely new system, built from the ground up for the new Win32 operating system platform”. The old version 1.3.25 was archived. This description indicates, and I find, that the code for OPERA v2.1 was written afresh and not copied from Version 1. Mr Langholz and others from PMP were involved in writing v2.1 as well as Dr Osmakoff.

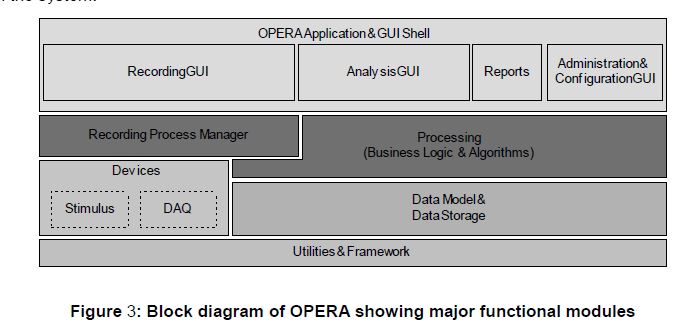
(5) OPERA v2.0 and v2.1 were apparently the subject of a commercial release for use in AccuMap 1. In evidence is a screenshot of OPERA as it would appear when opened on a computer, which says “OPERA 2.0.1.236”, bearing the copyright “C” in a circle with the name of ObjectiVision and the year 2003, and AccuMap branding at the top of the screen. There is also a cover of a compact disc entitled “AccuMap” and bearing the words “OPERA 2.1.1 update” together with the copyright “C” in a circle and the name of ObjectiVision and the date “June 2004”.

(6) OPERA v2.2 was to be released with AccuMap 2 and was also referred to as “OPERA Research” by Associate Professor Klistorner. It was under development from the time of PMP’s involvement until February 2008 and at some point became referred to as OPERA v2.3. The OPERA 2 Software Design Document indicates that version 2.2 was a “major update” from OPERA v2.1, using new hardware and “enriched functionality”, although it retained the structure of v2.1. OPERA v2.3 was never publicly released and is the version that was involved in the development of the AccuMap 2 prototypes.

###### 9.4 Identification of the copyright work: final OPERA v2.3

511 I briefly summarise the content of final OPERA v2.3 before turning to the relevant ownership and subsistence issues. As a preliminary point, I note that there is a shortage of expert evidence addressing the overall structure and design of final OPERA v2.3. ObjectiVision sought to adduce evidence from Mr Cheng going to this subject, but it was inadmissible because he was not shown to have the relevant skills or experience necessary to give evidence connecting particular functions with aspects of the software described in the documentation.

512 The overall structure of final OPERA v2.3 was depicted by Mr Zeidman by reference to a diagram that he adapted from the OPERA 2Software Design Document. The adapted form of diagram is said to be confidential, and is attached as confidential Annexure A to Mr Zeidman’s report, but the original figure is not, and is reproduced below:

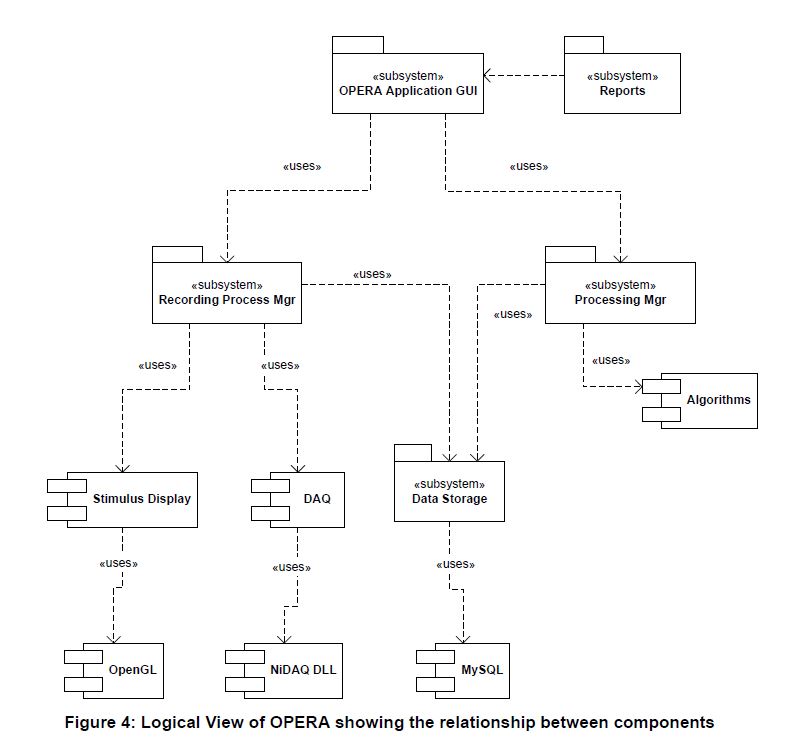


**Figure 5.** Block diagram of OPERA showing major functional modules.

513 The commentary in the OPERA 2 Software Design Document states as follows:

Though OPERA software remains [sic, retains] the structure of its predecessor version 2.1 it significantly enhances it functionally. The main VEP test receives reengineered stimulus display that increases response amplitudes in 3 – 4 times. Variation of VEP: Blue-yellow VEP was added to allow (SASHA add here). Significantly improved latency calculation algorithm allows receiving accurate results proved to be priceless in Multiple Sclerosis treatment and monitoring. Finally ERG tests are now also implemented that makes ACCUMAP a universal instrument for visual field practice and research.

514 The fact that the OPERA 2 Software Design Document is a draft is demonstrated by the parenthetical comment, and signifies the caution with which the document should be treated as providing information as to the final form of the OPERA v2.3. Nevertheless, it is convenient to proceed to describe a little more of the contents of the document.

515 The structure of OPERA as described in the OPERA 2 Software Design Document was said to be designed to be modular, with successive layers of components building upon functionality provided at lower levels. The figure below is said to depict the logical relationship between the major software components:

**Figure 6.** Logical View of OPERA showing the relationship between components.

516 According to the OPERA 2 Software Design Document, the OPERA modules identified in Figure 5 are divided into three layers. A “base layer” of the system (represented as the two lowest rows in Figure 6) includes data storage and device input/output interfaces with the various hardware components. A “business rules layer” (represented by the row above that (including “algorithms”) in Figure 6) is said to encapsulate all of the transformation and processing logic of the system. A “presentation layer” (represented by the top row in Figure 6) is said to provide all of the user interface logic, and include the GUI screens and reports. They are said to be platform specific.

517 The expert evidence reveals that final OPERA v2.3 consists of 993,582 lines of code of which about 818,000 lines represent code written or owned by third parties and which may be called “third party proprietary code”, and about 175,000 lines represent bespoke code.

518 The overall structure of the software set out in Figure 5 indicates the working interrelationship of the various modules within it. It is a large piece of software. As Mr Alkhimov said in his evidence, the source code was the result of different modules being written to connect and interact with each other. In order to edit or add to existing source code it was necessary for him (and, I infer, other software writers) to be sufficiently familiar with the existing code to ensure that any new work done on it was able to interact with the existing code, whether the new work consisted of adding features, editing them or deleting them. The outcome of any contribution of code or editing work was a combination of the existing source code with whatever changes had been made to it by the development work.

519 The logical structure of the final OPERA v2.3 as defined in figures 5 and 6 has successive layers of components building upon the functionality provided at lower levels. For example, the work done by Dr Osmakoff on the mathematical or algorithmic aspects of the software interrelates with the work performed by Mr Langholz, who worked with his colleagues at PMP on the GUI aspects of the software. As Mr Langholz said, the mathematical part of the software was responsible for processing and analysing the brain activity signals as captured by the headpiece worn by the patient. He was responsible for producing the GUI. The GUI, amongst other things, generated the stimulus on the patient screen that in turn prompted the subject’s eye to respond, which yielded signals captured on the headset as brain signals. In this manner it may be seen that the final OPERA v2.3 software operated as an integrated work, in which each of the functions identified in one or other of the modules has a role to play in producing an outcome. This requires it to interact with the hardware of the AccuMap product and other modules within the architecture of the software.

###### 9.5 The development of TERRA

520 It will be recalled that in October 2008 Mr Cheng collected the ObjectiVision computer equipment from the SSI.

521 In 2008 Mr Alkhimov was working on some code that was called the **Recalculation Software**. In his evidence he explains why. OPERA v2.3 did not have an option to allow Associate Professor Klistorner to exclude bad recordings from a patient’s tests. Mr Alkhimov explained that OPERA did not keep intermediate results (the average of each of the traces from the runs recorded so far) – it only showed final results (the average of all the traces from the runs recorded), and only for one of the four channels recorded. Therefore, OPERA v2.3 could not recalculate data controllably by removing a bad recording and running the data processing again, with or without the different parameters. As Associate Professor Klistorner needed 8 to 12 runs to get a good recording of a patient, one bad reading could destroy a whole set of runs, and the whole set would have to be performed again. Because of OPERA v2.3’s inability to exclude bad recordings, Associate Professor Klistorner asked Mr Alkhimov to design new software to do this. Mr Alkhimov developed the Recalculation Software as a separate, standalone piece of software, not incorporated into OPERA v2.3. Mr Alkhimov described it as a new project in MS Visual Studio in C# language, and says that it was “started from scratch”. OPERA was written in C++ language.

522 In his evidence in chief, Mr Alkhimov could not recall whether he started working on the Recalculation Software before or after Mr Cheng collected the source code for OPERA v2.3 (along with ObjectiVision’s computer equipment) in October 2008. If it was before, he accepted that it was possible that he looked at the OPERA v2.3 source code when writing it, or copied “bits and pieces” of it into the Recalculation Software. As will be seen, this is of some significance, because in one aspect of its case, ObjectiVision contends that the infringing TERRA work arises from the Recalculation Software. Mr Alkhimov considered that he was likely to have kept the Recalculation Software with him at the SSI after Mr Cheng had taken the ObjectiVision materials away, because it was a separate project that he was working on, and not OPERA v2.3.

523 Mr Alkhimov continued to work intermittently on the Recalculation Software, which he considered was never satisfactorily completed, at least until the end of 2010. In an email dated 31 December 2010 he refers to a file of an executable file named as “OPERA\_Demo\_latency\_recalc.exe” as the Recalculation Software. He explains in his evidence that this file name was chosen in the application of a convention that he applied at the time whereby “OPERA Demo” was used to refer to any piece of software that was compiled which could not do its own recordings, but was designed to work with existing patients’ data from the OPERA database (of recordings recorded by the AccuMap 1 machine) and process that data. By the time Mr Alkhimov came to prepare his evidence in chief in 2016 he no longer had a copy of the Recalculation Software and none has been supplied in discovery.

524 At about the time when Mr Cheng removed the ObjectiVision materials from the SSI offices, Associate Professor Klistorner asked Mr Alkhimov to begin development of a new mfVEP software program. Associate Professor Klistorner told Mr Alkhimov that he was 2 years into his 5-year research plan, and that he needed compatible mfVEP software to do recordings and process the resulting data for at least 3 more years to be able to complete his research. Mr Alkhimov started developing the new software, TERRA (topographical evoked response recording and analysis), from November 2008. Associate Professor Klistorner acquired a new desktop computer for Mr Alkhimov to use on which he did all of his coding for TERRA.

525 Mr Alkhimov developed TERRA in consultation with Associate Professor Klistorner, who informed him what functionality would be required. He understood that Associate Professor Klistorner wanted TERRA to have the same kind of functionality as OPERA v2.3, “but better”, so that Associate Professor Klistorner could compare and reprocess results that he had previously obtained with the AccuMap 1 machine, and experiment with different and better ways of processing the data and comparing it to the old results. Associate Professor Klistorner regularly gave technical background and updated information used by Mr Alkhimov to assist in the design of TERRA.

526 The development of TERRA was in two phases, the first being to supply it with the functionality necessary to enable Associate Professor Klistorner to compare and reprocess results previously obtained with the AccuMap 1 machine. The second phase was to enable it to work with a new mfVEP device to record its own results, all the while adding new functionality over the AccuMap 1.

527 The second phase began in about mid-2009 when ObjectiVision and the University had parted ways. Associate Professor Klistorner informed Mr Alkhimov that he needed to develop a “proper TERRA” to work with a new mfVEP device to replace reliance on the AccuMap 1 at the SSI that Associate Professor Klistorner had been using for research, since it was quite old and could not be relied upon. This included the creation of the functionality for visual stimulus and recording of patient data while also continuing with work from the first phase of developing the data processing aspect.

528 Mr Alkhimov wrote the code for TERRA in the programming language C#, which he considered to be easier, faster and cheaper to write because it is a higher level programming language. It also allows adjustments to the software to be made more rapidly. Although C++ has a faster execution time once written, Mr Alkhimov considered that the slower speed of C# was not an issue for the processing speed of the TERRA software.

529 When he started working on TERRA, Mr Alkhimov bought a notebookthat he used to record his ideas, workings, calculations and algorithm details for the development of the software. The notebook is dated 2008. In it, he began by putting down the overall structure of the OPERA v2.3 software, because at that point he had no clear instructions from Associate Professor Klistorner as to what he wanted from the TERRA software. I return to this document, which was in evidence, further below.

530 Mr Alkhimov gives evidence that he did not access any version of the OPERA source code in developing TERRA. At the time he did not understand that the SSI had access to any such source code, although he gives evidence that he subsequently found a copy of the source code of OPERA on the back-up hard drive at SSI in late 2010 when he was doing a disk cleaning process on the drive. However, he gives evidence, which I accept, that he did not use the back-up hard drives to develop TERRA. He also did not have regard to any design documentation used for the OPERA software, although he did look at ophthalmology journal articles and other materials supplied to him by Associate Professor Klistorner from time to time.

531 Mr Alkhimov spent about two years writing the code for the data processing parts of TERRA and the code for different versions of the visual stimulus generators, but ultimately it never had the same functionality as OPERA v2.3.

532 In early 2011 Mr Alkhimov was informed by Associate Professor Klistorner about the opportunity to supply mfVEP devices to Biogen. He understood that he was required to develop a machine with software to carry out mfVEP measurements, although the machine would not be required to have all of the functionality that the AccuMap had.

533 The development of TERRA was then transferred to Visionsearch. Mr Alkhimov began work there in May 2011. He took his SSI computer to Visionsearch with all of his TERRA work on it. At that point the TERRA software had about 11,000 lines of code and comprised 16,000 lines in total including comments and formatting.

534 Mr Paul Peterson, who is a computer programmer, systems analyst and project architect, was contracted to assist Visionsearch in the development and commercialisation of TERRA. He had previously, in September 2010, assisted his father Dr Christopher Peterson (a member of the SSI Advisory Board and later a director of Visionsearch) in undertaking a review of the TERRA software in order to assess what needed to be done and how much time it would take to complete it so that it could be used for the Biogen project. In September 2010 he had met with Associate Professor Klistorner and Mr Alkhimov and they had explained to him the intended functionality of TERRA. At that point he sought and received assurances from both that they did not intend to and had not incorporated material that may be the subject of intellectual property rights owned by ObjectiVision.

535 Mr Peterson estimated that the TERRA software had increased in size by about 30% between the time of his review in September 2010 and the time when Mr Alkhimov commenced work with Visionsearch in May 2011. This was as a result of the work done by Mr Alkhimov in the intervening period.

536 On 22 May 2011, Visionsearch began to work on the TERRA software.

537 The first commercial release of TERRA, version 1.5, was completed in November 2011 and included only core recording and viewing functions necessary to start the Biogen trial.

##### 10. COPYRIGHT SUBSISTENCE AND OWNERSHIP

###### 10.1 The arguments

538 ObjectiVision’s case as pleaded is that between 1999 and 2008, various versions of OPERA software were developed including:

(1) OPERA v1.0, which was unpublished;

(2) OPERA v2.0, which was first published in Australia in about June 2003;

(3) OPERA v2.1, which was first published in Australia in about February 2004; and

(4) OPERA v2.2 and v2.3, which were unpublished but were developed from 2004 – 2008.

539 ObjectiVision pleads that Dr Kozlovski and Dr Malov developed software between 1999 and 2003, the PMP employees or contractors from 2001 until May 2003, Dr Osmakoff from 2003 to August 2006, Mr Vas Osmakoff between November 2005 and January 2006, Mr Alvarez between February 2006 until March 2007, and Mr Alkhimov between January 2007 and January 2008.

540 ObjectiVision pleads that final OPERA v2.3 is an original literary work, and that copyright subsists in final OPERA v2.3. It contends that PMP, Dr Osmakoff, Mr V Osmakoff, Mr Alvarez and Mr Alkhimov were first owners of the copyright and that each assigned that copyright to ObjectiVision. By reason of these matters, ObjectiVision submits that it is the owner of copyright in final OPERA v2.3.

541 In closing submissions ObjectiVision contends that where each of a succession of software engineers write amendments or additions to software and each needs to understand what is happening with the rest of the source code, then their collaborative efforts are such as to warrant the description of being a work of joint authorship. It submits that the contribution of each of the developers who worked on the iterative versions of OPERA cannot be meaningfully separated from the contributions of other developers and that as a result, final OPERA v2.3 should be considered to be a work of joint authorship. It relies on a number of authorities, in particular the decisions of the Full Court in ***JR Consulting*** *& Drafting Pty Limited v Cummings* [2016] FCAFC 20; 329 ALR 625 (Bennett, Greenwood and Besanko JJ) at [274] – [284] and *Milwell* at [42], and the survey of authorities and conclusions of Jagot J in ***Sanofi-Aventis*** *Australia Pty Ltd v Apotex Pty Ltd (No 3)* [2011] FCA 846; 196 FCR 1 at [332] – [346], in support of the propositions that not all authors who may have contributed to a work of joint authorship need to be identified, and that where a literary work such as a computer program is created iteratively and collaboratively over time then, despite the fact that the contributing authors are not aware of each other, or of each other’s contributions, nevertheless their work may be regarded to be a work of joint authorship.

