

FEDERAL COURT OF AUSTRALIA

Research Affiliates LLC v Commissioner of Patents [2014] FCAFC 150

Citation:	Research Affiliates LLC v Commissioner of Patents [2014] FCAFC 150
Appeal from:	Research Affiliates LLC v Commissioner of Patents [2013] FCA 71
Parties:	RESEARCH AFFILIATES LLC v COMMISSIONER OF PATENTS
File number:	NSD 328 of 2013
Judges:	KENNY, BENNETT AND NICHOLAS JJ
Date of judgment:	10 November 2014
Catchwords:	PATENTS – s 18(1)(a) of the <i>Patents Act 1990</i> (Cth) – where claimed invention provides a method to create a securities index by means of a computer - whether a patentable invention - whether a manner of manufacture within the meaning of s6 of the Statute of Monopolies - relevance of computer implementation
Legislation:	European Patent Convention, Art 52 <i>Patents Act 1990</i> (Cth), s 18(1)(a) Statute of Monopolies 1623 (Imp) (21 Jac 1 c 3), s 6 35 U.S. Code, § 101
Cases cited:	<i>Advanced Building Systems Pty Ltd v Ramset Fasteners (Aust) Pty Ltd</i> (1998) 194 CLR 171 <i>Aerotel Ltd v Telco Holdings Ltd; Macrossan's Application</i> [2007] 1 All ER 225 <i>Aktiebolaget Hassle v Alphapharm Pty Ltd</i> (2002) 212 CLR 411 <i>Alice Corporation Pty Ltd v CLS Bank International</i> 134 S Ct 2347 (2014) <i>Apotex Pty Ltd v Sanofi–Aventis Australia Pty Ltd</i> (2013) 103 IPR 217; [2013] HCA 50 <i>Astron Clinica Ltd v Comptroller General of Patents, Designs and Trade Marks</i> [2008] 2 All ER 742 <i>AT&T Knowledge Ventures LP v Comptroller General Of Patents</i> [2009] EWHC 343 (Pat Ct) <i>Bancorp Services LLC v Sun Life Assurance Co of Canada (US)</i> 687 F. 3d 1266 (2012) <i>Bilski v Kappos</i> 130 S Ct 3218 (2010) <i>Burroughs Corporation (Perkin's) Application</i> [1974] RPC

147 at 158
CCOM Pty Limited v Jiejing Pty Limited (1994) 51 FCR 260 at 289
CLS Bank International v Alice Corporation Pty Ltd 717 F.3d 1269 (2013)
D’Arcy v Myriad Genetics Inc [2014] FCAFC 115
Diamond v Chakrabarty 447 US 303, 315 (1980)
Diamond v Diehr 450 US 175, 191-192 (1981)
Gale’s Application [1991] RPC 305
Genentech Inc’s Patent [1987] RPC 553
Grant v Commissioner of Patents (2006) 154 FCR 62
HTC Europe Co Ltd v Apple Inc [2013] RPC 30
Kirin-Amgen Inc v Hoechst Marion Roussel Limited [2005] 1 All ER 667
International Business Machines Corporation’s Application [1980] FSR 564
Mayo Collaborative Services v Prometheus Laboratories Inc 132 S Ct 1289 (2012)
National Research Development Corporation v Commissioner of Patents (1959) 102 CLR 252
Parker v Flook 437 US 584 (1978)
Re Cooper’s Application for a Patent (1901) 19 RPC 53
Re Virginia-Carolina Chemical Corporation’s Application [1958] RPC 35
RPL Central Pty Ltd v Commissioner of Patents [2013] FCA 871
Shoppalotto.com Ltd v Comptroller General of Patents, Designs and Trade Marks [2006] RPC 7
Symbian Ltd v Comptroller General of Patents [2009] RPC 1
Welcome Real-Time SA v Catuity Inc (2001) 113 FCR 110

Date of hearing: 18 November 2013

Place: Sydney

Division: GENERAL DIVISION

Category: Catchwords

Number of paragraphs: 121

Counsel for the Appellant: Mr AJL Bannon SC with Mr PW Flynn

Solicitor for the Appellant: Shelston IP Lawyers

Counsel for the Respondent: Mr DK Catterns QC with Mr C Dimitriadis and Mr AR Hughes

Solicitor for the Respondent: Australian Government Solicitor

**IN THE FEDERAL COURT OF AUSTRALIA
NEW SOUTH WALES DISTRICT REGISTRY
GENERAL DIVISION**

NSD 328 of 2013

ON APPEAL FROM THE FEDERAL COURT OF AUSTRALIA

BETWEEN: RESEARCH AFFILIATES LLC
Appellant

AND: COMMISSIONER OF PATENTS
Respondent

JUDGES: KENNY, BENNETT AND NICHOLAS JJ

DATE OF ORDER: 10 NOVEMBER 2014

WHERE MADE: SYDNEY

THE COURT ORDERS THAT:

1. The application for leave to appeal be granted.
2. The appeal be dismissed.
3. The appellant pay the respondent's costs of and incidental to the application for leave to appeal and the appeal.

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

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REASONS FOR JUDGMENT

1 This is an application for leave to appeal, and if granted, an appeal from the decision of the primary Judge in *Research Affiliates LLC v Commissioner of Patents* (2013) 300 ALR 724; [2013] FCA 71. The issue is whether the claimed invention of two patent applications is a manner of manufacture under s 18(1)(a) of the *Patents Act 1990* (Cth) (**the Act**). In essence, this raises the question of whether computer implementation of an otherwise unpatentable business scheme is sufficient to make the claimed method properly the subject of letters patent.

2 The background is set out at [3] to [27] of the primary Judge's reasons. Briefly stated, the appellant (**Research Affiliates**) was the assignee of patent application No 2005213293 (**Parent Application**), which was refused by the respondent (**Commissioner**) on the basis that claims 1 to 19 were not for a manner of manufacture within s 18(1)(a) of the Act. Research Affiliates also took assignment of a divisional patent application No 2010236045 (**Divisional Application**), which was also refused on the basis that claims 1 to 30 were not for a manner of manufacture within s 18(1)(a) of the Act. Research Affiliates appealed each decision. The primary Judge dismissed each appeal.