542 ObjectiVision submits that the originality and ownership of the OPERA software was established by the presumptions of ownership up to October 2004 (because of evidence, for example, of the CD cover for the released software marking it as copyright to ObjectiVision, October 2004), and the evidence then shows that the substantial further work done is sufficient to establish that final OPERA v2.3 was an original work. OPERA v2.0 and v2.1 were commercially released for use in the AccuMap 1 and ObjectiVision relies on presumptions of ownership and subsistence under s 126B(2) and s 129A of the *Copyright Act* for the iterations of OPERA prepared before then. ObjectiVision submits that the work done after October 2004 was done by Mr Alvarez, Dr Alex Osmakoff, Vas Osmakoff, and Mr Alkhimov. It submits that it has assignments of copyright from Mr Alkhimov and Dr Osmakoff, but not from Vas Osmakoff or Mr Alvarez. However, even if they are regarded as co-owners as a result of the absence of any assignment, ObjectiVision is nonetheless entitled to the relief that it seeks, subject to making an account to the other part owners.

543 In response the University first submits that ObjectiVision has not established that OPERA v2.3 is a work of joint authorship (as opposed to being a series of separate contributions from individual authors) within the definition of “work of joint authorship” under the *Copyright Act* (**joint authorship argument**). In particular, the University submits that the authorities require collaboration in the sense that an author of a piece of text intended that it would be used in the later copyright work, in other words, that there was a “common design that the work be combined”, citing ***Acohs*** *Pty Ltd v Ucorp Pty Ltd* [2010] FCA 577; 86 IPR 492 at [52] – [59], [72] (Jessup J); affirmed on this point on appeal at [2012] FCAFC 16; 201 FCR 173 at [86] (Jacobson, Nicholas and Yates JJ). The University submits that given the paucity of evidence adduced by ObjectiVision, the Court is not in a position to conclude that final OPERA v2.3 is a work of joint authorship. It submits that it is artificial to contend that the contribution of various authors at various different times satisfies the definition of joint authorship. Further, the mere fact that a coder worked on versions of OPERA is not sufficient to show that he or she has made a contribution of a significant part of the skill and labour protected by the copyright that is “not separate” from the contribution of other authors, as required by s 10. Next, it contends that there was no evidence that any of the alleged joint authors save for Mr Langholz were qualified persons at the time of their contribution; citing *Primary Health Care Limited v Commissioner of Taxation* [2010] FCA 419; 186 FCR 301 at [126] (Stone J). The University contends that a conclusion of joint authorship requires the Court to make findings about the identity of the authors, citing *IceTV* at [99], [105], [151] (Gummow, Hayne and Heydon JJ), which it is unable to do in the present case because there are likely to be other authors. As a consequence, it is not possible to determine whether final OPERA v2.3 is an original work.

544 Secondly, the individuals identified by ObjectiVision as authors of final OPERA v2.3 have not assigned title to the copyright to ObjectiVision, and certain individuals identified in the evidence appear to have also played an authorial role such that the absence of any assignment from them is deleterious to ObjectiVision’s claim. As a consequence, ObjectiVision does not have sufficient ownership interest to have title to sue for infringement (**assignment of title argument**).

545 Thirdly, the University submits that the argument based on the presumptions in ss 126B and 129A of the *Copyright Act* is not pleaded and ought not to be available, because had notice been given of reliance on them, the University would have conducted its case differently and in any event is not available as a matter of law. Further, the presumptions do not address the real issue, which concerns the question of authorship (**unpleaded presumptions argument**).

546 Fourthly, analysis of whether a substantial part of a computer program has been reproduced necessarily involves consideration of functionality. Visionsearch submits that sufficient doubt attends the question whether final OPERA v2.3 worked at all, so that it cannot safely be concluded that it falls within the definition of “computer program” at all (**insufficient function argument**).

###### 10.2 Analysis of joint authorship

547 ObjectiVision pleads that the joint authors of final OPERA v2.3 are: Dr Alex Osmakoff; the PMP workers (Mr Langholz, Mr Tolputt, and Mr Walters); Mr Vas Osmakoff; Mr Alvarez; and Mr Alkhimov.

548 I now turn make some further findings relevant to the question of authorship.

549 First, the OPERA v1 is a separate work from OPERA v2. I consider that the statements to this effect in the OPERA 2 Software Design Document to be a reliable source of information on the subject, that document having been created by persons intimately involved in the software project who had expertise to know. That document describes OPERA v2.1 as “a completely new system”. That evidence accords with the evidence of Mr Langholz.

550 Secondly, I am satisfied that Mr Langholz, worked with Mr Tolputt and Mr Walters (also employees or contractors of PMP) on the GUI side of the development of the OPERA v2.1 and v2.2. Mr Langholz gives evidence of having university qualifications and experience as at 2002 as a software programmer. Messrs Tolputt and Walters were each retained by a specialist software firm. I find that all had the skills necessary to understand and write computer software, and that they did so in in collaboration in order to give effect to the GUI aspects of the OPERA software.

551 Thirdly, I find that Dr Osmakoff was responsible for and did write the source code for the mathematical components of the v2.1 and v2.2 software. Whilst in cross examination Mr Langholz fairly accepted that he did not write or stand at the shoulder of Dr Osmakoff when this code was being written, I am persuaded for the following reasons that Dr Osmakoff did not copy the code from version 1, but rather wrote it afresh:

(a) this is in conformity with the OPERA 2 Software Design Document, a document of which Dr Osmakoff was an author. As I have noted, this is a contemporaneous document that provides a clear statement of the history of the software without the fog of time or the forensic contest of the present dispute to cloud the analysis;

(b) it is supported by time sheets and reports supplied by Dr Osmakoff and PMP to ObjectiVision, identifying that he was indeed working on and writing code;

(c) it accords with the evidence of Mr Langholz, insofar as he could give evidence on the subject; and

(d) it accords with the recollection of Associate Professor Klistorner, who gives evidence that Dr Osmakoff spent a lot of time writing the first version of the OPERA Research software (being OPERA v2.1).

552 The evidence indicates that Dr Osmakoff was a software engineer engaged by ObjectiVision who worked in collaboration with the PMP employees and also with Associate Professor Klistorner. I find that he exercised skill as a software engineer in implementing the mathematical components of the OPERA software until he ceased to work with ObjectiVision.

553 Fourthly, after ObjectiVision’s engagement of PMP ceased, Dr Osmakoff continued to work on the software in collaboration with Associate Professor Klistorner until 2006. For a short period, from November 2005 until March 2006, Mr Vas Osmakoff also contributed to the writing of software.

554 Fifthly, Mr Alvarez picked up the task of writing new software for inclusion in OPERA v2.3 from February 2006 until March 2007. His role was to build on and develop the software from the stage left by Dr Osmakoff.

555 Sixthly, Mr Alkhimov then took on that role from February 2007 until February 2008. Mr Alkhimov began by reading into the source code in order to understand it, and running system tests to identify problems. His role then involved altering and rewriting parts of the code in order to achieve the functionality requested by Associate Professor Klistorner. All of his work was on source code that was then to be compiled into object code, and then into executable code and run on a Windows system.

556 Seventhly, I have in section 9.4 above described the logical structure of final OPERA v2.3. It has successive layers, the first being the storage in the database of electrical signals measured by the electrodes on the back of the scalp. The second layer of data production occurs when the signals correlated to the stimulus, for each segment of the visual field, are extracted from the raw data and stored in the database as “traces”. The traces are then analysed and their parameters calculated for the third layer of data production. The recording storage part of the software is central to most parts of the application and the OPERA 2 Software Design Document appears to show that there is a high degree of interaction between different modules and between successive layers of data production.

557 In earlier parts of these reasons I have identified difficulties that beset the production of the AccuMap 2 device. However, there is no doubt that the final OPERA v2.3 was capable of functioning as a set of statements or instructions used in a computer in order to bring about a certain result (s10(1) of the *Copyright Act*). Mr Alkhimov participated in an assessment of the AccuMap 2 prototype in March 2010 in accordance with the terms of the Heads of Agreement. As a software programmer he was interested in whether the compiled software worked correctly, and concluded that it was “generally functional” but not without some problems, such as difficulties with synchronisation and latency that led to about 1 in 100 test runs having signal delay so that the patient’s electrical response was not synchronised with the stimulus display. Problems such as these had an effect on how far the AccuMap 2 prototype was towards being ready for commercialisation, but do not alter the status of the software in it as conforming with the definition of a “computer program” in s 10(1) of the *Copyright Act*. On this basis I reject the insufficient function argument. The words “certain result” in s 10(1) are not to be understood to mean “successful result” in the sense of a commercially useful outcome, as Visionsearch’s submissions suggest. The test work conducted by Mr Alkhimov confirms that the definition is satisfied.

558 A question legitimately arises as to whether or not final OPERA v2.3 is properly characterised as a compilation of separate suites of software or a single joint work; see Draft Report on Computer Software Protection, Copyright Law Review Committee (Canberra, 1993) at 7.04. It must be said that the evidence on this subject was sparse. However, having regard to the description in the OPERA 2 Software Design Document, I am satisfied that it may be regarded as a single work. This accords with the way in which the case was presented.

559 The evidence permits the inference that each member of a group of persons skilled in the writing of C++ code contributed to the writing of final OPERA v2.3 over time. The contributions of Mr Alvarez and Mr Alkhimov cannot be in doubt. The role of Mr Alvarez is clearly explained in the evidence and supported by the contents of his handover note which indicates an intimate knowledge of involvement in the writing of the software. The role of the PMP employees as persons with skills in the writing of source code who contributed to the software is also apparent and may be readily inferred from the content of the OPERA 2 Software Design Document, the time sheets in evidence that identify the work for which ObjectiVision was charged, and the letters of engagement between ObjectiVision and PMP. The same may be said of the work of Dr Alex Osmakoff, whose additional time sheets were also in evidence and whose work was referred to by Mr Langholz.

560 In my view the contributions of the authors so identified in [559] are such that their work can be regarded as falling within the definition of joint authorship in that:

(1) Each makes a contribution to the developing work that reaches culmination in final OPERA v2.3.

(2) In order for each subsequent contribution to the software to function, it must be integrated within the whole, requiring an understanding on the part of the contributor of the necessary interaction with the existing code.

(3) The modules of the code written operate within layers collectively to produce certain required functions for the AccuMap 2 product.

(4) Associate Professor Klistorner was a common instructor throughout, providing information, parameters and reference to the algorithms that contributed to the functioning of the software. Although he could not understand or write source code, and cannot be considered to be an “author”, his involvement throughout the development of the software from 2000 until 2008 provided a degree of cohesion to the development process. By explaining the desired outcomes for the software, he ensured the authors were working toward a common goal and thereby facilitated collaboration between them.

(5) The interconnectedness of the modules, as demonstrated in Figures 5 and 6, is such that final OPERA v2.3 may be considered to be a single literary work, being a single computer program.

(6) The technical requirement intrinsic in the OPERA software was that each successive author of source code had to ensure that their contribution meshed with the existing software, in order to produce a certain result. This involved consideration of each contribution’s role in the architecture of the work as a whole in order for the software to operate. This is a further indication that each contributor has collaborated with the others to produce the ultimate result. These technical requirements, coupled with Associate Professor Klistorner’s overarching guidance toward the common goal of producing a functioning AccuMap 2 product, lead me to the conclusion that each collaborated in the production of the OPERA v2.3 software in a the requisite way despite that fact that not all authors worked on the software at the same time and place.

(7) The contribution of each author to the code is not separate from the others.

561 I consider that the situation described above is quite different to the circumstances set out by Jessup J in *Acohs* at [57] – [59], where the contributions of the persons asserted to be authors was more remote from the final literary work. In that case, there was a question about collaboration between the programmers of the “Infosafe” system, and the individuals who transcribed the relevant data and entered it into the system. The system was programmed so that it would automatically generate source code from certain inputs. The programmers, as Jessup J records, wrote the program which caused the system to operate as it did: to generate source code in response to defined inputs by those using the system. This was quite separate from the work of the transcribers, who entered data without any understanding of the technical task the programmers had carried out.

562 I now turn to the specific arguments raised by the University.

563 It first contends that all joint authors must be identified and proved, and that in order for the Court to conclude that a work is one of “joint authorship” the contribution of each author must be considered because each contribution must be “not separate” from the contributions of other authors. It submits that the fact that various authors worked on versions of the OPERA software at different times is not sufficient, because it is necessary to establish that “any such author worked on OPERA v2.3 in its entirety, rather than on a discrete part of it”. In my view these submissions must be rejected.

564 The statutory definition of “joint authorship” does not require such an approach. The Court must be in a position to conclude that the elements of collaboration and non-separate contribution are present, but there is no obligation for the party asserting joint authorship to tease out in evidence every aspect of the contribution. It is sufficient to conclude, as I do from the proved facts in this case, that the nature, function and structure of the final OPERA v2.3 code is such that it may be inferred that the individuals who contributed to it over time produced a single combined literary work that operated as a set of instructions used in a computer to bring about a result.

565 Further, it is not necessary in every case to identify precisely the contribution of particular, named authors in order establish joint authorship. In *Milwell*, the Full Court of the Federal Court agreed with the trial judge that the works in question (prize scales for poker machine games) were works of joint authorship. In so doing the Full Court, at [42], said (emphasis added):

Milwell advanced an alternative argument that Olympic did not identify the copyright work in its evidence of authorship. Plainly by its pleadings and a statement by its Senior Counsel, Olympic asserted that the copyright work in each case was the “whole prize scale”, but Milwell contends that the evidence filed to prove the reduction to a material form of either of the “whole prize scales” by *any particular author*. The evidence, it must be said, does not expressly or with clarity identify the precise person, place or time when each of the prize scales was first written down, but plainly each was brought into existence and on the evidence no-one other than the mathematicians or employees of Olympic could have been the authors. In the case of Wildcard 5 the evidence established the collaboration of employees of Olympic with Dr Brown in settling on the numbers to be included in the prize scale. *Those numbers, and the prize scale as a whole, reflected the work and skill contributed from both sources, and it was not critical to know whether it was an employee of Olympic who ultimately acted as the scribe to record the result of their collaboration.* In the case of Wildcard 14, however, the evidence leaves little room for doubt that it was employees from Olympic who first reduced it to a material form.

566 In *Fairfax* the question before Bennett J was whether newspaper headlines, newspaper articles including their headlines, the compilation of all articles within an edition of a newspaper (“Article Compilations”), and/or an entire edition of a newspaper (“Edition Works”), attracted copyright protection. At [89] her Honour observed that she was “not persuaded that, where evidence establishes a work of joint authorship, the authors are identified as Fairfax employees holding specified job descriptions and the skill and labour involved in those job descriptions are identified, it is fatal to a claim of copyright that each person making contributions to the contended works is not identified”. However, it was unnecessary for that issue to be resolved one way or another. At [104] – [105] Bennett J held that (emphasis added):

104 The evidence establishes that the Article Compilations and the Edition Works in the June edition and the November edition are original in the sense that these compilations originated from the authors of the work, as opposed to being copied, and also have the character of being produced through the exercise of considerable skill, judgment, knowledge, labour and expense involved in gathering, selecting and arranging the material included in the compilation (*Desktop Marketing Systems Pty Ltd v Telstra Corporation Ltd* (2002) 119 FCR 491 at [160], [409]). Unlike the expression and arrangement of the time and title information in *IceTV*, which was obvious, prosaic and essentially dictated by the nature of the information, the expression and arrangement of the material in the Article Compilation and the Edition Work required particular mental effort or exertion by the joint authors (*IceTV* at [42]-[43]).

105 *Assuming that it is not necessary to identify each and every Fairfax employee who were joint authors of the compilations by name rather than by job description, copyright subsists in the Article Compilation and the Edition Work as original literary works and Fairfax owns the copyright in these works.*

567 In *Sanofi-Aventis*, Jagot J followed *Milwell* in reaching the conclusion that it is not the case that each and every author must be individually identified for there to be a work of joint authorship (at [353]). In this regard her Honour noted the conclusions expressed in *Telstra Corporation Ltd v Phone Directories Co Pty Ltd* [2010] FCAFC 149;194 FCR 142 that identification by name of each and every author is not necessary in order to make out a claim that copyright subsists under s 32(2)(c) of the *Copyright Act*. Keane CJ (as he then was) said at [57] that “what is necessary, however, is that it be shown that the work in question originates from an individual author or authors”. Perram J said at [127]:

All the [Copyright] Act requires in the case of s 32(2) is that there be an original work first published in Australia. The necessity for there to be an original work carries with it the necessity for there to be an author or authors but all that needs to be demonstrated is that such persons exist. Their identification is not legally required by the concept of an original work. The statement by Gummow, Hayne and Heydon JJ in *IceTV* that “[t]o proceed without identifying the work in suit and without informing the inquiry by identifying the author and the relevant time of making or first publication, may cause the formulation of the issues presented to the court to go awry” (at [105]) is, I think, a counsel of wisdom rather than a legal stipulation.

568 These cases indicate it is possible in appropriate cases to ascertain the required degree of collaboration and non-separate contribution by having regard to the nature of the work and the available evidence of the contributions of the persons involved. In the present case each of the people that I have named above, being Dr Osmakoff, Mr Langholz, Mr Walters, Mr Tolputt, Mr Alvarez, Mr Alkhimov, and Mr Vas Osmakoff, contributed to some extent to the writing of computer software over time.

569 The required degree of collaboration and non-separate contribution can be inferred having regard to the nature of the work and the available evidence of the contributions of the individuals involved. Analogies with other forms of literary works are otiose. As literary works that provide a set of instructions to bring about a certain result, computer programs have different characteristics to encyclopaediae, anthologies, music hall works and subsequent editions of legal text books (all of which were referred to in argument). In the present case each of the authors that I have identified above contributed to the writing of the software over a period of time.

570 The University submits that the mere fact that a coder worked on versions of OPERA up to and including final OPERA v2.3, even if proved, would be insufficient to show that he or she has made a contribution which is “not separate” as required by the definition of “joint authorship”. However, in my view this submission is answered by having regard to the matters that I have just mentioned. One may infer from the evidence that on the balance of probabilities the asserted authors wrote source code that was included in one or other parts of final OPERA v2.3. For example, the PMP software developers worked together on the GUI aspect of OPERA v2. Mr Langholz gives evidence that he “worked actively on the source code for the GUI with both Mr Tolputt and Mr Walters”. Their contributions cannot be regarded as separate. Later, Mr Alkhimov describes how, in order to fix the synchronisation problem, he “needed to understand how each part of the software interacted with the other parts”. This weighs against a finding that his contribution as a coder was separate from previous contributions.

571 There is an air of unreality to the submission that because the specific contribution of each alleged author is not defined, the work is not a work of joint authorship. Having regard to the structure and manner of operation of final OPERA v2.3, the more practical conclusion is that it was written over time, iteratively, as one integrated work that provides complex instructions to the computer and achieves a certain result.

572 The University next submits that save for Mr Langholz, there is no evidence that any of the alleged joint authors were qualified persons at the time of their contributions, citing *Primary Health Care Ltd v Commissioner of Taxation* [2010] FCA 419; 186 FCR 301 at [126] (Stone J). This is not sustained as a matter of fact. A “qualified person” for the purpose of s 32 of the *Copyright Act* is an Australian citizen or a person resident in Australia, per s 32(4). In any event, s 82(1) provides that copyright subsists in works of joint authorship without regard to any authors who are unqualified persons, as long as not all of the authors are unqualified. The evidence of Mr Langholz is that the PMP employees worked out of an office in Sydney. I infer that each of the PMP employees was at the relevant time a resident. The documentary evidence indicates that each of Dr Osmakoff, Mr Alvarez and Mr Alkhimov were resident in Australia.

573 The foregoing matters indicate that it may be concluded that final OPERA v2.3 is a work of joint authorship. ObjectiVision’s success on this point does not, however, bring it home in the present case. Unlike *Milwell, Sanofi* and *Nationwide*, it is not the case here that ObjectiVision is the employer, and therefore the first owner of copyright in the work. This gives rise to the question: who were those authors?

574 The University submits that there are likely to be other authors of final OPERA v2.3 additional to those identified by ObjectiVision, naming Lasse Troelsen, Lars Pugholm and Lance Lenehan as people named in correspondence from the solicitors for ObjectiVision in the proceedings as being individuals associated with PMP who contributed to the authorship of OPERA. However, even were the correspondence identified properly to be identified as an admission, I am not bound to accept it: *Lockwood Security Products Pty Ltd v Doric Products Pty Ltd (No 2)* [2007] HCA 21; 235 CLR 173.

575 Mr Langholz gives evidence that Mr Lenehan started in the Orienteer Upgrade Project as lead developer but did not continure after he started work. He appears to have had a role in writing the software. However, neither Mr Troelsen nor Mr Pugholm are identified in the OPERA 2 Software Design Document, the letter of engagement of 25 July 2002 from PMP or any of the invoices supplied in evidence from PMP. Having regard to the whole of the evidence I do not consider it likely that they played a material role in the writing of the software.

576 The University points to other potential authors, being Mr Vas Osmakoff and Mr Sam Klistorner who are identified in the evidence as having made some contribution. Mr Vas Osmakoff worked under the supervision of his father for some 3 months. The role of Mr Sam Klistorner was not explored in any evidence.

577 This leaves, on the available evidence, a pool of authors being Dr Osmakoff, Mr Langholz, Mr Walters, Mr Tolputt, Mr Alvarez and Mr Alkhimov as well as potentially Mr Lenehan, Mr Vas Osmakoff and Mr Sam Klistorner.

578 Regrettably, the evidence does not descend to the level to enable one to make findings to the requisite standard as to which of these later individuals made a sufficient contribution to satisfy the description of a joint author either in terms of the size or originality of the contribution. Copingerstates at 4-35, citing *Brighton v Jones* [2004] EWHC 1157 (Ch) at [34(i)] that the contribution must have been “significant”. It must at least be a contribution to the joint work in the form of contributing to the creation of the work. But in the absence of evidence going to the nature, quantity and form of the contribution made, the Court is left in the invidious position of having to guess at what the contribution may be.

579 I am prepared to infer that Dr Osmakoff, Mr Langholz, Mr Walters, Mr Tolputt, Mr Alvarez and Mr Alkhimov made contributions of the relevant kind. They plainly had the skills to write code and were specifically engaged for that purpose. The ObjectiVision and PMP time sheets, and the OPERA 2 Software Design Document, also support the proposition that they expended skill and effort in writing code for final OPERA v2.3. The evidence does not permit any such conclusion in relation to Mr Lenehan, Mr Vas Osmakoff, and Mr Sam Klistorner. The evidence indicates that each is likely to have made some contribution to writing source code, and so they are possible joint authors. I am simply not in a position to conclude one way or the other on this point. I return to the consequences of this below.

10.2.1 Is final OPERA v2.3 an original work?

580 The University submits that in the absence of evidence from any of the alleged or possible authors, save for Mr Alkhimov, it is not open to conclude that final OPERA v2.3 emanated from each of the alleged authors. It submits in particular that the Court is left entirely unassisted by evidence as to whether the authors expended independent intellectual effort or sufficient effort of a literary nature.

581 I disagree. In my view the evidence demonstrates that the various developers who worked on OPERA v2.3 over a number of years put skill and effort into writing the source code in order to solve problems encountered in the operation of the AccuMap 2 prototype over time. I am satisfied from the evidence that Mr Langholz and others from PMP worked to write source code to that end, as did Dr Osmakoff, Mr Alvarez and Mr Alkhimov. The evidence indicates that specific skills are required to write source code, and that the source code for OPERA v2.3 was bespoke, in the sense that it was designed specifically for purpose. To the extent that it incorporated third party proprietary code, it was necessary to write code to enable it to be incorporated within the structure of the bespoke code.

582 The contribution made by each of Mr Lenehan, Mr Vas Osmakoff and Mr Sam Klistorner is unclear. It is opaque as to whether or not they supplied original work, whether they were sufficiently skilled to author computer code and whether the amount of their contributions was sufficient to warrant the conclusion that they are joint authors.

583 It will be apparent from the foregoing that I do not rely on any presumptions based on s 126B or s 129A of the *Copyright Act.* Had it been necessary for the case advanced by ObjectiVision, I would not have permitted reliance on those presumptions to establish joint authorship or ownership. ObjectiVision has chosen to go into evidence on the question of subsistence of copyright of final OPERA v2.3. Having done so, the question is not to be considered having regard to a hybrid position whereby ownership and subsistence of copyright is to be considered up until October 2004 on the basis of presumptions and then the evidence for the period thereafter. It must in my view be considered as a whole. Furthermore, having gone into evidence on the subject of ownership and subsistence, the University was entitled to conclude, as it did, that ObjectiVision would not rely on any presumptions, especially in the absence of any prior indication that it desired to do so. The University rightly objects to ObjectiVision raising presumptions for the first time in closing submissions when it was deprived of the forensic opportunity to conduct its case so as to rebut the presumptions. Finally, in my view the University is correct to submit that the presumptions arising under these sections do not provide presumptions as to authorship, or joint authorship, which are the issues currently under contention. Accordingly, I accept the University’s unpleaded presumptions argument and set the presumptions aside.

10.2.2 What is ObjectiVision’s ownership interest in OPERA v2.3?

584 The University contends that ObjectiVision has not established that it is the owner of any copyright that subsists in final OPERA v2.3. It submits that ObjectiVision has not proved that it has taken assignments of copyright from persons who are the authors. Having regard to my findings, this calls attention to the position in relation to each of the contributions of Dr Osmakoff, Mr Langholz, Mr Walters, Mr Tolputt, Mr Alvarez, Mr Alkhimov, and also to Mr Lenehan, Mr Vas Osmakoff and Mr Sam Klistorner (who may also be joint authors).

585 Section 35(2) of the *Copyright Act* relevantly provides that subject to the terms of s 35, the author of a literary work is the owner of any copyright subsisting in the work. Section 35(6) provides an exception where the literary work is made by the author in pursuance of the terms of his or her employment, in which case the employer is the owner of any copyright subsisting in the work. Accordingly, the first owner of copyright will be each of the joint authors, unless they were employees of ObjectiVision at the time. If the former situation applies, ObjectiVision must establish that it has taken an assignment of the copyright interest.

586 Section 196(1) of the *Copyright Act* provides that copyright is personal property that, subject to s 196, is transmissible by assignment, by will and by devolution by operation of law. Subsection (3) provides:

An assignment of copyright (whether total or partial) does not have effect unless it is in writing signed by or on behalf of the assignor.

587 Section 197(1) relates to future copyright in a work, and relevantly provides for the assignment by an author and putative first owner of that future copyright, provided the assignment is signed by or on behalf of the putative owner.

588 Joint authors own the copyright as tenants-in-common, not joint tenants, and in the absence of agreement to the contrary, they will hold copyright in equal shares: ***Prior v Lansdowne*** *Press Pty Ltd* [1977] VR 65; 12 AL R 685 (Gowans J), *Acorn Computers Ltd v MCS Microcomputers Systems Pty Ltd* [1984] FCA 399; 4 IPR 214 at 221 (Smithers J). In the absence of consent of the one co-owner, the other co-owner/s are not entitled to grant a licence to a third party. To do so would be to infringe the copyright (Lindgren, Rothnie and Lahore, LexisNexis Butterworths, *Copyright and Designs*, vol 1A at [20,030], citing Wilcox J in *Prior v Sheldon* [2000] FCA 438; 48 IPR 301 at [79]). However, one of the joint authors can sue in respect of an infringement and obtain an injunction without joining the others as applicants: *Prior v Lansdowne* at 689. Copinger expresses the view that probably one tenant in common can only recover damages for the injury done to its share: at 5-173.

589 In the case of Mr Langholz, Mr Tolputt and Mr Walters, ObjectiVision relies on the terms of the Confidential Disclosure and Intellectual Property Agreement between PMP and ObjectiVision dated 4 October 2002. As noted above, that provides that all intellectual property rights created in the course of PMP’s engagement by ObjectiVision are the property of ObjectiVision. However, the evidence of Mr Langholz is that after about July 2002 he was an independent contractor supplying his services to PMP. After he ceased to be an employee of PMP, first ownership of copyright in the work ceased to be with ObjectiVision (by virtue of its agreement with PMP) and so, absent assignment, remains with Mr Langholz. No written assignment from Mr Langholz to ObjectiVision is in evidence.

590 Furthermore, ObjectiVision points to no evidence that either Mr Lenehan, Mr Tolputt or Mr Walters were employees of PMP, rather than independent contractors. The consequence is that there is no basis upon which the Court can safely conclude that PMP was the first owner of their work. Nor is there any evidence that they assigned their ownership interest to ObjectiVision. The same may be said of any contributions to the code made by Mr Vas Osmakoff and Mr Sam Klistorner.

591 There are signed consultancy agreements between ObjectiVision and Dr Osmakoff on 28 May 2003, 4 December 2003 and 4 June 2004. The University contends that these do not cover the work which he did in 2002. The relevant clause in each consultancy agreement provides that the rights in any intellectual property created or developed “in the course of the Consultant’s engagement by ObjectiVision (“Rights”) are and will be the sole property of ObjectiVision”. Mr Cheng gives evidence that Dr Osmakoff was “engaged” from 2002 to 2006. The University submits that since there is no evidence as to which lines of code were created by Dr Osmakoff before or after 28 May 2003, the assignment is defective. I find, having regard to Dr Osmakoff’s time sheets, that a substantial amount of work was carried out from May 2003 until 2006 and that this is sufficient to make him an author for that period. Furthermore, the terms of his consultancy agreements make clear that they concern the ownership of copyright in past as well as future work performed. Accordingly, title to Dr Osmakoff’s contributions lies with ObjectiVision.

592 There is an unsigned consultancy agreement between Mr Alvarez and ObjectiVision dated 6 February 2006. The executed copy of this agreement is not in evidence. The board minutes for June 2006 record that Mr Alvarez accepted the position but do not indicate whether or not the assignment was signed. In my view ObjectiVision has not established that there was a signed assignment.

593 The question of whether Mr Alkhimov assigned his copyright to ObjectiVision is not so easily determined. On 15 January 2007 at 9:38pm, Mr Cheng sent an email to Mr Alkhimov saying “This is to confirm the following terms and conditions of your trial engagement by ObjectiVision in the role of software engineer”. The email then identifies his duties “To resolve certain issues with respect to the prototype embedded system, OPERA and any other duties as assigned to you from time to time”. It also states (emphasis added):

Period of engagement: Tues 16 Jan to Mon 22 Jan

Hours: 9am – 5pm with half an hour lunch break and a maximum 7.5 of chargeable hours per day.

Hourly rate: $40/hour (+GST if appropriate). Fee is payable at the end of the period of engagement subject to time sheets verified by Dr Klistorner.

Termination: At any time by ObjectiVision without notice during the trial period.

*Confidentiality: Please execute two copies of the attached Non-Disclosure Agreement and hand this to [sic] over to Dr Klistorner when you see him tomorrow morning.*

...

594 The email concludes with the words (emphasis added):

I understand that you wish to start tomorrow morning @ 8.30am but will have to leave by mid-day due to personal commitments.

*Please signify your understanding and acceptance of the above terms and conditions by return email before you start tomorrow.*

595 Attached to the email was a document entitled “Confidentiality Agreement”. It begins:

CONFIDENTIALITY AGREEMENT

This Agreement is entered into between:

ObjectiVision Pty Ltd ACN 090 253 967 of Unit 145, National Innovation Centre, Australian Technology Park, Eveleigh NSW 1430 (**ObjectiVision**) and Virtual Logic Pty Ltd ACN of Level 3, 21 – 25 King St, Rockdale, NSW 2216 (**Receiver)** on 15 Jan 2007.

RECITALS

A ObjectiVision and the Receiver wish to enter into discussions relation to the Permitted Purpose.

596 The “Permitted Purpose” is described as supplying the Receiver with confidential information, “to enable the Receiver to test and resolve synchronisation problems associated with the embedded solution in the AccuMap 2 prototype as described in the Proposal by the Receiver to ObjectiVision dated 15 Jan 2007”. It will be noted that the agreement is between ObjectiVision and a company called “Virtual Logic”, which is not an entity associated with Mr Alkhimov.

597 Clause 1(e), under the heading “Confidentiality” says:

All intellectual property developed or created by the parties using the Confidential Information will itself be Confidential Information and owned by ObjectiVision.

598 ObjectiVision contends that clause 1(e) is sufficient on its face to amount to an assignment of future copyright in OPERA.

599 On the same day as the email from Mr Cheng, at 9:55pm, Mr Alkhimov sent the following email in response:

I am, [sic] Vadim Alkhimov, understand and accept the terms and conditions specified below.

600 Beneath these words was a reproduction of the email sent earlier that day by Mr Cheng. No signature block with Mr Alkhimov’s name on it appears on the email.

601 Mr Alkhimov did not sign or return the Confidentiality Agreement to Dr Klistorner.

602 ObjectiVision submits that Mr Alkhimov supplied an assignment of his future copyright in OPERA by virtue of the contents of his 9:55pm email. It submits that the requirement for a signature on the assignment is met, having regard to the terms of s 10(1) of the ***Electronic Transactions Act*** *1999* (Cth).

603 Section 10(1) provided (as at January 2007):

(1) If, under a law of the Commonwealth, the signature of a person is required, that requirement is taken to have been met in relation to an electronic communication if:

(a) in all cases – a method is used to identify the person and to indicate the person’s approval of the information communicated; and

(b) in all cases – having regard to all the relevant circumstances at the time the method was used, the method was as reliable as was appropriate for the purposes for which the information was communicated; and

(c) ...

(d) if the signature is required to be given to a person who is neither a Commonwealth entity nor a person acting on behalf of a Commonwealth entity – the person to whom the signature is required to be given consents to that requirement being met by way of the use of the method mentioned in (a).

604 ObjectiVision contends that in the reply email at 9:55pm Mr Alkhimov accepted not only the terms and conditions set out in the email from Mr Cheng, but also the terms and conditions in the Confidentiality Agreement. It contends that the terms of s 10 of the *Electronic Transactions Act* have been met.

605 The difficulty for ObjectiVision is threefold. First, the requirement of s 10(1)(a) is that a method is used to identify the person (here, Mr Alkhimov) and to indicate the person’s approval of the information communicated. There is no dispute here that “a method” was used, namely the email originating from Mr Alkhimov. However, the sub-section raises the question of what was conveyed, when Mr Alkhimov said: “I... understand and accept the terms and conditions specified below”. Did those words signify a method of communicating acceptance of the terms and conditions on the face of Mr Cheng’s earlier email by return email, or acceptance of the terms and conditions in the email and also in the attached Confidentiality Agreement? In this regard it is to be noted that Mr Cheng included in his email a requirement that Mr Alkhimov signify his consent in two ways. First, in relation to the “Non-Disclosure Agreement” (which should be taken to mean the Confidentiality Agreement attached), by physically signing it and supplying it to Associate Professor Klistorner. Secondly, in the concluding sentence of the email, that Mr Alkhimov also signify his acceptance of the “above” terms and conditions by return email.

606 Properly understood, the 9:55pm email from Mr Alkhimov was responsive to the second instruction, referring to the content of the email itself, but not the attached Confidentiality Agreement. The subject matter to which Mr Alkhimov agreed was the terms and conditions set out in the email and, relevantly, to supply a signed version of the Confidentiality Agreement to Dr Klistorner later. But the 9:55pm email did not amount to consent to the terms of the Confidentiality Agreement. The approach adopted by Mr Alkhimov in his return email accorded with Mr Cheng’s instruction. The separate agreement to the terms of the Confidentiality Agreement was, at Mr Cheng’s explicit request, to be furnished in a different way. No doubt Mr Cheng wanted a quick response to know whether Mr Alkhimov was going to turn up for work, especially given the late hour. However, Mr Cheng also wanted the Confidentiality Agreement terms formalised, but allowed for Mr Alkhimov to supply the documentation the next day.