3 In support of its application for leave to appeal, Research Affiliates submits that:

- the refusal of leave would finally determine its right to obtain a patent and therefore the primary Judge’s decision, which it contends was in error, would at least in a practical sense, be a final determination of its rights; and
- the issues raised are of general public importance.

4 The only matter raised by the Commissioner in respect of Research Affiliates’ application for leave to appeal is that, in her submission, the decision of the primary Judge was correct. The Commissioner accepts that the issues to be addressed are of importance. We accept that the finality of the primary Judge’s decision and the general importance of the issues raised make it appropriate to grant leave to appeal.

5 As Research Affiliates observed, the proceedings before the primary Judge were conducted on the basis of claim 1 of the Divisional Application (to which we will simply refer as **the Patent**). The parties agree that it is convenient to approach the appeal on this basis. The specification of each of the Parent Application and the Divisional Application is in similar terms, aside from the “*Summary of the Invention*” and the detail of the claims.

6 Section 18(1)(a) of the Act provides that an invention is a patentable invention if, so far as claimed in any claim, it is a manner of manufacture within the meaning of s 6 of the Statute of Monopolies 1623 (Imp) (**Statute of Monopolies**). “*Invention*” is defined in Sch 1 to the Act as “*any manner of new manufacture the subject of letters patent and grant of privilege within s 6 of the Statute of Monopolies, and includes an alleged invention*”. Section 6 of the Statute of Monopolies relevantly provides that what is patentable is “*...any manner of new Manufactures*”. While this may be seen to make the definition of “*invention*” as simply a repetition of the reference to a “*manner of new manufacture*”, the reference to s 6 of the Statue of Monopolies incorporates the jurisprudence that has developed as to that concept.

7 This was most helpfully crystallised in what Crennan and Kiefel JJ in *Apotex Pty Ltd v Sanofi–Aventis Australia Pty Ltd* (2013) 103 IPR 217; [2013] HCA 50 (**Apotex**) at [216] called “*the celebrated case*” of *National Research Development Corporation v Commissioner of Patents* (1959) 102 CLR 252 (**NRDC**).

8 At the outset, it is worth repeating the following principles established by *NRDC*, as approved and applied in *Apotex, Grant v Commissioner of Patents* (2006) 154 FCR 62 (**Grant**)

and *D'Arcy v Myriad Genetics Inc* [2014] FCAFC 115 (*Myriad*). *Grant* also concerned the patentability of a business scheme.

- The right question is: “*Is this a proper subject of letters patent according to the principles which have been developed for the application of s 6 of the Statute of Monopolies?*” (at 269).
- There is a ‘manufacture’ such as might properly have been the subject of letters patent and grant of privilege under s 6 of the Statute of Monopolies whenever a process produces, either immediately or ultimately, a useful physical result in relation to a material or tangible entity (at 268, 276).
- The method the subject of the relevant claim must have as its end result an artificial effect falling squarely within the true concept of what must be produced by a process if it is to be held to be patentable (at 277).
- There may be a discovery without invention, either because the discovery is some piece of abstract information without any suggestion of a practical application of it to a useful end, or because its application lies outside the realm of ‘manufacture’ (at 264).
- To fall within the limits of patentability, the process must be one that offers some advantage which is material in the sense that the process belongs to a useful art as distinct from a fine art and that its value to the country is in the field of economic endeavour (at 275).

9 There is no issue in this case that the claimed invention has economic significance.

10 As was said by the High Court in *Advanced Building Systems Pty Ltd v Ramset Fasteners (Aust) Pty Ltd* (1998) 194 CLR 171 at [34], in order for a discovery to be elevated to a patentable invention there needs to be a practical means of carrying out the idea so as to add to the sum of human art. Similarly, Lord Hoffman in *Kirin-Amgen Inc v Hoechst Marion Roussel Limited* [2005] 1 All ER 667 at [76] (citing *Genentech Inc’s Patent* [1987] RPC 553 at 566), said that “[i]t is trite law that you cannot patent a discovery, but if on the basis of that discovery you can tell people how it may be usefully employed, then a patentable invention may result”. A manufacture is not limited, for example, by reference to the idea of making tangible goods by hand or by machine (*NRDC* at 269). As the Full Court said in *Grant* at [38]-[39], there is unpredictability in the advances of human ingenuity and what may be, or may be described as, science or technology, but on the other hand, the mere taking of sequential steps

may represent a collocation of integers rather than a new combination. Methods may involve ingenuity and imagination and may produce new kinds of transactions which “*could well warrant the description of discoveries. But they are not inventions*” (at [34]).

11 However, is the fact that a claimed method to a new kind of transaction requires the use of a computer for implementation sufficient to bring it within the realm of patentability?

12 In *Apotex*, the High Court endorsed the approach taken in *NRDC*. Chief Justice French noted at [10] that the objectives of s 6 were: “*the encouragement of industry, employment and growth rather than justice to the ‘inventor’ for his intellectual percipience*” (citing Cornish, Llewelyn and Aplin, *Intellectual Property: Patents, Copyright, Trade Marks and Allied Rights* (8th ed, 2013) at 123). His Honour adopted the reasoning in *NRDC* that “*manner of manufacture*” as applied to a method or process was not constrained by requiring the method or process to be linked to a narrowly defined understanding of a “*vendible product*” and that a widening conception of the notion of “*manufacture*” had characterised the growth of patent law. Justices Crennan and Kiefel observed that judicial determinations were preferable to specific legislative exclusions from patentability which, as noted by the Industrial Property Advisory Committee in its report on the *Patents Act 1952* (Cth) dated 29 August 1984, “*would be likely to prove a very slow, blunt and inefficient instrument for influencing the economic direction of particular industries or fields of technological development in Australia*”.

13 In *Apotex*, the question was whether methods of medical treatment are patentable. The High Court identified the competing considerations between freedom of use and the encouragement of research and invention. Their Honours cited Professor Cornish (at [223]) and his co-authors who said: “[i]n the second half of the 20th century, patent law in every industrial state had to develop in ways which mediated this conflict.”

14 Justices Crennan and Kiefel noted that decisions from overseas are of course not binding, and that there were significant divergences, particularly in different legislative contexts (at [243]). However, their Honours also noted that the theory and purpose of patent legislation everywhere have much in common, that the Act includes provisions designed to harmonise Australian patent law with the laws of Australia’s major trading partners, and that there is a need to ensure compliance with Australia’s international obligations under the TRIPS Agreement.

THE POSITION IN OTHER JURISDICTIONS

15 A consideration of the way in which some other courts and tribunals have dealt with the question is helpful, although the differences between the legislative contexts governing their decisions and our own governing law must be borne in mind.

Europe and the United Kingdom (UK)

16 In the UK, in *International Business Machines Corporation's Application* [1980] FSR 564 (**IBM 1**), Graham and Whitford JJ found a claim directed to a data handling system suitable for establishing prices to commodities such as shares, based on buy and sell orders, patentable. Their Honours' reasoning was based on the fact that a computer was programmed in a particular way, such that the computer operated in accordance with the method. The method was embodied in the program and in the apparatus in physical form, on the basis of which Graham and Whitford JJ concluded that the claims should be allowed to proceed.

17 There has been some apparent divergence of approach between the UK Courts and the Board of Appeal and the Enlarged Board of Appeal of the European Patent Office (together, **the Board**) as to the analysis of patentability of computer-implemented methods, although in each case the basis of the analysis is Art 52 of the European Patent Convention (**EPC**). Some of the difficulties have been outlined by the UK Court of Appeal in *Symbian Ltd v Comptroller General of Patents* [2009] RPC 1 (**Symbian**). In discussing various decisions of the Board, and bearing in mind the specific statutory context in which the Board and the English courts operate, the different explanations of what can be patentable are, to say the least, confusing.

18 The context is that Art 52 of the EPC and the corresponding UK statutory provision exclude from patentability, relevantly:

- a) *discoveries, scientific theories and mathematical methods;*
- b) *aesthetic creations;*
- c) *schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;*
- d) *presentations of information.*

19 Article 52 is expressed subject to the proviso that the statute prevents such things from being treated as an invention for the purpose of the convention “*only to the extent to which a [patent] or [application for a patent] relates to such subject-matter or activities as such*”. The corresponding UK provision contains a similar proviso.

20 This has given rise to numerous discussions as to what is more than a computer program
“as such” and as to the “technical effect” or “technical contribution” of the claimed invention.

21 The approach in some of the decisions of the Board has been summarised by Kitchen J
(as he then was) in *Astron Clinica Ltd v Comptroller General of Patents, Designs and Trade
Marks* [2008] 2 All ER 742 at 753 as being that “any program on a carrier has a technical
character and so escapes the prohibition in art 52”. The Board in its decision of *FUJITSU/File
search method and apparatus, and index file creation method and device* T1351/04, 18 April
2007 effectively adopted its own position rather than that of the UK courts and made, in what
was described in *Symbian* at [45], as “the bald statement”:

*The claimed method requires the use of a computer. It is therefore technical in
character and constitutes an invention within the meaning of Art 52.*

22 The UK Court of Appeal has rejected this approach as being inconsistent with previous
Board decisions and with earlier decisions of the Court of Appeal (*Symbian* at [46]).

23 In our opinion, it is more helpful to consider the analysis of the issue in the UK decisions
which, with respect, provide a consistent approach. Despite being in the context of the statutory
exclusion of computer programs “as such”, the UK decisions are of assistance in understanding
the distinction to be drawn in the Australian context between an unpatentable business method
and a claimed invention which may be patentable if the invention results in an “artificial
effect”, within the understanding of that concept as explained in *NRDC*.

24 The approach of the UK courts can be understood by a consideration of the decisions
of the UK Court of Appeal in *Aerotel Ltd v Telco Holdings Ltd; Re Macrossan’s Application*
[2007] 1 All ER 225 (*Aerotel*), *Symbian* and *HTC Europe Co Ltd v Apple Inc* [2013] RPC 30
(*HTC*).

Aerotel

25 In commenting on the statutory exclusion, Jacob LJ, with whom Chadwick and
Neuberger LJ agreed, commented (at [9]) that while a scientific theorem as such is excluded,
“how could a scientific theory ever be the subject of a patent claim in the first place?”. In
words that resonate with *NRDC*, his Lordship also said:

*A patent after all is to a legal monopoly over some commercial activity carried out by
human beings such as making or dealing in goods or carrying out a process. A
scientific theory is not activity at all. It simply is not the sort of thing which could be
made the subject of a legal monopoly.*

26 It is not necessary to go into the detail of Jacob LJ's description of the bases for conflicting decisions of the Board and the UK courts, or the different approaches which have been adopted in order to ascertain patentability under Art 52. Suffice to say that it has not been easy for the UK courts or the Board to determine whether or not a claim is to a computer program "as such" and thereby excluded from patentability, or whether the invention makes "a technical contribution to the known art".

27 Lord Justice Jacob also said that, as a matter of logic (at [32]):

Patents are essentially about information as to what to make or do. If all the patentee has taught new is something about an excluded category, then it makes sense for the exclusion to apply. If he has taught more, then it does not.

28 In discussing this issue, his Lordship expressed the view that claims to a computer program loaded onto a known form of medium, or a claim to a particular system of conducting business over the internet using standard hardware, are examples of what is excluded by Art 52. This is in contrast to a hard drive loaded with such program where the hard drive specified was itself new and inventive. In the latter case, it would not be the program which caused the claim to escape Art 52 but the newness of the kind of hard drive on which the music was loaded.