607 Furthermore, the Confidentiality Agreement, as Mr Alkhimov noted when he opened the email was not addressed to him, but a company that he had never heard of, Virtual Logic Pty Ltd. He did not consider that his agreement to the email sent by Mr Cheng signified consent to the terms of the Confidentiality Agreement. In objective terms, at the time he received it, the Confidentiality Agreement required amendment, because it did not record Mr Alkhimov as a party.

608 The objectively ascertained position based on the content of the email exchange is supported by the evidence of Mr Alkhimov, who indicated in oral evidence in chief and in cross-examination that when he saw that the agreement was addressed to Virtual Logic Pty Ltd, he did not understand it to be addressed to him and did not sign it. He did not understand his 9:55pm email to signify consent to the terms of that agreement. Contrary to the submission advanced by ObjectiVision, that evidence is not inconsistent with his written evidence. In the latter, Mr Alkhimov states that he accepted Mr Cheng’s terms and conditions, which is in concordance with the description in his email.

609 The failure to satisfy s 10(1)(a) is sufficient to determine the question adversely to ObjectiVision. However, a second point is to note the requirement of s 10(1)(d) that the person to whom the signature is required to be given consents to that requirement being met by way of the use of the method mentioned in (a). The term “consent” in s 10(d) includes “consent that can be reasonably inferred from the conduct of the person concerned”: s 5.

610 Further, the Explanatory Memorandum to the Act provides the following:

Consent provisions

…

The definition of consent set out in clause 5 makes clear that consent can be inferred from a person's conduct. This is intended to ensure that express consent is not required prior to every electronic communication. For example, the fact that a person has used electronic mail to communicate with a Commonwealth entity should generally be sufficient to allow the Commonwealth entity to assume the person's consent to receiving further information at that email address. However, it is not intended that consent should be inferred from an electronic communication that contains an express refusal not to deal via electronic means. If a person sent an electronic communication containing a message in which the person explicitly stated that they did not want to receive any or all information in the form of an electronic communication, then that express withdrawal of consent must be accepted.

611 The terms of Mr Cheng’s email specifically required the terms of the Confidentiality Agreement (referred to in his email) to be physically signed and provided to Associate Professor Klistorner. Whatever ObjectiVision may now contend is its approach, it cannot be said that Mr Cheng consented to the provision to him of an email consent to the terms of the Confidentiality Agreement. He explicitly instructed Mr Alkhimov to signify his agreement by a different means. Having regard to all of Mr Cheng’s conduct, both before and after the Mr Alkhimov’s return email, I infer Mr Cheng did not consent to Mr Alkhimov agreeing to the Confidentiality Agreement by return email, due to the express requirement earlier stipulated by Mr Cheng not being met.

612 The consequence is that ObjectiVision has failed to establish that Mr Alkhimov assigned his interest in the future copyright in OPERA v2.3 to it.

613 In the result, I am satisfied that ObjectiVision is the owner of the copyright in the contributions made by Dr Osmakoff, and Mr Langholz prior to July 2002, but in my view ObjectiVision has not discharged its onus of establishing ownership of the contributions of the other authors, being Mr Langholz after July 2002, Mr Walters, Mr Tolputt, Mr Alvarez, Mr Alkhimov, Mr Vas Osmakoff and Mr Sam Klistorner. This leads to the conclusion that ObjectiVision has failed to establish its pleaded case. It is not the owner of copyright in final OPERA v2.3. In its closing submissions ObjectiVision contents that if it is a fractional owner of copyright then it is nevertheless entitled to injunctive relief and nominal damages. This gives rise to the question of whether it is entitled to such relief where its ownership is a fraction of a whole where the denominator is not established. On its best case it is perhaps entitled to the title of two equal parts of six, on its worst two out of nine owners. However, it is not necessary to resolve this question having regard to my conclusion that in any event it has not established any infringement of copyright, the reasons for which I address below.

614 I note that after the hearing, ObjectiVision drew my attention to the decision of ***Career Step*** *LLC v TalentMed Pty Ltd (No 2)* [2018] FCA 132; 354 ALR 500 (Robertson J), which addresses the question of joint authorship and ownership of the copyright in educational course materials. Robertson J found that the course materials had been drafted by a number of subject matter experts, and that all of these were joint authors. His Honour also found that the copyright in the work was owned by Career Step LLC. ObjectiVision submits that paragraphs [52] – [102] of the decision support its position. The University and Visionsearch made brief submissions in reply addressing the relevance of the case. In my view, *Career Step* does not alter the position I have reached on joint authorship or ownership. There were important factual differences: Career Step LLC put on detailed evidence setting out the names and contributions of the authors, and all of those authors were either employees of Career Step LLC or independent contractors who had executed an assignment of their work. The evidence in *Career Step* provided a much more complete view of the contributions and the transfer of ownership than the evidence in the present case.

##### 11. COPYRIGHT INFRINGEMENT: THE ACCUMAP 1 INFRINGEMENT CLAIM

615 In its cross claim ObjectiVision alleges that from July 2007, the University reproduced a material form of final OPERA v2.3 by reproducing it in AccuMap 1 devices held by the University without licence to do so. In its closing submissions the case was refined somewhat. ObjectiVision does not dispute that prior to the removal by Mr Cheng of the ObjectiVision computers from the SSI in early October 2008, the University benefitted from an implied licence to use the unpublished version of OPERA v2.3 for the purposes of Associate Professor Klistorner’s research, but it contends that following that date any implied licences were withdrawn. It submits that by continuing to have and to use executable versions of the software without licence, the University infringed copyright in final OPERA v2.3.

616 The University raises several points in response. First, it submits that it had an implied licence to make any reproduction. Secondly, it contends that ObjectiVision’s pleaded case of infringement using the AccuMap 1 device is confined to an allegation that the University reproduced OPERA v2.2 and not final OPERA v2.3 and in that context cannot be sustained. Thirdly, it submits that to the extent that ObjectiVision alleges that there were any reproductions arising out of the University merely using any version of OPERA v2.3 on AccuMap 1 machines purchased and used by the University, then any copies so used were not infringing by reason of the operation of s 43B of the *Copyright Act*.

617 It is not in dispute that by the operation of the 6 year limitation period prescribed in s 134 of the *Copyright Act*, no claim for infringement may be advanced by ObjectiVision in respect of conduct prior to 25 May 2009. In this part of my reasons I proceed on the assumption, contrary to the view that I have expressed above, that ObjectiVision is the sole owner of copyright in final OPERA v2.3.

###### 11.1 Consideration of the AccuMap 1 infringement claim

618 Some relevant findings of fact may be summarised in short compass.

619 In about 2003 or early 2004 Mr Newton, at that time the CEO of ObjectiVision, agreed that Associate Professor Klistorner (and therefore the SSI) could develop a research version of the OPERA software for him to use in his research in order to test ideas and improvements to the software and the AccuMap machine as it developed. This was necessary because Associate Professor Klistorner could not work on the software in the form supplied with the AccuMap 1 after it was commercially released because that software was subject to a “cold freeze” and would only be altered to fix bugs for customers. Thereafter, Associate Professor Klistorner and other software developers collaborated in the development of the software and in the conduct of his research using a separate version of OPERA. When ObjectiVision decided to move to the development of the AccuMap 2 prototype, OPERA versions 2.2 and 2.3 were developed in the manner to which I have referred in section 9.3 above. As noted above, the latest version of that software from time to time was also known to Associate Professor Klistorner as “OPERA Research”.

620 On 27 August 2008 the University wrote to ObjectiVision via Mr Cheng, and informed him that as a result of the breach notified in its letter of 26 February 2008, the Licences had been made non-exclusive from 27 August 2008, pursuant to cl 7.3 of the Licensing Agreement. On 8 September 2008, ObjectiVision wrote to the University disputing any breach and denying the effectiveness of the non-exclusivity notice. On 30 September 2008 Mr Cheng wrote an email to Associate Professor Klistorner and Professor Graham, referring to the letter of 27 August 2008 and saying:

The University’s actions are not valid because they are based on superseded minimum performance criteria that the University is not entitled to hold the company to.

....

I am also writing because it is convenient now to do some “housekeeping” given the changes that have occurred in recent times in the various relationships. I would be grateful, therefore, if we could have a clearing out of documents you might be holding from the time when you were involved in ObjectiVision funded and directed work. These documents would be, for example, soft copies of confidential information including 2D & 3D industrial design drawings and graphics for the AccuMap 2 system, various versions of the OPERA software source code, stepped stimulus algorithm, schematics, layouts & BOMs of amplifier & isolation board PCBs, etc.

Sasha, you may also have various bits of hardware or equipment belonging to OV that may have been inadvertently left out of the stuff collected from you earlier. One that comes to mind is the impedance meter. Let me know and I can arrange to have whatever has been left behind picked up. ...

621 Associate Professor Klistorner thereafter collected up the other ObjectiVision equipment that he could find in his office at the SSI and gave it to Mr Cheng. Mr Cheng had previously taken the computer that Mr Alkhimov worked on to write source code. A little later, in December 2008, after further prompting from Mr Cheng, Associate Professor Klistorner found some additional material that he returned to ObjectiVision.

622 Although Associate Professor Klistorner returned the hardware owned by ObjectiVision, he did not delete all files containing ObjectiVision computer software from the computers owned by SSI. He and his students continued to work on his research using the AccuMap 1 device at the SSI. That had on it a number of different executable versions of the OPERA Research software, as did several other computers used at the SSI at least up until December 2016. In closing submissions ObjectiVision clarified that it does not contend that mere use of the “cold freeze” version of OPERA installed on the AccuMap 1 device amounted to an infringement. However, it contends that insofar as the University continued to run final OPERA v2.3 on its AccuMap 1 and other computers held at the SSI, it did infringe its copyright.

623 The infringement so alleged is supported by the evidence of Mr Alkhimov in cross-examination, who accepted that he used the executable version of the final OPERA v2.3. The evidence of Associate Professor Klistorner in his December 2016 statement is that he had, as at that date, several AccuMap machines and/or computers at the SSI with executable versions of OPERA Research on them.

624 I infer that the executable software operated by Mr Alkhimov in this manner included within it final OPERA v2.3. That accords with Mr Alkhimov’s evidence. Mr Klein, an expert witness for ObjectiVision, gives evidence addressing the content of various digital files concerning the OPERA and TERRA software. As part of Mr Klein’s assessment of the digital files, he was asked to take photos of the directory of current files on the computer for the AccuMap 1 device which was still at the SSI. Mr Zeidman was provided with a file containing the source code of OPERA and labelled “FEB\_2008 Latest OPERA 2.3”. In closing submissions, the University submitted that the evidence adduced by Mr Klein regarding the content of the directories on the AccuMap 1 at the SSI does not permit this inference to be drawn, because there is no evidence correlating the directory references to which he refers with the directory for final OPERA v2.3 as viewed by Mr Zeidman. However, having regard to the evidence of Mr Alkhimov, I am satisfied that the final version of OPERA v2.3, in the state that it existed as at February 2008, remained on the computers at the SSI to which Mr Alkhimov referred and was so used.

625 There is no disagreement that in order to operate an executable version of final OPERA v2.3 it was as a matter of course necessary for the computer to reproduce that software in whole. Accordingly, subject to the arguments of the University to which I now turn, the University will have reproduced the work (being final OPERA v2.3) in a material form in breach of s 36 of the *Copyright Act*.

626 The first argument is that the University had an implied licence to use and modify OPERA Research and make any reproduction of it for that purpose. This is based on the evidence of Associate Professor Klistorner, commencing with his conversation with Mr Newton, to which I have referred above. Following this, Associate Professor Klistorner worked on OPERA Research, which became OPERA v2.2 and v2.3 as ObjectiVision moved from AccuMap 1 to prototyping AccuMap 2 devices. All the while, Associate Professor Klistorner continued to conduct his research and instruct various people (commencing with Dr Osmakoff and lastly Mr Alkhimov) to modify the software as required for his research purposes and also to assist in the development of AccuMap 2. Associate Professor Klistorner’s evidence is that when Mr Cheng took over as CEO of ObjectiVision, Mr Cheng encouraged the use and development of the software for research, to take place in conjunction with its development for the prototype AccuMap 2 devices. Although in his evidence and in cross-examination Mr Cheng disputed this, I prefer the evidence of Associate Professor Klistorner, which is supported by the evidence of Mr Alkhimov and also the contemporaneous documents. For instance in December 2007, shortly before work on the OPERA software ceased, Mr Cheng wrote to Associate Professor Klistorner in terms that indicated his knowledge that Mr Alkhimov was engaged in modifying the OPERA software not only for the purpose of developing it to meet ObjectiVision’s needs, but also under supervision from Associate Professor Klistorner in order to meet the research needs of the SSI. Mr Cheng noted, in his email at this time, that there was “a fine line” between Mr Alkhimov’s work for ObjectiVision and his work for the SSI. Although Mr Cheng denied in his evidence knowledge of this work, or his acquiescence to it, it is perfectly clear from this correspondence that he both knew of it, and agreed to it.

627 The clear run of this evidence perhaps explains why ObjectiVision ultimately did not contest that a licence existed, and led it instead to contend instead that the licence had been terminated when Mr Cheng collected the ObjectiVision computers in October 2008. I note that ObjectiVision at one point submitted that the licence extended only until June 2008, in accordance with Mr Cheng’s evidence that he removed the AccuMap 2 prototype and associated servers on 27 June 2008. However, Mr Alkhimov’s evidence, which was not challenged in cross-examination, was that it was in early October 2008 that Mr Cheng removed the AccuMap 2 and other materials. Counsel for ObjectiVision also adopted the October 2008 date in closing. Accordingly, I take (and find) October 2008 to be the relevant date.

628 Having put forward its evidence to support the existence of the implied licence, the University relies on ***Avel*** *Pty Ltd v Multicoin Amusements Pty Ltd* [1990] HCA 58; 171 CLR 88 at 94(vi), 95 (Mason CJ, Deane and Gaudron JJ), 105 – 106 (Dawson J), and 119 – 120 (McHugh J) for the proposition that the party alleging infringement bears the onus of proving the absence of a licence.

629 The question then distils to whether or not that implied licence was terminated, as ObjectiVision contends. The University first raises a pleading point, which is that if there was a licence that terminated, then ObjectiVision ought to have pleaded that event, citing *Avel* at 105 – 106, 119 – 120. ObjectiVision pleaded a general absence of licence and it was the University that raised the specific implied licence as a defence. ObjectiVision did not in its Reply plead that any implied licence had terminated, but until closing submissions conducted its case on the basis that no such implied licence had ever existed. In closing submissions it conceded, as I have noted, that there was such a licence, but contends that it terminated in October 2008, when Mr Cheng collected the materials from the SSI.

630 There is force in the point raised by the University. Had ObjectiVision pleaded a termination of the licence, it would have been open to the University to contend that ObjectiVision was estopped from doing so, or that the licence was irrevocable, and adduced evidence to that effect. In closing submissions it contended that it would have done so. By not pleading the point, the University could not advance its case in that way. It would be irremediably unfair to the University to permit the case to proceed on this basis, and I do not allow it: see *Sanofi-Aventis* at [383] (Jagot J).

631 If I am wrong about this, the question then turns to whether or not the implied licence was terminated. In the absence of a pleading on the point, it is difficult to be precise as to the event which is said to have led to the termination. In its written closing submissions ObjectiVision contends that the licence came to an end “in June 2008 when Mr Cheng removed ObjectiVision’s computer from the University and the relationship between the parties broke down”. In oral closing submissions in reply ObjectiVision referred to the email of 30 September 2008, which I have quoted from above, and appeared to adopt early October 2008 as the date when Mr Cheng removed the ObjectiVision equipment from the SSI premises. Leaving aside the imprecision of these submissions, the relevant question is whether the licensee received notice that the licence was revoked, that being a licence to use the executable version of the software extant on its computers for the purpose of research. That requires communication to the licensee, which the licensee understands to be a revocation of the licence, or which a reasonable person in the position of the licensee would understand as a revocation of the licence: see, for example, *Wilson v New South Wales* [2010] NSWCA 333; 278 ALR 74 at [51] (Hodgson JA, McColl and Young JJA agreeing).

632 Certainly the revocation was not communicated expressly. Perhaps with the benefit of hindsight one may conclude that the deteriorating relationship between the University and ObjectiVision was such that it could have been revoked. As at October 2008, the relationship between the University and ObjectiVision had broken down considerably. However, at that point, the Licensing Agreement was still on-going, albeit no longer exclusive. Further, the tone of the 30 September 2008 email is not hostile and does not rise to the level of an implicit termination. It is framed in terms of collecting materials for the purpose of “housekeeping” albeit that property and software relating to further development of OPERA, in the form of source code, were to be collected. In objective terms I do not consider that a person in the position of Associate Professor Klistorner would, on receiving this communication, reasonably have considered that he should cease using, for the purposes of his research, the OPERA Research software that the SSI had on its computers. Certainly that was not the position adopted by Associate Professor Klistorner. He considered that he was no longer able to instruct Mr Alkhimov to alter the software for OPERA v2.3, because he considered that he no longer had physical access to the source code. However, he did believe that he could use the executable version of the software that remained with the SSI. He was not challenged on that evidence.

633 The second argument advanced by the University is another pleading point. It is that ObjectiVision expressly confined its case, in [68A] of its cross claim and the particulars there, to allegations that final OPERA v2.3 was infringed by reason of reproducing OPERA v2.1 or v2.2, not by reproducing OPERA v2.3 itself. The University says that ObjectiVision cannot now contend, as its written closing submissions suggested, that final OPERA v2.3 was infringed because executable copies of OPERA v2.3 were copied to various computers. However, I do not consider that this point is well taken. I have summarised above the AccuMap 1 infringement argument as advanced by ObjectiVision in closing submissions. It is confined to the allegation that final OPERA v2.3 was infringed by running the executable versions of that software in the manner accepted by Mr Alkhimov up to as late as 2016. In my view that is adequately pleaded in [68A] of the cross claim, which expressly refers to infringement by reproduction in a material form of OPERA v2.3. It is true that the particulars refer to the earlier OPERA v2.2, but this is to be understood in the context to the fact that the final form of OPERA as it was worked on from time to time was variously identified as OPERA Research, OPERA v2.2 and OPERA v2.3.

634 The final argument advanced by the University is that if the version of OPERA running on the SSI’s AccuMap 1 machine is the same one as was already on it for research purposes (being OPERA Research), and the only ongoing infringement alleged is that the software is being run (and therefore reproduced) each time that the machine is turned on, then a defence under s 43B of the *Copyright Act* would apply. However, as I have summarised the arguments that is not how ObjectiVision puts its case. It is that the reproduction constitutes an infringement because the act of downloading and using that software was not the subject of any licence after October 2008.

635 Accordingly, for the reasons that I have set out above, this aspect of ObjectiVision’s cross-claim fails.

##### 12. COPYRIGHT INFRINGEMENT: THE TERRA INFRINGEMENT CLAIM

###### 12.1 Introduction

636 ObjectiVision contends that the University and Visionsearch have infringed its copyright in final OPERA v2.3 by reproducing it in a material form in various versions of the TERRA software. It relies on evidence set out in the Zeidman Report that compares the source code of final OPERA v2.3 with that of several files of TERRA, and identifies within it 6 particular parts of TERRA that Mr Zeidman considers are sufficiently similar to parts of final OPERA v2.3 to warrant the conclusion that Mr Alkhimov copied final OPERA v2.3 in the production of TERRA.

637 The parts of Mr Zeidman’s report that ObjectiVision relies upon are as follows:

(1) The **RunsDataContainers**.cs part of TERRA when compared with the **ORawDataScaling**.cpp part of final OPERA v2.3 (**exhibit C)**;

(2) The **SequenceGenerator**.cs part of TERRA when compared with the **OKasami12Generator.**cpp part of final OPERA v2.3 (**exhibit D)**;

(3) The SequenceGenerator part of TERRA when compared with part of OKasami12Generator.h (**OKasami12 header**) part of final OPERA v2.3 (**exhibit E**);

(4) The RunsDataContainer part of TERRA when compared with part of **ODigitalFilter**.cpppart of final OPERA v2.3 (**exhibit M**);

(5) The **CalculateCorrelation** function in the TERRA RunsDataContainer file when compared with the **CalculateTrace** function of **OStimulus**CrossCorrelationAlgorithm.cppin final OPERA v2.3 (**exhibit N**); and

(6) The **GlobalParameters**.cspart of TERRA when compared with the **OProcessingParams**.cpppart of final OPERA v2.3 (**exhibit O**).

638 ObjectiVision also relies on the evidence given by Mr Alkhimov in cross-examination. It contends that the parts copied, coupled with appropriate inferences, are sufficient to warrant the conclusion that a substantial part of final OPERA v2.3 has been reproduced in TERRA.

639 The University disputes the claim. It submits that the explanation given by Mr Alkhimov that he wrote TERRA without regard to the final OPERA v2.3 source code should be accepted, as should his explanation for the similarities found by Mr Zeidman between the source code for each. It submits that the Zeidman Report is methodologically flawed, and that to the extent that there was a difference of opinion between Mr Zeidman and its experts Professor Zobel and Dr Dart, then its experts should be preferred. It submits that ObjectiVision has failed to establish that there is a causal connection between final OPERA v2.3 and TERRA or sufficient objective similarity between the two. It also submits that ObjectiVision has failed to establish that a substantial part of final OPERA v2.3 has been taken.

###### 12.2 Legal propositions: copyright infringement

640 Section 36(1) of the *Copyright Act* relevantly provides that copyright in a literary work is infringed by a person who, not being the owner of the copyright, and without the licence of the owner of the copyright, does or authorises the doing of any act comprised in the copyright. ObjectiVision alleges that the University reproduced final OPERA v2.3 in a material form by creating and reproducing OPERA source code as TERRA source code and thereby acted in breach of s 31(1)(a)(i) of the *Copyright Act*, which provides:

(1) For the purposes of this Act, unless the contrary intention appears, copyright, in relation to a work, is the exclusive right:

(a) in the case of a literary, dramatic or musical work, to do all or any of the following acts:

(i) to reproduce the work in a material form; ...

641 A work is “reproduced” if there is a sufficient degree of objective similarity between the copyright work and the work said to infringe and there is “some causal connection” between the form of the allegedly infringing work and the form of the copyright work: *SW Hart & Co Pty Ltd v Edwards Hot Water Systems* [1985] HCA 59; 159 CLR 466 at 472 per Gibbs CJ, with whom Mason and Brennan JJ agreed. Gibbs CJ noted:

The notion of reproduction, for the purposes of copyright law, involves two elements – resemblance to, and actual use of, the copyright work, or, to adopt the words which appear in the judgment of Willmer L.J. in *Francis Day & Hunter Ltd. v. Bron* [1963] Ch 587, at p 614, “a sufficient degree of objective similarity between the two works” and “some causal connection between the plaintiffs’ and the defendants’ work”. Lord Reid said in *Ladbroke (Football) Ltd. v. William Hill (Football) Ltd*. [1964] 1 WLR 273, at p 276; [1964] 1 All E.R. 465, at p 469:

“Broadly, reproduction means copying, and does not include cases where an author or compiler produces a substantially similar result by independent work without copying. And, if he does copy, the question whether he has copied a substantial part depends much more on the quality than on the quantity of what he has taken.” (see also [1964] 1 WLR at pp. 283, 288 and 293; [1964] 1 All ER at pp. 473, 477 and 481)

642 It is not necessary that the reproduction in a material form be of the whole of the literary work. Section 14(1) provides that a reference to the doing of an act in relation to a work includes a reference to the doing of that act in relation to a substantial part of the work. However, the term “substantial part” is not defined. It has been said that the word “substantial” is “a word calculated to conceal a lack of precision” (*IceTV* at [154], citing *Tillmanns Butcheries Pty Ltd v Australian Meat Industry Employees’ Union* [1979] FCA 85; 42 FLR 331 at 348). The test directs attention to the degree of originality in the expression of the part of the work reproduced: *IceTV* at [40]. In order to assess whether material copied is a substantial part of an original literary work, it is necessary to consider not only the extent of what is copied; the quality of what is copied is critical: *IceTV* at [30], [155].

643 In *IceTV,* Gummow, Hayne and Heydon JJ turned from consideration of the compilations as literary works, to briefly discuss computer programs, and said (emphasis added):

[158] A collateral matter should be put to one side.  The case law does disclose that special difficulty has been encountered in considering the relationship between the phrase “a substantial part” in s 14(1) of the Act and the definition in s 10(1) of that species of “literary work” which is a “computer program”, being:

“a set of statements or instructions to be used directly or indirectly in a computer *in order to bring about a certain result*”.  (emphasis added)

The phrase emphasised suggests the importance of function, although this is usually encountered in patent and designs law, rather than in the “traditional” law of copyright respecting original literary works.

[159] It was in this context, of the infringement of computer programs, that in *Data Access Corporation v Powerflex Services Pty Ltd*, Gleeson CJ, McHugh, Gummow and Hayne JJ disfavoured a “but for” analysis which treated as essential for the purposes of substantiality each of the many necessary integers in a computer program, so that the presence of any one of them indicated the taking of a substantial part; such an analysis was overly protective of the interests of the owners of the copyright in that species of literary work, **and overlooked the need for some process of qualitative abstraction of the material features of the computer program in question in order to determine any issue of substantiality under s 14(1) of the Act**.  But the special considerations that are present in cases such as *Data Access* are not found here.  Use of the term “functionality” in compilation cases is unhelpful.

644 Accordingly, in order to determine whether a substantial part of a computer program has been reproduced, the question is not whether one necessary integer of a computer program is present. What is required is “the need for some process of qualitative abstraction of the material features of the computer program in question”.

645 In this context, in *JR Consulting* the Full Court noted that in considering infringement, the question of whether a substantial part of the work in suit has been reproduced involves, in the application of *Data Access* and *IceTV*, consideration of the quality of the part alleged to have been reproduced. That involves consideration of the degree of originality in the expression of the part of the work reproduced: *JR Consulting* at [267]. It expressed the position at [268] (emphasis in original):

It follows that in determining whether the *quality* of what is taken *makes* it a substantial part of the copyright work in suit, as the source of the rights, it is important to enquire into the importance which the taken portion bears in relation to the work as a whole. Is it an essential or material part of the work in suit?: *Autodesk Inc v Dyason [No 2]*, Mason CJ at 305, as approved in *Data Access v Powerflex* at [83] to [87].

646 On a factual level, the Full Court repeated the observation made in *Data Access* at [86], thatif a person does no more than reproduce parts of a program which are “data” or “related information” and which are not relevant to the statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result, the person will be unlikely to have reproduced a substantial part of the computer program.

647 In applying these principles, Bennett J in ***CA Inc****. v ISI Pty Limited* [2012] FCA 35; 201 FCR 23found that there was a lack of evidence relating to the functions of the software in issue as a whole. To engage in a qualitative assessment involving functionality, it was necessary for there to be evidence of all that the software did in order to understand the significance, in context, of what the allegedly infringing works do. In the absence of such evidence, her Honour was unable to perform a qualitative assessment of substantial part, the applicant had not discharged its onus, and the particular aspect of infringement under consideration was not made out: at [184].

648 It is to be noted there is no copyright in the “functionality” of a computer program alone: *EIFY Systems Pty Ltd v 3D Safety Services Pty Ltd* [2017] NSWSC 1310; 127 IPR 204 (McDougall J) at [412] - [424]; ***Telephonic*** *Communicators International Pty Ltd v Motor Solutions Australia Pty Ltd* [2004] FCA 942; 62 IPR 323 (Selway J) at [31]. A form of analysis by a computer expert which concludes that programs perform the same function does not lead to or result in a conclusion of copyright infringement in respect of the source code: *CA Inc* at [327]; *Admar Computers Pty Ltd v Ezy Systems Pty Ltd* [1997] FCA 853; 38 IPR 659 (Goldberg J)at 671. Functionality is but part of the assessment of the quality of what has been taken, having regard to the form of expression used.

###### 12.3 The evidence comparing final OPERA v2.3 with TERRA

12.3.1 Introduction to the expert evidence

649 Mr Zeidman relied on software that he designed for use in detecting whether one computer program has been plagiarized from another computer program and undertook a comparison of the final OPERA v2.3 with versions of TERRA provided in discovery.

650 Dr Dart prepared a report under the supervision of Professor Zobel directed to the existence or absence of similarities identified in the Zeidman Report. Professor Zobel provided a report addressing the causes of extant similarities found by Dr Dart, and also the existence or absence of similarities identified by Mr Zeidman. The approach of Professor Zobel was first to consider whether in objective terms he considered the similarities presented should be regarded as evidence of work that was not independently produced by the author of TERRA. He was then progressively supplied with written evidence from Mr Alkhimov and Associate Professor Klistorner. He then considered whether, having regard to that evidence, the similarities would be considered to be the result of copying. In my view this approach supplied a helpful means by which an assessment could be made.

651 The experts joined in the preparation of a joint expert report, in which a number of differences between them were resolved. They also participated in the provision of concurrent evidence, directed to the remaining areas of dispute, in which it became apparent that yet further differences were resolved. In general, I found each expert to be well qualified to provide the evidence that he did, and that each used his best endeavours to assist the Court. To the extent that the parties suggested otherwise, I reject that criticism. Where relevant, I address below specific propositions put about the quality of the evidence given.

652 In his report, Mr Zeidman explains that he first compared the codes to look for instances of literal copying using a “CodeMatch” function within a “CodeSuite” tool that he had developed. He identifies areas that he regarded to represent “high correlation” between the two and then applies an iterative method to filter his results having regard to whether the aspects of the code that he had identified could have come from: third party code, the use of code generation tools, the use of common identifier names, the use of common algorithms, or the use of a common author. Once he had eliminated sections of code that he considered were not definitively correlated as a result of copying he concluded that he was “certain” that the remaining lines of code, functions, algorithms and files were copied, and expected that were that not the case then Professor Zobel and Dr Dart would have provided evidence that it was not, having regard to their access to the assistance of Mr Alkhimov. If this were advanced as the only basis for a finding of infringement then the approach could justifiably be criticised as reversing the onus. However, as a tool for considering whether there may be a causal connection between the works and the quantity of overlap in code, it is potentially an acceptable tool of analysis. Of course, Mr Zeidman’s conclusion that he was “certain” of copying cannot supplant the role of the Court in deciding that question. In general, I find that Mr Zeidman’s enthusiasm for concluding that TERRA was a copy of final OPERA v2.3 was not supported by the evidence.

653 The Zeidman Report refers to “direct” or “literal” copying as being exemplified in his exhibits C – O, which identify 11 source code files from final OPERA v2.3 that are said to contain relevantly corresponding portions of code or comments in TERRA. Figure 1 in the report identifies the location within the structure of final OPERA v2.3 where these files are to be found. The contents of this document are said to be confidential, and are reproduced in the **Confidential Annexure** to these reasons.

654 Exhibits C – O were said to show sections of the final OPERA v2.3 source code and the TERRA source code side-by-side, by highlighting: “identical comments”in pink; “identical identifiers” in green; “correlations that are similar, but not identical”in light blue; and aspects of the code that are the subject of other comment, such as by reference to functionality or where they have been rearranged from their original format to more conveniently show correlation, in grey.

655 The Zeidman Report defines a number of these terms. “Comments” are used to insert information into the source code that is not compiled into computer instructions. These are most often used by programmers to add descriptions of the surrounding source code. Developers rely on the comments as notes, reminders and for documentation of the functionality of the software. They are often referred to as “non-functional” because they are not actually processed by the computer or translated into computer instructions. The Zeidman Report refers to the source code that is compiled into machine instructions as “functional code”.

656 Professor Zobel and Dr Dart agreed with Mr Zeidman that comments when used in the manner described in the Zeidman Report do not have a functional effect. As such, it is perhaps doubtful that comments constitute “a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result” in conformity with the definition of “computer program” in s 10(1) of the *Copyright Act*. However, I have conducted my analysis of whether the University has made a reproduction of final OPERA v2.3 on the basis that the comments do fall within that definition.

657 Mr Zeidman defines “identifiers” as the names of elements used within a program, comprising variables, constants, functions and labels. They are part of a “statement”. Statements are the functional elements of source code.

658 As a general point, the experts note in their evidence that the OPERA v2.3 code is largely written in the C++ programming language and the TERRA code in the C# language. They agree that this difference is irrelevant to the present case, as they may be regarded as essentially different dialects of the same language.

659 Ultimately, only 6 of the 11 examples of direct copying relied upon in the Zeidman Report were pressed by ObjectiVision as being relevant to the analysis of copyright infringement in the proceedings. The reasons for this are not directly material to my consideration of the matter, and include the fact that aspects of the evidence were either not admissible or relevant, having regard to the Australian law of copyright, and the fact that it was not within the case as pleaded. One relevant aspect of the abandoned examples of copying warrants a brief explanation. It concerns exhibits F, H, I, J, K and L. These relate to database aspects of the TERRA software, which Mr Zeidman contended amounted to a copy of the OPERA equivalent.

660 The evidence of Associate Professor Klistorner refers to databases in the context of the development of the AccuMap machine and of both OPERA and TERRA. The main database system used in both is called “MySQL”, a widely used system. The database used by OPERA and TERRA has an internal structure, or “schema” to store mfVEP test data. It contains data collected by Associate Professor Klistorner, such as different normative data sets. These were stored using the same database system, and under the same schema. The files in Mr Zeidman’s exhibits F, H, I, J, K and L were files that were automatically generated from that schema. The fact that OPERA and TERRA share a common schema accounts for the similarities noted in the Zeidman Report. This was the subject of agreement between the experts.

661 The abandonment of a number of alleged similarities identified in the Zeidman Report naturally enough serves to undermine the general conclusions expressed by Mr Zeidman that TERRA is a copy of final OPERA v2.3, as does the abandonment of his reasoning concerning indirect or derivative copying (which were also included in his report). In any event, as I have noted, that is a question for the Court to decide by reference to the evidence now relied upon, which is addressed below.

662 The approach taken by Mr Zeidman in his report was to supply in his exhibits lines of source code and comments from final OPERA v2.3 and compare them with portions of TERRA code. Save for his reference to the diagram in the Confidential Annexure, his report does not give the context of final OPERA v2.3 code, either by reference to function, originality or materiality. His report is limited, in conformity with his recitation of his instructions at the start of the report, to “providing his views on *whether* there was any copying or similarities between the two codes”. Where his proprietary detection software identified sufficient similarity that was not explained by reference to third party code, the use of code generation tools, the use of common identifier names, the use of common algorithms or the use of a common author, he concluded that he was “certain” that the remaining lines of code, functions, algorithms and files were copied. This analysis included no meaningful assessment of the originality or quality of the parts alleged to have been taken or any process of qualitative abstraction of the material features of the computer program in question: *IceTV* at [159].

663 The methodology of Mr Zeidman represented a no doubt convenient way of comparing two very large blocks of code. It enabled Dr Dart and Professor Zobel to respond by having regard to specific instances of alleged copying. However, as the Zeidman Report did not give consideration to the history of the creation of OPERA and TERRA, as set out (at least on the University’s case) in the evidence of Associate Professor Klistorner and Mr Alkhimov, it did not consider the whole of the story. That fact, coupled with the removal from the analysis of 5 of the 11 files considered by Mr Zeidman to have been direct copies, diminishes the value of the sometimes trenchantly expressed conclusions as to copying advanced in the Zeidman Report.

664 I now turn to consider the specific examples now relied upon by ObjectiVision.

12.3.2 ORawDataScaling and OKasami12Generator (exhibits C, D, and E in the Zeidman Report)

665 The experts agree that two aspects of the code identified in the Zeidman Report by reference to the ORawDataScaling and OKasami12Generator files contain common text, of sufficient similarity that the TERRA code cannot have arisen through independent development. The relevant files are:

(1) in exhibit C, the OPERA file ORawDataScaling.cpp, which is reflected in TERRA file RunsDataContainer.cs (the November 2011 version and the source code repository version); and

(2) in exhibits D and E, the OPERA OKasami12Generator.cpp and OKasami12Generator.h files, both of which are reflected in the TERRA SequenceGenerator.cs (source code repository version).