29 *Aerotel* sets out an approach, in four steps:

1. properly construe the claim;
2. identify the actual contribution;
3. ask whether it falls solely within the excluded subject matter; and
4. check whether the actual or alleged contribution is actually technical in nature.

30 The second step requires the court to consider what the inventor "has really added to human knowledge", looking at substance and not form. According to the third step, if the contribution identified consisted of excluded subject matter as such, it would be excluded and it would be unnecessary to progress to the fourth step.

31 One of the patents in *Aerotel* related to an automated method of acquiring the documents necessary to incorporate a company, and involved a user sitting at a computer and communicating with a remote server, answering questions. As explained in [63], it was not suggested that what was invented was a new kind of hardware. Rather:

What [the inventor] has thought of is an interactive system which will do the job which otherwise would have been done by a solicitor or company formation agent. Questions are asked, the answers incorporated in the draft, and depending on some particular

answers, further questions are asked and the answers incorporated. That is his contribution.

32 At [68]-[73], Jacob LJ said that whether as an abstract or generalised activity or specific activity, if the claim is to a method of doing business as such, it is excluded. His Honour rejected the analogy of “*a tool*” used in business, such as a telephone, saying that the method was for the very business itself, “*the business of advising upon and creating appropriate company formation documents*”. Apart from the mere fact of running a computer program, there was nothing technical about the contribution where it amounted to a computer program which could be used to carry out the method where the hardware used was standard and not part of the contribution.

33 As an appendix to the decision in *Aerotel*, Jacob LJ analysed the case law in the UK and in Europe. Some of the divergence in approach between the Board and the UK courts seems to stem from the Board’s consideration of inventive step in the context of patentability. That approach is not relevant to Australian law. However, that discussion shows the difficulty that courts have had in grappling with the patentability of computer programs, the use of computers and business methods.

34 As part of that analysis, Jacob LJ quoted (at [118]) from what Pumfrey J had said in *Shoppalotto.com Ltd v Comptroller General of Patents, Designs and Trade Marks* [2006] RPC 7 at [7], a decision on the EPC:

The importance of the programmed computer in modern industry, and the recent expansion in attempts to patent business methods, have ensured a substantial body of cases in the Technical Boards of Appeal of the EPO relating to these two exclusions. Discoveries and scientific theories have never given any difficulty, I suppose because it is difficult to work out how to draft a claim to either, but the scope and meaning of the other provisions are not straightforward.

35 Justice Pumfrey had also said at [11]:

Merely to program a computer so that it operates in a new way is not a solution to any technical problem, although the result may be considered to be a new machine. It follows that an inventive contribution cannot reside in excluded subject matter.

36 It must of course be remembered that these decisions were made in the context of a statutory exclusion and that what is excluded from patentability is, relevantly, a business method “*as such*”. However, it is apparent that applying a test of a “*technical contribution*”

has similar flexibility and, in this area of technology can be useful in an analysis of an “*artificial effect*”.

Symbian

37 The Court of Appeal in *Symbian* endorsed the approach previously taken in *Aerotel* when applying the principle to a UK patent application entitled “Mapping dynamic link libraries in a computer device”, which concerned a method of accessing data in a dynamic link library in a computing device. Lord Justice Jacob (with whom Kay and Neuberger LJ agreed) said at [48] that “[t]he mere fact that what is sought to be registered is a computer program is plainly not determinative”. The question, his Lordship said, was whether it revealed a ‘technical’ contribution to the state of the art (as is reflected in the fourth step in *Aerotel*).

38 Recognising that the boundary line between what is and what is not a technical contribution is imprecise, Jacob LJ commented that there are difficulties in formulating a precise test for deciding whether a computer program is excluded from patentability.

39 In *Symbian*, the Court held that the claimed invention was not a method of doing business, or a mathematical method, or a method for performing mental acts, and so did make a technical contribution. The Court considered that as a result of the invention, not only would the computer containing the instructions in question be a better computer, but also that the instructions solved a ‘technical’ problem lying within the computer itself (at [53]-[54]). Further, the invention would have an effect within the computer as programmed with the relevant instructions; the beneficial consequence of those instructions would also feed into cameras and other devices and products. The invention resulted in improved speed and reliable functioning of the computer, such that: “[a]s a matter of such reality there is more than just a “better program”, *there is a faster and more reliable computer*” (at [55]-[56]). The Court highlighted that more is needed than a code as embodied on a physical medium which causes the computer to operate in accordance with that code.

HTC

40 The UK Court of Appeal gave further consideration to the patentability in this field of endeavour in *HTC*. This involved consideration of *Aerotel* and *Symbian*. Lord Justice Kitchin noted that the Board had considered *Aerotel* in *Duns Licensing Associates* [2007] EPOR 38 (***Duns***) and had been critical of it, describing it as “*not consistent with a good-faith interpretation*” of the EPC; in fact, “*irreconcilable*” with it.

41 On the *Aerotel* approach, a claimed invention whose only contribution is not technical or lies in an excluded field falls to be rejected under Art 52. On the *Duns* approach, the invention falls to be rejected under Art 56 because such a contribution must be cut out of the assessment of inventive step. Lord Justice Kitchen observed that, whichever route is taken when assessing whether computer programs were excluded from patentability, “*one ought to end up at the same destination*” (at [41]). He said that the approach was to consider whether the invention made a technical contribution to the known art, with the rider that novel or inventive purely excluded subject matter did not count as a technical contribution, and to follow the structured approach adopted in *Aerotel*.

42 Lord Justice Kitchen summarised the test in principle, from *Aerotel*, *Symbian* and *Duns*, as whether the contribution can or cannot be characterised as technical (at [45]-[49]).