666 The joint expert report records the following agreement:

Two blocks of code...with a total extent of 100 to 120 lines (depending on counting mechanism) is [sic] in common. This code cannot have arisen through independent development, but has similarity that can only be due to it being copied between the systems or from another source. The experts agree that it is reasonable to describe these as literally copied.

667 The RunsDataContainer 11 November 2011 file (TERRA) is identified to consist of 455 lines of code and the (OPERA) ORawDataScaling file 601 lines. The (OPERA) OKasami12Generator.cpp file is of 209 lines and the (TERRA SequenceGenerator.cs) 504 lines.

668 In relation to the TERRA RunsDataContainer and OPERA ORawDataScaling files, Professor Zobel agrees that about 5 lines of comments are likely to have a common origin. He further agrees that 16 lines of code that implement an elementary routine for processing a histogram (using a particular form of loop) may be due to copying from OPERA, but may also be from other sources. Having regard to the evidence of Mr Alkhimov, Professor Zobel concludes that one of the two explanations that Mr Alkhimov offers in [139] of his affidavit may explain the commonality. In that paragraph, Mr Alkhimov says that either the code came from the Recalculation Software that was merged to TERRA or that he included the detail (in his notebook) having regard to information provided by Associate Professor Klistorner. I address this evidence under the heading “Consideration of causal connection” below. The balance of the similar features identified as not identical but similar in the TERRA RunsDataContainer file by Mr Zeidman were contested by Professor Zobel. He considered that the common features were not unusually similar for two pieces of code implementing the same algorithm and that some of the instances identified in the report showed “extremely slight” similarity. In his evidence in reply Mr Zeidman disagrees.

669 In relation to the OKasami12Generator and OKasami12 header files (both of which are compared to the TERRA SequenceGenerator file) the position is more straightforward. These files make use of “Kasami sequences”, which in turn are used for generating other sequences. Mr Zeidman identifies in his report that an identical comment surrounded by similar source code is not explained other than by the fact that one is a copy of the other. Professor Zobel agrees that less than about 100 lines of code include similarities that are greater than would be expected under independent development.

670 As I have noted, the portion that is reproduced is not the whole of the relevant TERRA file. As Mr Zeidman noted in his oral evidence, the first 340 lines of the file, not reproduced in his exhibit, concern code other than the Kasami sequence generator, which indicates to him that the portion taken was not copied as a whole, but integrated into the TERRA system with other functions. Professor Zobel describes in his report the small volume of code identified as copied to be “brief and mundane”.

671 Having regard to the evidence I consider it likely that there is some causal link between this aspect of the OPERA and TERRA code. However, the connection appears to be slight, having regard to the limited portion of the code that is the same. I return to this subject further below.

12.3.3 ODigitalFilter.cpp (exhibit M)

672 Exhibit M is an extract from each of the corresponding files ODigitalFilter.cpp (OPERA v2.3) and RunsDataContainer.cs (TERRA). It consists of 47 lines from the ODigitalFilter file (lines 150, 194 – 218, 226 – 231, and 269 – 284) and 33 lines from RunsDataContainer (lines 524, 532 – 536, 610 – 636).

673 In his report, Mr Zeidman identifies that the “calculate” function in the final OPERA v2.3 source code file is “comparable” to the same function in TERRA. He gives the opinion that they not only include similar sequences of operations, but also include identical comments. He relies on three aspects:

(1) The use of a parameter value for the variable fSamplingFrequency at line 96 in ODigitalFilter compared to the use of a parameter value for the variable \_SamplingFrequency at line 534 in RunsDataContainer;

(2) Nearly identical code and comments in ODigitalFilter at lines 271 - 272 compared to lines 612 - 613 of RunsDigitalContainer. In oral evidence, Mr Zeidman considered that this was likely to indicate that there was a copy because the same programmer would be unlikely to use the same variable number, function names, and place capital or lowercase letters in the same positions. This similarity was the only aspect of the exhibit M comparison to which Mr Zeidman drew attention during the concurrent evidence; and

(3) The use of the “function calls”, “nspdFirBandpass” and “nspdFirInit” at lines 278 and 282 of ODigitalFilter and lines 616 and 618 of RunsDigitalContainer.

674 Taken in combination, Mr Zeidman considers that the identical comments, “nearly identical” lines of code, and similar sequences of operations are not reflective of independently developed pieces of source code, and that the most likely explanation is copying.

675 Professor Zobel and Dr Dart disagree with Mr Zeidman as to the degree of similarity and as to its likely cause. Dr Dart notes for example (1) that whilst the OPERA code retrieves a single parameter value, the TERRA code accesses two parameter values and uses them to calculate a single value. Accordingly, the respective codes are not similar in operation and are not the same in expression. I consider that this difference is apparent from a (tutored) view of the code.

676 In relation to (2), Dr Dart observes that the two lines of code perform a very simple ratio calculation, where each of the lines in ODigitalFilter and RunsDataContainer have “Low” replaced by “High”. The effect of this is a digital filtering function to cut off high or low frequencies. He observes that similar forms can be found in publicly available unrelated code. Professor Zobel observes that the comments to which Mr Zeidman refers in (2) represent a natural expression of the concepts that have been used elsewhere. He considers that the similarity in the sequence operations is not surprising for two blocks of code performing similar functions, especially where there is a common programmer and common naming conventions are used.

677 In relation to (3) Dr Dart gives evidence that the use of similar names is to be understood in the context that both ODigitalFilter and RunsDataContainer use and access an external library which has a series of functions and arguments in it with predefined names for the functions available. When that library is used, the items that correspond to each of the argument positions and “call” the functions must be used. For that reason, the software programmer is quite constrained at the “function call” level as to what to use. The function names “nspdFirBandpass” and “nspdFirInit” are used for digital signal processing functions in a publicly available internet code library. Professor Zobel considers that the use of a common library means that the same function name must be used, and the fact that Mr Alkhimov had previously gained familiarity with the library means that it is unsurprising that he would continue to use it in subsequent software developments. Furthermore, in oral evidence, Professor Zobel noted that the segment of the file extracted demonstrated that the structure of the code in TERRA is a statement followed by the commencement of a loop (meaning an instruction to repeat the activities that follow numerous times) whereas in the OPERA segment, each step is performed once. As a result, the algorithm is not the same and the respective parts of code identified are not performing the same function. I accept this explanation.

678 Having regard to the evidence of the experts, I am not persuaded ObjectiVision has established a causal connection between the ODigitalFilter code and the RunsDataContainer code. I do not consider that the evidence relied upon by Mr Zeidman is sufficient to admit the inference that the code in this part of final OPERA v2.3 has been copied, directly or indirectly, into TERRA.

12.3.4 OStimulusCrossCorrelationAlgorithm.cpp (exhibit N)

679 Exhibit N concerns the CalculateTrace function from the OPERA OStimulus algorithm (lines 520 - 542 and 547 - 577) and of the CalculateCorrelation function from the TERRA RunsDataContainer file (lines 522 - 534 and 663 – 693). Both are performing a cross-correlation algorithm, which adjusts the raw data recorded to account for timing differences between the stimulus and the samples. The OPERA code sits in the Processing (Business Logic and Algorithms) part of the software. As Associate Professor Klistorner explains in his evidence, cross-correlation relies on an algorithm that cross-correlates a response from the brain with pseudorandom sequences (in OPERA, the Kasami sequence) that run the reversal of each segment of the stimulus.

680 The Zeidman Report observes that the identified parts of OStimulus and RunsDataContainer perform the same cross-correlation algorithm. He says that the use of the same sequences of operations, and similar or identical identifier names are not explained by the legitimate reasons for correlation and would not be expected in two independently developed pieces of source code, and so the most likely explanation is copying. He lists similar identifier names “nNumOfPoints” in OPERA and “\_numberOfPoints” in TERRA, and the common use of “iT” as an identifier. He also refers to the functional similarities.

681 Dr Dart considers the use of “iT” to be unusual for an identifier, but that it is a mnemonic, “i” being a common name for an identifier used as an iterator and “iT” used as an iterator for Traces. He considers it to be common practice for individual programmers to follow conventions of this kind. Professor Zobel considers that the similarities between the codes would be unusual for independent development, but would be expected given the strong reliance on the common background materials and the common membership of the development teams (that is, the common roles of Mr Alkhimov as instructed by Associate Professor Klistorner) for both. Having regard to Mr Alkhimov’s experience, prior to working at ObjectiVision, of working with cross-correlation algorithms, and the availability to him of external materials to refresh his memory, he considers that the level of similarity was not indicative of the code being copied.

682 In relation to the functional similarities of the software, the experts referred in concurrent evidence to a patent in the name of Dr Malov entitled “Field Testing Using Spread Spectrum Technique” and bearing an international publication date of 7 June 2001. They agreed that each of the TERRA and OPERA portions identified in exhibit N implement an algorithm described in that patent.

683 Furthermore, they agreed that the TERRA code does not effect the implementation in the same manner as the OPERA code. As Dr Dart explained in concurrent evidence:

And if we look at the TERRA code, we would also find that these are two inner loops of a bigger structure. However, in the TERRA code, the loops at the high level are different to the loops in the OPERA code. So they’re actually reversed in the TERRA code. It’s processing segments as the primary loop, so it’s going through each of the segments and then it’s looking at all the channels for a given segment. So it’s actually processing the data in a different way and a way which you would expect would get different results. So all of that was just to kind of say that what we’re looking at here is just one part of an algorithm, effectively – the inner part of that algorithm – and that the overall algorithm is actually different.

684 I have earlier referred to the role of Dr Malov in the early work of ObjectiVision. As Associate Professor Klistorner describes in his evidence, sometime in about 1999, Dr Malov developed a multifocal stimulus to use in the AccuMap device that was intended to be different to the version developed by Dr Sutter. The University owned the patent for the invention developed by Dr Malov. Associate Professor Klistorner and Dr Kozlovski collaborated in the creation of the first version of the software for use in the mfVEP system that used Dr Malov’s stimulus. The patent for Dr Malov’s stimulus, as I have noted above, describes a cross-correlation algorithm.

685 During his time working on OPERA, Mr Alkhimov developed a good familiarity with the operation of the algorithms underlying the OPERA software, including the work the subject of the patent. Associate Professor Klistorner gave specific instructions to Mr Alkhimov during the course of his work on OPERA concerning the implementation of the algorithms and also when he worked on TERRA. Associate Professor Klistorner had an understanding of the cross-correlation algorithms. I infer that he was in a position to, and did provide information to Mr Alkhimov about them, and that it is quite probable that he provided a copy of the Malov patent to Mr Alkhimov. This was not explored in cross examination, beyond Mr Alkhimov saying that Associate Professor Klistorner would have given him any necessary articles or materials.

686 Ultimately, exhibit N provides very little support for ObjectiVision’s case. In my view the most likely explanation for the passing similarity between the files arises because the code is designed to perform the same function.

12.3.5 OProcessingParams.cpp (exhibit O)

687 The Zeidman Report supplies a comparison of 20 lines of the OProcessingParams code from OPERA (lines 100 – 102, 114 – 124, 149 – 150 and 176 – 179) against 16 lines of the GlobalParameters code from TERRA (lines 118 – 124, 143 – 144, 134 and 149 – 154).

688 Mr Zeidman contends that there are “a number of significant similarities in both the names and the values” used in the code. Mr Zeidman observed in concurrent evidence that this was an example of where the code was *not* copied, because of the use of different variable names and other features. However, he draws attention to the use of the same variables within the algorithm.

689 One value to which Mr Zeidman draws attention is the variable for the number of channels, which is set to four. This is the same number of channels for the multi-channel recording used in OPERA. In his report he says “[e]ven though US patent 6,477,407 describes multi-channel recording, the patent does not describe an actual implementation in code, so I would not expect independently developed code to be so similar”. However, as Dr Dart points out, the patent so identified is Associate Professor Klistorner’s mfVEP patent, which does refer to a preference for “at least four channels”.

690 Mr Zeidman maintained in concurrent evidence that it was important to consider the use of other variables in common, not solely the number of channels. None of these variables concern the code itself: instead, they concern the input to it. The evidence of Associate Professor Klistorner and Mr Alkhimov is that they, and particularly Associate Professor Klistorner, were separately familiar with the parameters. I consider that this explains the use of such parameters in both programs. Accordingly, I am not satisfied that this exhibit provides evidence of a causal connection between the OPERA OProcessingParams code and the TERRA GlobalParameters code. Were it to have done so, I would not be satisfied that this exhibit is of relevance to the question of material reproduction.

###### 12.4 Causal connection

12.4.1 Introduction

691 As noted, in order to obtain a finding of reproduction, ObjectiVision must establish both a causal connection between TERRA and final OPERA v2.3 and sufficient similarity between the two works. ObjectiVision submits that Mr Alkhimov copied parts of final OPERA v2.3 into a new piece of software, possibly named the Recalculation Software, which then formed the basis for the development of TERRA. It submits that this is supported by the content of Mr Alkhimov’s notebook, which includes reference to a number of files from OPERA v2.3. Taken together with the evidence of literal copying contained in the Zeidman Report and the evidence of Mr Zeidman, ObjectiVision submits that this is sufficient to support the conclusion that copying took place. The way that the proposition is put in ObjectiVision’s closing written submissions is as follows (emphasis added):

ObjectiVision submits that, in light of the above evidence, the court would be satisfied that a substantial part of OPERA v2.3 was copied into the recalculation software and reproduced in a material form in TERRA, **via the development of the recalculation software into TERRA.** It is not possible to now know the precise bounds of what was copied from OPERA v2.3, but the code reproduced in Zeidman Ex C [D, E, M, N and O] is the best evidence of what was taken.

692 ObjectiVision further contends that Mr Alkhimov’s notebook provides evidence that he looked at final OPERA v2.3 source code when he was developing TERRA.

693 ObjectiVision contends that the decision to develop TERRA came when Associate Professor Klistorner was in need of a replacement for OPERA in order to be able to process the results that he had previously obtained. Accordingly, TERRA needed to have the same functionality as OPERA. Whilst the overall impression from the evidence given by Mr Alkhimov is that he prepared the TERRA software from the ground up that is not what happened. ObjectiVision submits that in fact he used the Recalculation Software as the starting point for TERRA.

694 The University contends that there was no inconsistency in the evidence adduced by Mr Alkhimov. In his evidence in chief he freely accepted that it was a possibility that bits of the OPERA source code were copied from the Recalculation Software and then bits of the Recalculation Software were later copied into TERRA, but it challenges the proposition that the Recalculation Software was merged into or was the starting point for TERRA.

12.4.2 Consideration of causal connection

695 I am satisfied that that there was a limited and indirect use of a small portion of the source code of final OPERA v2.3 by Mr Alkhimov in the writing of TERRA. I consider that it arose from reference that he made to the OPERA source code when he was writing the Recalculation Software, prior to the collection by Mr Cheng of the ObjectiVision computer equipment from the SSI. There is no direct causal connection between final OPERA v2.3 and TERRA. However, fragments of the code used in the Recalculation Software made their way into the TERRA code. I find that this was inadvertent and that the fragments were (as I explain in section 12.5.2 below) insufficient to amount to a reproduction in a material form. My reasons going to causal connection are as follows.

696 First, Mr Alkhimov’s explanation that he used parts of the source code from OPERA in writing the Recalculation Software was rational. It was offered in his evidence in chief as a possible explanation for common code in his May 2016 statement. No technical evidence adduced by ObjectiVision suggested that software having the functions of the Recalculation Software would not logically incorporate part of the code from OPERA, or that such functionality was absent from TERRA. Such evidence might have cast doubt upon the veracity of Mr Alkhimov’s explanation. This version of events is supported in part by the evidence of Mr Paul Peterson, who said that the software he first reviewed in September 2010 was called TERRA (not Recalculation Software). He thought that there was, or may have been a ‘recalculation’ function in it.

697 Secondly, there is objective evidence of the existence of the Recalculation Software in the 31 December 2010 email, where Mr Alkhimov says he has finished the recalculation software and provides a link to download the software. Mr Alkhimov provides a rational explanation for the development of that software that was not challenged in cross-examination. Indeed, ObjectiVision’s final position was at least in part to embrace that explanation as to how common elements of code appeared in TERRA.

698 Thirdly, I regard Mr Alkhimov to be a credible witness. To his credit, in his evidence in chief he adverted to the possibility that some had been copied. I do not regard his evidence in May 2016 to be inconsistent with his preliminary discovery evidence.

699 In my view, the cross-examination of Mr Alkhimov indicates that at one point, some or all of the Recalculation Software was incorporated into TERRA. Mr Alkhimov was taken to parts of exhibit C that showed that there were identical comments in both final OPERA v2.3 and TERRA. The following exchange took place (emphasis added):

I want to suggest to you that you began the recalculation software at a time when you still had access to the OPERA source code? --- That’s likely.

That there are parts of the OPERA source code copied into the recalculation software? --- That’s possible.

And that the reason that there are parts of the OPERA source code present in TERRA is because TERRA is the recalculation software under a new name? --- No. I would say **because it – it was merged from recalculation software to TERRA**.

Thank you. And that is indeed the explanation as to why there is the correspondence between the identical comments that I have taken you to set out in Annexure B. I want to put that to you that that is the explanation. That is to say that ---? ---That’s a possibility. Yes.

....

And you knew when you made the statement that the recalculation software had simply become TERRA and that was the reason there was OPERA code in it? ---No.

And that--? ---It was – it was a possibility.

Well, I want to suggest to you that it was, to your knowledge, the fact back in 2016? --- No, I wouldn’t - I wouldn’t recollect.

And it’s to your knowledge the fact now. I want to suggest that to you as well? --- I would say it’s – **I see it as very likely**.