- It is not possible to define a clear rule to determine whether or not a program is excluded.
- The fact that improvements are made to the software rather than hardware forming part of the computer does not make a difference. The analysis is one of substance, not form.
- The exclusions operate cumulatively. For example, a program relating to a new way of calculating a square root with the aid of a computer and stored on a ROM (such as in *Gale’s Application* [1991] RPC 305) is still a computer program (excluded matter) incorporating a mathematical method (also an excluded matter).
- It is helpful to ask what the invention contributes to the art as a matter of practical reality over and above the fact that it relates to a program for a computer. If the only contribution lies in excluded subject matter then it is not patentable.
- It is also helpful to consider whether the invention may be regarded as solving a problem which is essentially technical and whether that problem lies inside or outside the computer. An invention that solves a technical problem within the computer will have a relevant technical effect. An invention which solves a technical problem outside the computer will also have a relevant technical effect, for example by controlling an improved technical process.

43 The Court endorsed (at [50]-[51]) the “*useful signposts*” approach derived by Lewison J (as he then was) from *Aerotel* and *Symbian* in *AT&T Knowledge Ventures LP v Comptroller General Of Patents* [2009] EWHC 343 (Pat Ct), as set out below.

- The claimed technical effect has a technical effect on a process which is carried on outside the computer.
- The claimed technical effect operates at the level of the architecture of the computer, that is to say whether the effect is produced irrespective of the data being processed or the applications being run.
- The claimed technical effect results in the computer being made to operate in a new way.
- There is an increase in the speed or reliability of the computer. This signpost was revisited by Lewison LJ in his judgment in *HTC*, such that the question ought be phrased in a less restrictive way, to be whether a program makes a computer a better computer in the sense of running more efficiently and effectively as a computer.
- The perceived problem is overcome by the claimed invention as opposed to it being merely circumvented.

44 Lord Justice Lewison, in *HTC*, pointed out that, because the interaction between hardware and software in a computer is inherently technical in the ordinary sense of the word, this is not enough for software to qualify as making a “*technical contribution*”.

45 These analyses as to the necessary “*technical contribution*” are pertinent to a consideration of a necessary “*technical effect*”.

The United States

***Bilski v Kappos* 130 S Ct 3218 (2010) (*Bilski*)**

In *Bilski*, the United States Supreme Court considered patentability in the context of three specific exceptions to the otherwise broad patent eligibility principles in § 101 of 35 U.S. Code (**US Patent Act**), namely, “*laws of nature, physical phenomena and abstract ideas*”.

46 Justice Kennedy, with whom the other judges either agreed or concurred, said that a categorical rule denying patent protection for inventions in areas not contemplated by Congress would frustrate the purposes of the US Patent Act (relying on *Diamond v Chakrabarty* 447 US 303, 315 (1980)). Their Honours also recognised that questions of patent eligibility under § 101 of the US Patent Act are only the threshold test for patent protection, and that requirements for novelty, non-obviousness and compliance with other matters (such as those set out in Australia in s 40 of the Act) provide a further balance between the protection of inventors and impeding progress by granting patents that are not justified. Justice Stevens with whom

Ginsburg, Breyer and Sotomayor JJ joined, pointed out (at 3232) that “[f]or centuries, it was considered well established that a series of steps for conducting business was not, in itself, patentable”. However, Kennedy J said that it is not clear how far a prohibition on business method patents would reach.

47 The invention there under consideration explained how buyers and sellers of commodities in the energy market could protect or hedge against the risk of price changes. The claim was not to a computer-implemented method. That is, that the invention was not implemented on a specific apparatus. The Supreme Court held that this reduced the concept of hedging to a mathematical formula, which was an abstract idea and thus not a patentable process.

48 Justice Kennedy emphasised (at 3227) that there was nothing in the US Patent Act that confined a process, such that it required that it be tied to a machine or to transform an article (referred to as the “*machine-or-transformation test*”), although it may be a useful investigative tool for determining whether a claimed invention is a patent-eligible process. It was not the sole criterion for determining patent eligibility.

49 Recognising that in the current ‘Information Age’ it is necessary to set a bar at a height that enables the Court to balance creative endeavour and dynamic change with the special problems raised by some business method patents, such as vagueness and suspect validity, Kennedy J suggested (at 3229) that the unpatentability of abstract ideas could prove a useful tool in searching for a limiting principle. His Honour endorsed what had been said in *Parker v Flook* 437 US 584 (1978), which rejected the notion “*that post-solution activity, no matter how conventional or obvious in itself, can transform an unpatentable principle into a patentable process*”. That is, the prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use to, for example, a particular technological environment, or by adding “*insignificant post-solution activity*” (*Diamond v Diehr* 450 US 175, 191-192 (1981)).

50 Interestingly Stevens J, in considering English law and the Statute of Monopolies (at 3240), observed that there is no basis in the Statute of Monopolies or in pre-1790 English precedent to infer that business methods could qualify for a patent. This was despite the fact that during the 17th and 18th centuries, as his Honour said at 3241-3242:

...Great Britain saw innovations in business organization, business models, management techniques, and novel solutions to the challenges of operating global

*firms in which the board of managers could be reached only by a long sea voyage.
Few if any of these methods of conducting business were patented.*

Alice Corporation Pty Ltd v CLS Bank International 134 S Ct 2347 (2014) (Alice Corporation)

51 In *Alice Corporation*, the patents at issue disclosed a computer-implemented scheme for mitigating “settlement risk”, that is the risk that only one party to a financial transaction will meet its financial obligations. The question for the Supreme Court was whether the claims were patent eligible under § 101 of the US Patent Act, or were drawn to “*a patent-ineligible abstract idea*”. The Court (Thomas J, with Sotomayor J filing a concurring opinion in which Ginsberg and Breyer JJ joined) held that the claims were to an abstract idea of intermediated settlement and that merely requiring generic computer implementation failed to transform that abstract idea into a patent eligible invention. This had also been the conclusion of the United States Courts of Appeals for the Federal Circuit (*CLS Bank International v Alice Corporation Pty Ltd* 717 F. 3d 1269 (2013)).

52 As summarised by Thomas J (at 2353), the patents claimed:

1. *a method for exchanging financial obligations;*
2. *a computer system configured to carry out the method;*
3. *a computer readable medium containing program code for performing the method of exchanging obligations.*

53 All of the claims were implemented using a computer; the system and media claims expressly recited a computer and the method claims required a computer.

54 In the specification, the invention was said to “*enable the management of risk relating to specified, yet unknown, future events*” and that the “*invention relates to methods and apparatus, including electrical computers and data processing systems applied to financial matters and risk management*”. The Court recorded that the claims were designed to facilitate the exchange of financial obligations between two parties using a computer system as a third party intermediary. The intermediary created ‘shadow’ credit and debit records that mirrored the balances in the parties’ real world accounts at ‘exchange institutions’ e.g. banks. The intermediary updated the shadow records in real time as transactions were entered, allowing only those transactions for which the parties’ shadow records indicated sufficient resources to satisfy their mutual obligations. All of the claims were implemented using a computer and some claims expressly recited a computer.

55 That is, the claimed method required the use of a computer to create electronic records, track multiple transactions, and issue simultaneous instructions. In that sense “*the computer [was] itself the intermediary*” leading the Court to conclude that “*in light of the foregoing, the relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea of intermediated settlement on a generic computer. They do not.*”

56 The plurality in the Federal Circuit followed the Supreme Court decision in *Mayo Collaborative Services v Prometheus Laboratories Inc* 132 S Ct 1289 (2012) first to identify the abstract idea represented in the claim and then to determine whether the balance of the claim adds “*significantly more [than a patent upon the ineligible concept]*”. The plurality concluded that the use of a computer to maintain, adjust and reconcile shadow accounts added nothing to the substance of the abstract idea of reducing settlement risk by effecting trades through a third party intermediary. Certain of the judges in the Federal Circuit issued a dissenting opinion, which said that the system claims were patentable because they were “*detailed, specific claims to a system of particular hardware programmed to perform particular functions [and t]he computer in the system claims [was] the entire detailed ‘solution’ without which it would have been impossible to achieve the invention’s purpose*” (at 1320).

57 Justice Thomas characterised the claims as being drawn to the concept of intermediate settlement, “*a fundamental economic practice long prevalent in our system of commerce*” which, like the hedging in *Bilski*, was an abstract idea. Justice Sotomayor reiterated Steven J’s observation in *Bilski* that there was no suggestion in the early English cases that processes for organising human activity were patentable.

58 The Court concluded that the method claims merely required generic computer implementation and were insufficient to ‘transform’ the abstract idea into a patentable application and that the transformation has to be more than stating the abstract idea while adding the words “*applied*”. The computer implementation did not supply the necessary inventive concept where the process could be carried out in existing computers long in use. Simply implementing a mathematical principle on a physical machine was not, their Honours said, a patentable application of that mathematical principle sufficient to confer patentability, where the computer implementation is purely conventional. The prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of the idea to a particular technological environment or by adding the words “*apply it with a computer*”. The result would be different, as it was in *Diehr*, where an existing technological process was improved.

However, where the claims did not contain any “*express language to define the computer’s participation*” (717 F. 3d at 1286 per Lourie J) and the claims did not purport to include the functioning of the computer, they amounted to an instruction to apply the abstract idea of intermediated settlement using some unspecified generic computer.

Relevance of decisions in other jurisdictions

59 While decisions in other jurisdictions are not binding, it is noteworthy that the Australian approach to patentability in respect of inventions such as those considered here, is consistent with that taken in the United States and the UK to the extent discussed above. Such an outcome cannot guide the application of Australian patent law but, as explained by the High Court in *Aktiebolaget Hassle v Alphapharm Pty Ltd* (2002) 212 CLR 411 and *Apotex*, it is interesting to observe and, if the reasoning is apposite, it should be considered. As already indicated, the decisions in other jurisdictions cannot assist us where they are inconsistent with the Act and the authorities binding on us, as illustrated in *Myriad* (see, for example, [131], [207]).

THE PATENT

60 The Patent is entitled “Valuation Indifferent Non-Capitalization Weighted Index and Portfolio”. The field of the invention is stated as pertaining:

...generally to securities investing and more specifically to construction and use of passive portfolios and indexes.

61 The background of the specification describes related art in terms of categories of securities portfolio management. A distinction is drawn between “active management”, where securities are selected for a portfolio individually based on economic, financial, credit, and/or business analysis, on technical trends and cyclical patterns etc, and “passive management”, also called indexing, where the securities in a portfolio duplicate those that make up an index. Securities in a passively managed portfolio are conventionally weighted by relative market capitalisation weighting, or equal weighting. A middle ground conventional category of securities portfolio management is enhanced indexing, where the portfolio’s characteristics, performance and holdings are substantially dominated by the characteristics, performance and holdings of the index, with modest active management departures from the index.

62 The invention of the Patent is said to relate generally to the passive and enhanced indexing categories of portfolio management. The specification states that a securities market

index, by intent, reflects an entire market or a segment of a market. Statistical modelling is sometimes used to create such a portfolio. The specification describes the advantages of passive indexing and the advantages of using market capitalisation weighting as the basis for a passive portfolio, as well as the disadvantages.

63 The summary of the invention, as set out in the specification as a first aspect of invention, is that it provides a method of constructing data indicative of a non-capitalisation weighted portfolio of assets, the method being implemented in a computer system and comprising a series of steps commencing with the receipt in the computer system of data gathered in regard to a plurality of assets. Other aspects of the invention provide a system for constructing a non-capitalisation weighted portfolio of assets and a computer-implemented non-capitalisation weighted portfolio of assets construction system. In each case, a computer is used to receive the data and to provide “*weighting means*” for weighting each of the plurality of assets.