700 I do not accept ObjectiVision’s submission that Mr Alkhimov was disingenuous in his May 2016 statement or in his oral evidence. It emerged in cross-examination that when he prepared his May 2016 statement, he was provided only with limited parts of TERRA that were said to be the same as parts of OPERA, without the corresponding part OPERA code itself, which (ironically, given the allegations made against him) were said to be confidential to him. That was why he referred only to possibilities at that point. However, upon seeing the matching code from the exhibit C comparison during his cross-examination, he made the concession to which I have referred.

701 At this point I should note that the expert evidence of Professor Zobel, Mr Zeidman and Dr Dart is that some parts of the identical software code in exhibit C may be explained by the fact that this code is also contained within the OPERA 2 Software Design Document. However, Mr Alkhimov gave evidence that he had never referred to or read that document, and so this explanation must be set to one side. I do not accept the submission advanced by the University that it was necessary for ObjectiVision to put to Mr Alkhimov that this was not a possibility.

702 Fourthly, ObjectiVision submits that the contents of Mr Alkhimov’s notebook lend support for a broader contention that, despite his denials, he in fact had access to and used the whole of the OPERA source code when he was developing TERRA. It refers first to the use in the notebook of the file names (rendered in parentheses): OECGRemovalAlgorithm, ORawDataScaling, ODigitalFilter, OSPikeREmoval, OFFT, and a reference to Kasami12Generator, all of which were contained in the OPERA v2.3 source code, and particularly on pages 32 – 34 of the notebook. Secondly, ObjectiVision refers to some of the more detailed content on page 33 of the notebook.

703 In my view little can be drawn from the use of the OPERA file names. Mr Alkhimov’s evidence, which I accept, is that when writing his notes he remembered each of them from his time writing source code for ObjectiVision. That is entirely credible, having regard to the time he spent prior to October 2008 addressing problems with the code and writing modules at the request of both Associate Professor Klistorner and Mr Cheng. Furthermore, the name of files used were generally descriptive of the programming object or algorithm to which they referred. Mr Alkhimov’s evidence in this respect is generally consistent with the evidence of Professor Zobel and Dr Dart, namely that programmers often re-use and remember the names for certain variables when writing code. This would also apply to programmers remembering the names for files, algorithms or objects.

704 The position in relation to the more comprehensive details on pages 32 and 33 of the notebook is somewhat different. In his written evidence, Mr Alkhimov said of those details (emphasis added):

139. I do not now recall exactly how I wrote these notes in my notebook, however I am confident that they were not created by me looking at the OPERA software (because I didn't have a copy of OPERA Research source code when this notebook was written). I think there are two possibilities for how these notes came about:

(a) One possibility is that I simply wrote these notes from my memory of the steps OPERA Research used, with some additional instruction from Sasha in relation to parameter values and the order of the algorithms. At the time I started planning and writing the TERRA code, I could recall the logic of algorithms such as this one for removing the heartbeat from the data, as well as the names of the functions and parameters. However there are some details of parameters and values in these notes (under sub-heading (1) OECGRemovalAlgorithm) that I don’t think I would have remembered. In general, Sasha was the subject matter expert who knew these values and he would tell me what values to use when I was writing the software for OPERA Research or TERRA. Therefore I think that if I wrote these notes from my memory, I must have asked Sasha to tell me what values were needed for some parameters. I think there is a 50% chance this is how these notes were created; or

(b) Considering how detailed the notes are under sub-heading (1), I think there is a 50% chance that the notes were guided by some piece of source code. I am certain that this was not the OPERA Research source code though (as it wasn't available to me by the time I started writing in this notebook.). **If I referenced a piece of software, it may have been the Recalculation Software as a reference. If I started to write the Recalculation Software before the OPERA Research source code was removed from the SSI by Mr Cheng, it is possible that this algorithm, which was in OPERA Research, was incorporated in the Recalculation Software. I cannot exclude this as a possibility**.

705 Mr Alkhimov was not directly challenged on this evidence. However, ObjectiVision relied on the following exchange in support of the proposition that he effectively conceded that he had more generally copied the OPERA source code in developing TERRA:

The reason they’re all in brackets like that, is because they’re a direct reference to functions in OPERA in the notebook. That’s correct, isn’t it? --- It’s possible.

And they reflect copying by you **from either source code** or a document that was –identified all those matters in relation to OPERA? --- Definitely not a document.

I see. But possibly **source code**? --- Possibly.

706 In the light of his written evidence, I consider Mr Alkhimov’s reference to be to the source code of the Recalculation Software, which, as I have found, is likely to have included within it small parts of the OPERA v2.3 software. I do not consider that this passage amounts to the broader concession for which ObjectiVision contends.

707 These matters inform my conclusion that the contents of the notebook relied upon by ObjectiVision do not advance beyond the finding that I have already made, namely that TERRA indirectly included fragments of the Recalculation Software, which was written by Mr Alkhimov having regard to aspects of the OPERA v2.3 source code. I accept Mr Alkhimov’s evidence that such use of the code was unintentional and that it was his intention to write TERRA “from scratch” without regard to OPERA. In my view that conclusion is also supported by the evidence given concerning the content of Mr Zeidman’s exhibits, to which I refer in sections 12.3 and 12.5.

708 Overall, in my view Mr Alkhimov wrote the Recalculation Software with some regard to and using small parts of code from final OPERA v2.3, being limited to parts within exhibits C, D and E. Later, when charged with developing TERRA, he did so with the intention that it be written “from scratch”. When so writing it he used some or all of the Recalculation Software, but devised the structure and form of TERRA independently of OPERA. I find that the parts of OPERA that made their way into TERRA were fragmentary and inadvertent. To the extent that Mr Zeidman offers the opinion that the lines of code in small parts of TERRA that he labels as “similar” amount to copied portions, I reject it. I find convincing the explanation provided by Professor Zobel that the common author, common project aims, common equipment, and common technology guided by the common expert (Associate Professor Klistorner) account for the similarities: see further section 12.5.2 below.

###### 12.5 Materiality of reproduction

12.5.1 The submissions

709 ObjectiVision submits that the evidence in exhibits C, D, E, M, N and O to the Zeidman Report is compelling. It contends that in each case of literal copying it can be inferred that Mr Alkhimov originally copied the surrounding code as well, because it can be assumed that he would copy enough code to reproduce the desired functionality. The surrounding code for each instance of literal copying is no longer identical because it was modified as TERRA was developed. ObjectiVision submits that it is not possible now to know the precise bounds of what was copied, and the Court should infer that it was widespread. It submits that having regard to the importance of each of the files identified, they collectively make up a material part of final OPERA v2.3.

710 The University contends that in the event that a causal connection is found, there is in any event insufficient evidence of similarity between the OPERA and TERRA source codes as set out in the exhibits to warrant a conclusion that there has been a substantial reproduction. I agree with the submission advanced by the University.

12.5.2 Consideration of material reproduction within s 31(1)(a)(i)

711 The authorities considered in section 12.2 above indicate that the assessment of substantiality of reproduction must involve a qualitative comparison between the part of final OPERA v2.3 found to have been reproduced, and final OPERA v2.3 as pleaded.

712 I have referred earlier to the characteristics of final OPERA v2.3. It is not limited to the files relied upon by ObjectiVision as identified in exhibits C, D, E, M, N and O of the Zeidman Report. Nor is it limited to the 32 files identified in Annexure A to the cross claim. The OPERA 2 Software Design Document indicates that there are many other files that form part of the final OPERA v2.3 software, including third party files and files written specifically for ObjectiVision. Professor Zobel identifies in his evidence that final OPERA v2.3 comprises a total of about 877 files, a figure which does not include a further 4267 files identified as third party files in a directory.

713 The question then becomes whether or not what Mr Alkhimov indirectly copied represented a material part of final OPERA v2.3. In my view it was not, for the following reasons.

714 First, Professor Zobel described the respective structure and organisation of OPERA and TERRA as follows:

When you’re developing software, an early stage is identifying what data and things have to be managed within the – within – by the software program. There’s the data in the world that has to be brought into the program. There’s the data that needs to be pushed out at the end and there’s the data as it’s organised internally. Making decisions about how that data is structured or described is a very early step, and a great deal of the organisation of the software subsequently depends on that first layer of organisation.

OPERA and TERRA have, as Dr Dart has described, quite different organisations, and that implies that the structure of the code and the – even the – in many cases, the steps that need to be used to process the data are different in the two instances, despite the fact they’re intended to produce the same, you know, or – same or similar outcome from a similar input. So, to me, that difference in structure strongly speaks against pervasive copying and, indeed, it’s hard – given the nature of that difference, it’s hard – difficult to see how one would sort of blindly edit or alter to get from one to the other, or from large chunks of one to the other. The dissimilarities seem to be very great.

715 Having regard to the whole of the expert evidence, including that Mr Zeidman did not disagree with this summary, I accept the summary as accurate.

716 Secondly, the evidence of Professor Zobel persuasively identifies a number of reasons why the non-literal similarities between the code relied upon by ObjectiVision came to arise. These include: (a) common experts in the teams that were doing the development, being scientists and programmers; (b) common art in terms of the papers and patents on which they rest; (c) similar hardware through which the application was developed, including the means of gathering signals from electrodes placed on the scalp, synchronising those signals with a computer generated visual stimulus and then processing and recording those signals; (d) similar intent for the application it is meant to perform; and (e) the same terms of art in the field of signal processing.

717 As a result of these matters, all of which were established as a matter of fact, I accept the evidence of Professor Zobel that the baseline of similarity between the software is validly considered from this standpoint. In particular, the common authorship of both TERRA and final OPERA v2.3 provides a strong platform from which it may be accepted that there will be common aspects of the code.

718 Thirdly, the small area of similarity between the OPERA and TERRA code that I accept is not explained by these matters is confined to two files, ORawDataScaling and OKasamiGenerator, set out in exhibits C, D and E. They are located in the Processing (Business Logic and Algorithms) part of the final OPERA v2.3 software: see Figure 5. They are two of many parts of the functioning aspect of the processing part of OPERA.

719 In the OPERA 2 Software Design Document reference is made in Section 7 (“Processing”) to a number of steps to be taken within the Processing (Business Logic and Algorithms) unit of the software, which is where Mr Zeidman contends the copied parts of OPERA come from. Section 7 suggests that processing of data involves some 42 stages, including: calculating a scaling factor, applying the scaling factor, applying a raw data filter, calculating cross-correlation of the raw data with the stimulus sequence, averaging it with the functions from the previous runs, latency calculation,calculating the spectrum and many others. The files relied upon by ObjectiVision fit somewhere within these processes, although precisely where and to what material effect was not explained. The code taken is a fragment from ORawDataScaling and a larger portion of OKasamiGenerator. These files form part of one step in the numerous data processing stages. Having regard to the available evidence it is apparent that the indirectly copied part is but a small cog in a small part of the overall function of the literary work in suit.

720 **Raw data scaling** (the function which the ORawDataScaling file carries out) is described at page 49 of the OPERA 2 Software Design Document. It is but one of four steps in the data processing stage, which are Raw Data Scaling, Trace Calculation, Trace Improvement Algorithm, and Latency Calculation Algorithm. The raw data scaling step is said to include “steps to calculate a value of the scaling coefficient that normalizes trace amplitudes. Normalized traces can be compared between the patients or to the normal eye trace.”

721 ObjectiVision submits that raw data scaling is important within the scheme of OPERA. It refers to the evidence of Associate Professor Klistorner that this aspect of the OPERA 2 Software Design Document describes the EEG scaling function of OPERA. There is no dispute that the EEG scaling method was significant to the underlying research relevant to mfVEP. It was developed in order to account for differences in amplitude between patients, even though the eyes and brains of most people are of similar size.

722 However, it is not the concept of raw data scaling that the copyright protects but the literary work that implements it. The function was known and published. The originality of the code was apparently slight. The evidence of Professor Zobel is that the ORawDataScaling file is a very simple signal element of signal processing that reflects a simple analysis of the sequence with maxima and minima and thresholding of the data. It is a “very simple processing of arrays to compute simple values”. He considered that these files (ORawDataScaling and the TERRA RunsDataContainer file) did not rely in any way on the deeper structures of the two overall suites of codes under consideration. In the course of the concurrent evidence Mr Zeidman did not dispute these propositions, but pointed out that one could not copy a function without integrating it within the code as a whole. Accordingly, it would be likely that a person would take and use the surrounding code as well as the specific file because the file is already tested, integrated, and known to work within the environment of surrounding code. Dr Dart responded by noting that where an element of code has what he termed a “low coupling with the rest of the system” it is a fairly easy process to reuse a piece of software by effectively plugging it in to a new piece of code.

723 I have in section 12.3.2 above considered the evidence concerning the specific similarities between RunsDataContainer and OPERA ORawDataScaling files. A very small portion – fragment – of the latter is contained within the former. It is part of an “elementary routine” for processing a histogram. The debate as to coupling does not detract from the proposition that the part taken was very simple. Its originality must be regarded as low.

724 The function of the **OKasamiGenerator** file is described on page 48 of the OPERA 2 Software Design Document, where it says that there are “a number of different types of stimulus sequence defined in OPERA. At the moment only one is used that is called KASAMI-12 (implemented in KasGen12.cpp file)”. Within the scheme of the copyright work as a whole, it might be described as minor.

725 The evidence of Professor Zobel is that the code in question in OPERA does not exhibit any significant originality beyond the need to adapt the method of the Kasami sequence algorithm to the OPERA context. Mr Zeidman considered both the Kasami sequence and the algorithm for it to be somewhat well-known by specialists in the communication field. These views are supported by the evidence of publicly available literature. Furthermore, Dr Malov’s patent referred to above, entitled “Field Testing Using Spread Spectrum Technique” (PCT/AU00/01483), refers to Kasami sequences as a family of sequences to be used to generate the necessary sequences for the mfVEP stimulus.

726 The evidence of Professor Zobel in concurrent evidence was:

HIS HONOUR: Perhaps before moving on to Mr Zeidman, Professor Zobel, you refer to the totality being 100 to 120 lines. Are you able to comment on the functional relevance of those lines within the context of the files, or is that not something you’ve ---

…

PROF ZOBEL: So I – I would consider it from a couple of perspectives. First, in terms of novelty of authoring of either of the suites of code, if we take the Kasami generator in particular because that’s very clear, that’s noted in the prior art as required to the method. It’s precisely specified in prior work. One can find papers that describe – without any ambiguity whatsoever to a level – really to the level of an instruction step, how to compute a Kasami sequence of different forms, a – Kasami generators are readily found on the web and there are any number of them. I understand that they are taught as part of signal processing. So again, I note that I have not myself been taught signal processing, so I can’t directly comment. So I – as an essential part I believe there’s no particular invention required. The other – the piece of coding or data scaling seems to me to reflect a very simple analysis of the sequence of the kinds that even I have done in signal processing from my very, very limited experience was simply to determine a – a very – very simple characteristic with maxima and minima and thresholding of – of the data.

HIS HONOUR: Yes. Thank you.

PROF ZOBEL: So functional significance, obviously, all steps are required, but the effort to create is low. The effort to understand is fairly low given experience in the art, so easily replicated, if perhaps that defines it for you.

727 Mr Zeidman did not take issue with these points, although he did query why the exact code was copied instead of being written again from a Kasami sequence generator found on the internet. Having regard to the whole of the expert evidence, in my view one may conclude that the level of originality of these parts of the code taken was low.

728 Fourthly, I have addressed the remaining exhibits M, N and O in detail in section 12.3.2 above. The similarities identified in the Zeidman Report do not, in my view, support an inference that code from the ODigitalFilter, OStimulusCrossCorrelation or OProcessingParams files in final OPERA v2.3 was copied from final OPERA v2.3 into the respective TERRA files. They do not add to the question of materiality. In this regard, I accept the evidence of Mr Alkhimov that he developed those files “from scratch” and without regard to the OPERA source code. Having regard to the knowledge of mfVEP that he had at the time, including the ongoing information provided to him by Associate Professor Klistorner, and the common pursuit of developing software to function utilising prior data, I am not satisfied that the slight similarities identified are explained by copying, either directly from final OPERA v2.3 or indirectly via the use of code from the Recalculation Software that incorporated source code from final OPERA v2.3.

729 Fifthly, also relevant is the evidence of the amount of code identified from the evidence adduced by ObjectiVision to be copied from final OPERA v2.3. The evidence of the experts is that 100 – 120 lines from the ORawDataScaling and OKasamiGenerator files are in common between the two. Some are comments, others are parts of the code. The University calculates that they equate to 0.07% of the 175,293 lines of non-third party code in final OPERA v2.3 and 0.01% of the total 993,582 lines of code.

730 Having regard to the function, degree of originality, size and role of the copied parts of OPERA established to be within TERRA, I conclude that ObjectiVision has not established that it is a reproduction of final OPERA v2.3 in a material form within s 31(1) of the *Copyright Act*.

731 Accordingly, the copyright case advanced against the University on the basis of alleged similarities between final OPERA v2.3 and TERRA fails.

###### 12.6 The remaining allegations of copyright infringement against the University

732 The next claim advanced by ObjectiVision is that the University infringed copyright in final OPERA v2.3 pursuant to s 38 of the *Copyright Act* by selling the TERRA source code to Visionsearch in May 2011. This is alleged to have taken place when Mr Alkhimov commenced working at Visionsearch, and took with him to the offices of Visionsearch the computer that he had used at the University, thereby handing over a copy of the TERRA source code to Visionsearch. However, as I have found that the TERRA is not an infringing copy of the copyright in final OPERA v2.3, it is not necessary to consider this issue.

733 Nor is it necessary to consider the question that arises under s 38(1) of the *Copyright Act* of whether the University in those circumstances ought reasonably to have known that the making of copies of TERRA infringed copyright in final OPERA v2.3. However, in the event that I am wrong about the question of substantial reproduction, I would be of the view that this additional claim must in any event fail for a different reason.