64 Claim 1 is a reflection of the fifth aspect of the invention described in the specification. Claim 1 is to:

A computer-implemented method for generating an index, the method including steps of:

- (a) accessing data relating to a plurality of assets;*
- (b) processing the data thereby to identify a selection of the assets for inclusion in the index based on an objective measure of scale other than share price, market capitalization and any combination thereof;*
- (c) accessing a weighting function configured to weight the selected assets;*
- (d) applying the weighting function, thereby to assign to each of the selected assets a respective weighting, wherein the weighting:*
 - (i) is based on an objective measure of scale other than share price, market capitalization and any combination thereof; and*
 - (ii) is not based on market capitalization weighting, equal weighting, share price weighting and any combination thereof;*

thereby to generate the index.

The description in the specification

65 The primary Judge set out the description of the claimed invention of the specification as follows:

42. *The Specification contains a summary of the claimed invention. The summary begins with a description of six aspects of the claimed invention. The first aspect provides a method of constructing data indicative of a non-capitalisation weighted portfolio of assets. The second aspect provides a system for constructing a non-capitalisation weighted portfolio of assets. The third aspect provides a computer-implemented non-capitalisation weighted portfolio of assets construction system. The fourth aspect provides a machine readable medium that provides instructions that, when executed by a computing platform, cause the computing platform to perform operations comprising a method of constructing a non-capitalisation weighted portfolio of assets. The fifth aspect provides a computer-implemented method for generating an index. The sixth aspect provides a computer system.*
43. *An exemplary embodiment of the claimed invention is said to be directed to a new method, system and computer program product for passive investing that is based on indexes that are built with metrics other than metrics consisting of market capitalisation weighting, share price weighting or equal weighting. Among the possible metrics are various financial data of the entity issuing the securities, including but not limited to book value, sales, revenue, earnings, earnings per share, income, income growth rate, dividends, dividends per share, earnings before interest, tax, depreciation and amortisation, etc. The Specification describes another exemplary embodiment in which other non-financial and non-market capitalisation metrics can be used as a basis for compiling an index, such as, but not limited to, an index of companies with chief executives having graduated from a particular university.*
44. *The Specification states that a common element included in an exemplary embodiment of the claimed invention, which is said to be entirely missing from conventionally available forms of index construction, is that the indexes of the claimed invention are “valuation-indifferent”. That is to say, conventional indexes do not take account of classical valuation ratios, which causes a conventional index to create a natural tendency to overweight the overvalued securities and underweight the undervalued securities, in the index, and in portfolios based on the index. The Specification states that the use of those non-market capitalisation metrics allows the construction of indexes and resulting portfolios subject to passive management that better reflect the economic scale or long-term growth potential of the individual securities than do conventional capitalisation weighting, share price weighting or equal weighting.*
45. *The Specification then describes an exemplary embodiment of the claimed invention that sets forth a system, method and computer program product for constructing a non-capitalisation weighted portfolio of assets in which the method may include the following three steps:*
- first, gathering data about a plurality of assets;*
 - secondly, selecting a plurality of assets to create an index of assets; and*
 - thirdly, weighting each of the plurality of assets selected in the index based on an objective measure of scale of each of the plurality of assets.*
- The weighting may include weighting at least one of the plurality of assets and weighting that is not based on market capitalisation, equal weighting or share price weighting.*
46. *That is to say, from the set of assets about which data has been gathered in the first step, a subset of assets is chosen for inclusion in the index in the second step. In*

implementing the second step, it would be necessary to choose a basis for selecting assets by means of some selection criteria. In the third step, the assets in the subset are weighted, based on one or more objective measures of scale, or metrics, other than market capitalisation, share price or equality. The metrics might be financial, such as revenue, sales, cash flow and book value, demographic, such as number of employees, or geographic. In implementing the third step, it will be necessary to choose which one or more of those objective measures of scale, or metrics, is to be used. It will also be necessary to decide on a weighting function, being a mathematical formula for calculating a weighting, based on the chosen objective measures of scale, or metrics. A wide variety of mathematical functions could be used to calculate the weightings in the third step. Logarithmic or other types of mathematical functions could be used to calculate weightings.

47. *The outcome of performing those three steps would be an index, but not a portfolio. The construction of an actual portfolio necessarily includes the further step of purchasing the assets to be held in the portfolio, based on the index.*
48. *The Specification states that, in another exemplary embodiment, a non-capitalisation weighted portfolio of assets construction system may include the processor adapted to carry out the three steps described above. Another exemplary embodiment of the claimed invention may be implemented on a computing device, processor, computer or communications device. In a further exemplary embodiment, the computer may comprise one or more central processing units or processors, which may be coupled to a bus.*
49. *A **processor** is a piece of computer hardware that executes a computer program. A **bus** is hardware responsible for transmitting data between two different parts of a computer system. For example, a bus may be used to transmit data from the computer's memory to the central processing unit (**CPU**) for processing. The computer may be coupled to an input/output subsystem, such as a network interface card, or a modem for access to a network. **Network interface cards** and **modems** are devices used to link a computer to a network and permit the transmission of data in both directions between the computer and the network. The computer may store data in a main memory by means of a bus, or in a secondary memory directly. Secondary memory may include a magnetic storage device, such as a hard disk, or optical storage device, such as a compact disc. The Specification includes drawings describing such a collection of computing devices.*

66 As noted in [44] of the primary Judge's reasons, a common element of the invention, missing from conventionally available forms of index construction, is that the indices of the invention are "valuation-indifferent". This is said to allow the construction of indexes and portfolios that offer a choice of passive portfolio alternatives with different risk characteristics. It is also said to provide additional advantages while maintaining the conventional benefits of passive investing, thus having the potential to reduce investment costs through more widespread use of low cost passive and enhanced index investing, and to improve investment returns, reduce portfolio volatility and offer customised passive portfolios.

67 Although the summary of the invention and the exemplary embodiments do make reference to computers, it is to be noted that what is missing from the title of the invention, the described field of the invention and the detailed description of the invention is any reference to a computer, even though the claims limit the method of the invention to one that is computer-implemented.