734 Section 38(1) relevantly provides that the copyright in a literary work is infringed by a person in Australia who, without the licence of the owner, sells an article if the person “knew or ought reasonably to have known” that the making of the article constituted an infringement of the copyright. Assuming that the provision to Visionsearch of the TERRA code in May 2011 was the provision of an article by way of sale, it is to be doubted that the knowledge requirement has been established. I summarised the law on the subject in ***GM Global*** *Technology Operations LLC v S.S.S. Auto Parts Pty Ltd* [2019] FCA 97; 139 IPR 199 at [74] – [76]. The requirements for establishing constructive knowledge (which is the basis upon which ObjectiVision puts its case) are set out in *GM Global* at [89] – [92].

735 ObjectiVision relies on the constructive knowledge of one or other of Associate Professor Klistorner, Dr Chris Peterson, Mr Alkhimov, Mr Ken Coles, Ms Sara Hofman and Mr Gregory Ward. Of those, only Mr Alkhimov has been shown to have knowledge of the writing of the TERRA source code and only he might be expected to know whether or not its origins lay in the OPERA v2.3 source code. I do not consider that he might be regarded to have reasonably *known* that the making of TERRA constituted an infringement of copyright. Having regard to the fragments of code that were taken, I do not think that a reasonable person in his position ought to have. Nor do I consider that his knowledge may be imputed to the University.

736 In light of my conclusions, it is unnecessary for me to address the question of whether by providing TERRA to Visionsearch, the University authorised Visionsearch to infringe copyright in final OPERA v2.3 by further developing TERRA, in breach of s 36(1) of the *Copyright Act*.

##### 13. COPYRIGHT: THE VISIONSEARCH INFRINGEMENT CLAIMS

737 The claims advanced by ObjectiVision against Visionsearch each rely upon a conclusion that the version of TERRA supplied to Visionsearch by the University reproduces final OPERA v2.3 in a material form. As I have determined that issue adversely to ObjectiVision, it is unnecessary to address other aspects of the claim advanced against Visionsearch in detail.

738 The first claim as pleaded is that Visionsearch infringed copyright in OPERA v2.3 pursuant to s 36(1) of the *Copyright Act* by further developing TERRA after April 2011 and thereby reproduced in a material form a substantial part of OPERA v2.3. However, ObjectiVision does not claim that any of the files developed by Visionsearch after the handover by the University to Visionsearch of TERRA amounted to an infringement beyond the scope of the allegation against the University. Accordingly, this claim falls with my determination that TERRA does not reproduce final OPERA v2.3 in a material form.

739 The second claim is that Visionsearch’s reproduction in a material form of TERRA in the Visionsearch 1 device infringes copyright in OPERA v2.3 pursuant to s 36(1) of the *Copyright Act*. ObjectiVision’s case does not rise above that advanced in relation to the infringement case alleged against the University and accordingly the claim again is determined by reference to my earlier findings, and must also fail.

740 The third claim similarly relies on a finding of material reproduction on the same basis, and also must fail.

##### 14. BREACH OF CONFIDENTIAL INFORMATION

741 The breach of confidence case as pleaded by ObjectiVision against the University very much follows upon its copyright case. It pleads in its cross claim that:

(1) By reason of the history and development of the AccuMap 1 and AccuMap 2 products from 1999 until January 2008, and the development of the OPERA software, the “OPERA v2.3 program” is confidential to, and a trade secret of ObjectiVision. The particulars to [84] of the cross claim are:

The information that is confidential to, and a trade secret of, ObjectiVision, is the whole of the OPERA v2.3 program (**the Confidential Information**).

(2) The Confidential Information was provided by ObjectiVision to the University for the purposes of the parties collaborating in the development of AccuMap 1 and AccuMap 2.

(3) In the circumstances, the University knew or should have known that the Confidential Information was confidential to ObjectiVision.

(4) The University acted in breach of its obligations in relation to the Confidential Information by engaging in the same acts that are pleaded to amount to copyright infringement, and are set out in section 9.1 above, being:

(a) the AccuMap 1 infringement claim;

(b) the TERRA infringement claim; and

(c) the claims of infringement by the supply of TERRA to Visionsearch by the University.

742 The case as framed by ObjectiVision accordingly relies on the whole of the OPERA v2.3 program as being the “confidential information”, and the reproduction of a substantial part of that program in a material form as amounting to the relevant breach of confidence.

743 The principles relevant to the consideration of claims for breach of confidence are well known. They were conveniently summarised by Moshinsky J in *IPC Global Pty Ltd v Pavetest Pty Ltd* (No 3) [2017] FCA 82; 122 IPR 445 as follows:

189 As Finn, Sundberg and Jacobson JJ stated in *Optus Networks Pty Ltd v Telstra Corporation Ltd* (2010) 265 ALR 281 at [39], the cause of action for breach of confidence has four elements:

(a) the information in question must be identified with specificity;

(b) it must have the necessary quality of confidence;

(c) it must have been received by the respondent in circumstances importing an obligation of confidence; and

(d) there must be an actual or threatened misuse of the information without the applicant’s consent.

190 The Full Court referred to *Smith Kline & French Laboratories (Auft) Ltd v Secretary, Dept of Community Services and Health* (1990) 22 FCR 73 at 87 per Gummow J. See also *Coco v AN Clark (Engineers) Ltd* [1969] RPC 41 at 47-48; *Australian Medic-Care Company Ltd v Hamilton Pharmaceutical Pty Ltd* (2009) 261 ALR 501 at [632]-[634] per Finn J; *Leica Geosystems Pty Ltd v Koudstaal (No 3)* (2014) 245 IR 422; [2014] FCA 1129 at [47]-[48] per Collier J.

191 In relation to the first of the above elements, in *O’Brien v Komesaroff* (1982) 150 CLR 310, Mason J (with whom Murphy, Aickin, Wilson and Brennan JJ agreed) said (at 326) that “the respondent has consistently failed to identify the particular contents of the documents which he asserts constitute information the confidentiality of which he is entitled to protect. The consequence is that he has failed to formulate a basis on which the court could grant him relief on the assumption that some part or parts of the documents constitute confidential information”.

192 In *Leica Geosystems*, Collier J referred to the observations of Kirby P in *Wright v Gasweld Pty Ltd* (1991) 22 NSWLR 317, where his Honour identified certain factors relevant to a determination as to whether information is of a confidential nature. Kirby P said (at 334):

Determining what is confidential involves a decision on a question of fact in each case where that quality is asserted. Considerations which courts have found to be relevant, in particular cases, in determining this question include:

(a) The fact that skill and effort was expended to acquire the information …

(b) The fact that the information is jealously guarded by the employer, is not readily made available to employees and could not, without considerable effort and/or risk, be acquired by others …

(c) The fact that it was plainly made known to the employee that the material was regarded by the employer as confidential …

(d) The fact that the usages and practices of the industry support the assertion of confidentiality … and

(e) The fact that the employee in question has been permitted to share the information only by reason of his or her seniority or high responsibility within the employer’s organisation …

(Case references omitted.)

744 The contention as pleaded is that the corpus of OPERA v2.3 is confidential. The nature of that work has been considered in section 9.4 above. It consists of nearly 1 million lines of source code, some 82% of which is third party source code. For present purposes it may be assumed that this corpus was confidential to ObjectiVision, having regard to the fact that the particular scheme and arrangement of the software involved a process of integration. That appeared to be the manner in which the pleading characterised the confidential information. It was also the way in which ObjectiVision opened the case, clarifying that it was the totality of the source code for OPERA v2.3 that was claimed to be confidential. That is the source code supplied to Mr Zeidman and defined as the final OPERA v2.3.

745 The close connection between the pleaded breach of confidence case and the copyright infringement case leads to the consequence that the confidential information case must fail. First, because for the reasons set out in section 11, I have found that the AccuMap 1 infringement claim fails. ObjectiVision failed to establish (or plead) the case that it advanced in closing submissions, namely that the licence granted to the University to use final OPERA v2.3 for research purposes was terminated in October 2008. In any event, that allegation of copyright infringement did not rely on any use by the University of the source code, but the executable code that was sitting on the University’s computers which, as I have found, was used under licence.

746 Secondly, because in relation to the TERRA infringement claim, ObjectiVision has failed to establish that a substantial part of final OPERA v2.3 has been reproduced in a material form in TERRA. The only breach pleaded by ObjectiVision in relation to the creation of TERRA relies on it proving that the University had reproduced a “substantial part” of the whole of final OPERA v2.3. ObjectiVision advanced no submissions to suggest that the analysis of material reproduction for the purposes of consideration of the confidential information case should be any different to that considered in relation to copyright. Accordingly, having failed to establish a material reproduction, the case for breach of confidence also fails.

747 In its closing submissions ObjectiVision contends that the relevant information in suit is confidential information“embodied in the OPERA v2.3 program”. The University takes objection to this, because it contends that the pleaded case frames the issue by reference to the OPERA v2.3 program itself. The University is concerned that by so describing the confidential information, ObjectiVision seeks to break down the identification of the confidential information into particular sub-units, rather than advance the confidential information by reference to the defined corpus, being the source code for final OPERA v2.3 as a whole. In my view ObjectiVision’s position must be taken to be no more than a statement that the body of source code identified as final OPERA v2.3 represents a corpus that is the confidential information relied upon. Were it to suggest that particular parts of the information within the source code are to be regarded as confidential (and other parts not), then ObjectiVision would step outside its pleaded case in an impermissible and unfair manner. Furthermore, it would fail, because it has not established to the required degree of specificity that any particular parts of final OPERA v2.3 source code (as opposed to the whole) were confidential.

748 Even so, there is some suggestion that this is what ObjectiVision seeks to do. In its closing submissions ObjectiVision contends that Mr Alkhimov acted in breach of an obligation of confidence when he began “developing the Recalculation Software, which later formed the basis of his development of TERRA”. It submits that the evidence demonstrates that Mr Alkhimov copied *parts* of the OPERA v2.3 source code into the Recalculation Software and then further developed that code into TERRA, and that he had reference to the OPERA v2.3 (and made notes about it in his notebook) while developing TERRA. The copying of fragmented parts of the source code into the Recalculation Software and then the use of the Recalculation Software in TERRA does not amount to a misuse of the pleaded body of confidential information, that being the whole corpus of final OPERA v2.3. That is a significant movement from ObjectiVision’s pleaded case.

749 Even if ObjectiVision’s position as to parts of final OPERA v2.3 is accepted, ObjectiVision has not separately satisfied the first requirement identified in *Optus Networks Pty Ltd v Telstra Corporation Ltd* [2010] FCAFC 21; 265 ALR 281 (Finn, Sundberg and Jacobson JJ) at [39]in showing that whatever information taken by this process amounted to confidential information. That requirement is that the information in question must be identified with specificity. It is one thing to contend that the entire source code for a large piece of software is, taken as a whole, to be regarded as confidential. It is quite a different case to contend that fragments of it are confidential. In the case of final OPERA v2.3, plainly many fragments would not be so regarded. An instance is the extensive third party software. Further, it is no doubt contestable whether or not those parts of the software that simply implement publicly available algorithms, such as the Kasami generator algorithm identified in the Malov patent, satisfy the requirement. Had ObjectiVision wished to advance such a case then it was for it to plead and prove those matters.

750 Accordingly, ObjectiVision’s pleaded case of breach of confidence on the part of the University fails for substantially the same reasons that the copyright infringement case fails. I do not permit the alternative and unpleaded case to be advanced. Were it to be permitted, it would in any event fail at the threshold, not least because ObjectiVision has not separately established that the information said to have been taken in breach of confidence is in fact confidential.

751 The breach of confidence case brought against Visionsearch depends on the provision by the University of the TERRA software to Visionsearch. ObjectiVision pleads in its cross claim that at the time it received the software, Visionsearch knew, or ought to have known, that the Confidential Information was provided to it in breach of the University’s obligations of confidentiality and that it was information that belonged to ObjectiVision and could not be used without the licence or consent from ObjectiVision.

752 Given that the reproduction of the TERRA software did not amount to a breach of confidential information, it follows that the claim against Visionsearch cannot succeed. The same argument arises between ObjectiVision and Visionsearch as to whether or not ObjectiVision can in closing submissions bring a claim that relies on the provision to Visionsearch of *part of* the source code in final OPERA v2.3. The same answer must be given. In [89] of its cross claim, ObjectiVision pleads that Visionsearch was the recipient of “the Confidential Information” from the University. That information is defined in the manner that I have described. No occasion arises on the pleaded case for ObjectiVision to contend that Visionsearch received confidential information “to the extent embodied in TERRA (if any)” form the University.

753 In the event that I am wrong about that, in my view the claim against Visionsearch would in any event fail because I am not satisfied that ObjectiVision has established Visionsearch knew, or ought to have known, that the Confidential Information was provided to it in breach of the University’s obligations of confidentiality, and that it was information that belonged to ObjectiVision and could not be used without the licence or consent of ObjectiVision.

754 In this regard, ObjectiVision contends that the objective evidence demonstrates that Visionsearch had the requisite knowledge. The individuals named in the cross claim as the source of that knowledge are Visionsearch directors Dr Chris Peterson and Mr Coles, together with Associate Professor Klistorner and Mr Alkhimov. The difficulty for ObjectiVision is that the requisite knowledge is that TERRA contained the pleaded information and that it that came from ObjectiVision.

755 Associate Professor Klistorner did not read or write computer code and so was not familiar with the source code of either OPERA v2.3 or TERRA. Mr Alkhimov wrote the source code for both, and repeatedly denied, both in his written and oral evidence, having engaged in acts capable of amounting to copyright infringement in OPERA v2.3. Neither the knowledge of Associate Professor Klistorner as an employee of the University nor Mr Alkhimov, as an employee of the University who in May 2011 came to work at Visionsearch, were in positions at Visionsearch such that their knowledge could be considered to be the knowledge of Visionsearch: see *GM Global* at [89] – [92].

756 Mr Paul Peterson is a director of Visionsearch and also a software engineer. His knowledge may be imputed to Visionsearch. He conducted a review of the TERRA software in late 2010 in order to assess what needed to be done and how much time it would take to complete it so that it could be utilised in the Biogen project. He gave evidence that Mr Alkhimov assured him that in writing the TERRA software, he did not intend to incorporate and had not incorporated material that might be the subject of intellectual property rights owned by ObjectiVision. He received an assurance from Associate Professor Klistorner that the TERRA software was developed “from scratch” and that no one but Mr Alkhimov had been involved in the writing of the code. Visionsearch had not been incorporated in March 2011 and in May 2011 Mr Alkhimov provided the TERRA software to it.

757 Mr Paul Peterson was cross-examined on this evidence. His evidence was that, having regard to the difficulties that the University had experienced with ObjectiVision until that point, it was important to Visionsearch to be satisfied that the TERRA software did not infringe ObjectiVision’s rights. Having regard to the history of the interactions between the parties, I consider this evidence to be cogent and credible.

758 ObjectiVision relies on the evidence of Mr Paul Peterson to contend that as he: (a) was aware, when Mr Alkhimov began to work at Visionsearch, that he had been the lead developer of the OPERA v2.3 software; (b) knew that writing the software carried a danger that legal problems may arise in relation to confidentiality; (c) decided not to adopt a “cleanroom” approach; (d) sought assurances from Associate Professor Klistorner and Mr Alkhimov because he was aware of the dispute; and (e) decided that it would be better to use the services of Mr Alkhimov because of the tight time frames involved, it should be inferred that Visionsearch had the requisite knowledge.

759 ObjectiVision also relies on the content of an email dated 25 June 2009, in which Dr Chris Peterson said to Dr Greg Ward:

Hello Greg

Further to our conversation just now, yesterday Sasha indicated to me the following activities that should be done to productise the mfVEP technology. This is an informed opinion but not a detailed task by task analysis.

1. finish converting the software to the new language and incorporate research improvements at the same time – 4 months.

760 ObjectiVision submits that “converting the software to the new language” was a reference to converting the C++ coding language of OPERA to the C# language used for TERRA. It notes that the other directors of Visionsearch, being Mr Coles and Dr Chris Peterson did not give evidence, although Dr Chris Peterson gave a statement in the proceedings. It submits that it may be inferred that anything that Dr Chris Peterson would have said about his knowledge of Mr Alkhimov’s access to OPERA during the development of TERRA would not have assisted Visionsearch.

761 No evidence adduced by ObjectiVision indicates that any representative of Visionsearch had access to saw the source code of final OPERA v2.3 prior to TERRA being supplied to it by the University. The inference that ObjectiVision now asks be drawn in its favour is that despite the assurances given by Associate Professor Klistorner and Mr Alkhimov, Visionsearch ought to have known that TERRA incorporated significant parts or the whole of final OPERA v2.3. In the face of the evidence that I have just described, I would not do so. The content of the 25 June 2009 email does not advance things. In cross-examination Associate Professor Klistorner gave evidence that although Dr Chris Peterson had a software background, he had no involvement with the software that was being written or managed within Associate Professor Klistorner’s rooms. Associate Professor Klistorner thought that email inaccurately recorded the content of a conversation that he had with him. It is apparent that Dr Chris Peterson was not in a position to know the mechanism by which the TERRA software was being written. It was not put to Mr Alkhimov in cross-examination that he had engaged in an act of ‘converting’ OPERA v2.3 into a different language, and his evidence credibly indicates that it was not. The substantial structural and other differences between final OPERA v2.3 and TERRA confirm that view. In such circumstances I do not consider that it is appropriate that an inference adverse to Visionsearch should in the circumstances drawn from the failure to call Dr Chris Peterson to give evidence.

##### 15. DISPOSITION

762 In section 6 I have concluded that the University succeeds in its claim. In sections 7 – 14, I have concluded that ObjectiVision fails in each aspect of its cross-claim. The consequence is that the University is entitled to the declaration and orders that it seeks. The cross-claim must be dismissed. Unless any party wishes to contend for a different order, it appears that ObjectiVision should pay the University’s costs of its claim and the University and Visionsearch’s costs of the cross-claim. I will direct that the parties supply short minutes of order giving effect to these reasons.

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| I certify that the preceding seven hundred and sixty two (762) numbered paragraphs are a true copy of the Reasons for Judgment herein of the Honourable Justice Burley. |

Associate:

Dated: 2 October 2019

**ANNEXURE**