68 Turning to the drawings of the Patent, Fig 1 is said to depict an exemplary deployment diagram of an index generation and use process. In accordance with an exemplary embodiment of the invention, it is stated that an analyst **may** use a computer system to generate an index (emphasis added). The specification states that the analyst may do so by using analysis software to examine data about entities offering different kinds of securities that may be traded by investors. Once an index has been generated by an analyst using the entity data, the index may be used to build investment profiles which may then be managed by “an investor, advisor, manager or broker” as a mutual fund for a plurality of individual and institutional investors or, alternatively, for one or more investors.

69 Apart from Fig 3, each of the figures is described in the specification by reference to the methodology employed by the analyst.

70 The only claims to a computer system, rather than to a method, are claim 26, being to a computer system configured to perform a method according to any of claims 1 to 25, and claim 28 which is to a computer system including the means for carrying out the steps of the method.

DECISION OF THE PRIMARY JUDGE

71 The primary Judge records that the delegate of the Commissioner concluded that the claim as a whole defines the steps to generate the data to support the patent investment scheme. The delegate found that, while implemented in the computer system, the method of the claimed invention was wholly characterised by constructing data from weighting assets based on various received data sets.

72 In setting out the relevant legal principles, the primary Judge recognised the context (at [7]):

Determining whether a claimed invention is patentable involves consideration of concepts that have evolved and are still evolving. The question of whether the claimed invention is a proper subject of letters patent, according to the principles that have been developed for the application of s 6 of the Statute of Monopolies, is to be answered

bearing in mind that the term **manufacture** has applications beyond limits suggested by its etymology and that any attempt at precise definition of manufacture is bound to fail (see *CCOM Pty Limited v Jiejing Pty Limited* (1994) 51 FCR 260 at 289 (**CCOM**)).

73 Further, (at [15]):

*If...[a] method or idea results in a new machine or process, or an old machine giving a new and improved result, that new process or result should be regarded as the **product** of the method and the method is patentable. If the method is an idea, but is also practically realised in the specification, such as in an apparatus enabling the method or idea to be realised in practice, then it is no longer merely an idea since it is practically embodied. It is therefore patentable and the manner of new manufacture for the purpose of s 6 of the Statute of Monopolies (Burroughs Corporation (Perkin's) Application [1974] RPC 147 at 158). (**Burroughs**)*

74 The primary Judge explained that a mathematical equation, like an idea, may not be patentable in isolation, but that there may be a patentable invention when a process is devised and incorporates a more efficient solution of the equation. His Honour drew a distinction between a party seeking patent protection for a formula in the abstract, or a scientific principle or phenomenon of nature on the one hand, and a way of using the mathematical formula in a process for producing particular effects on the other. *International Business Machines Corporation v Commissioner of Patents* (1991) 33 FCR 218 (**IBM 2**) is an example of the latter. Computer programs may be patentable where, for example, they have the effect of controlling computers to operate in a particular way and are embodied in a physical form (*CCOM* at 292-3 per Spender, Gummow and Heerey JJ citing *Burroughs* at 161).

75 The primary Judge set out his approach to the patentability of computer programs, which can be summarised as follows.

- For a method to be patentable it must produce a product in which a new and useful effect may be observed.
- The application of a computer program must produce a practical and useful result so that more than information is involved.
- An artificial state of affairs must be produced in the sense of a concrete, tangible, physical or observable effect.
- A method may be patentable if it applies the method in a physical device, that being the physical effect, where a component was physically affected or there was a change of state information in part of the machine.

- A mere scheme, an abstract idea or mere information are not patentable as there is no physical consequence.

SUBMISSIONS

76 Research Affiliates submits that the primary Judge failed to recognise that it was necessary to determine that it was “*practically certain*” that a patent granted on the application would be invalid and simply applied a test of patentability on the balance of probabilities. This is based in part on the fact that his Honour did not refer to the standard to be applied in refusing an application for a patent.

77 The Commissioner points out that there are no disputed issues of fact and that the questions are matters of construction of the specifications and of law. As such, it is not a question of applying a standard of “*practically certain*” or of giving Research Affiliates the benefit of the doubt.

78 We accept the Commissioner’s submission. The question to be decided is a matter of law and, as such, a differential standard to be applied to a patent application does not arise. The question to be decided is a matter of law arising out of uncontested facts. Questions relating to the standard of proof are not relevant in these circumstances.

79 The parties conducted the case before the primary Judge and on the appeal on the basis of claim 1 of the Divisional Application.

80 Research Affiliates’ case is, as explained by Counsel and in summary, as follows.

- The claimed invention embodies an inventive concept, involving selecting and weighting securities for inclusion in an index in a manner different to conventional weighting and selection methods.
- The invention includes the use of a computer for the method and the employment by means of a computer of “*unique, in effect, functions or computer instructions to implement the innovative concept*”.
- The data is processed using a computer.
- Both the index that is produced and the method to produce the index result in physical effects in a computer, which is an artificially created state of affairs.
- This represents a practical implementation of an innovative idea and is not a ‘mere’ business method.

- The inventors wrote computer programs in order to generate the index.
- There is no suggestion that the claimed method informs a way of programming which has not previously existed.
- The fact that the method is implemented in a computer satisfies the requirement in *NRDC* of an artificial state of affairs.
- Additionally, an index which has not previously been available, is an artificial state of affairs. The claim is to the method of generating the index. The index is the product of the method.
- The final product which is of economic significance is information used to inform investment decisions.

81 While Research Affiliates takes issue with the findings of the primary Judge as to its position on the physical results of the invention, there is really no issue, as his Honour recorded at [61] that, as the claimed method is implemented in a computer, there is within the computer a manipulation, transformation and processing of data. It can be accepted that, as Research Affiliates submitted, “*claim 1, being to a computer-implemented method of constructing data, involved physical manifestations of that method in the computer at each step along the way, which steps transformed data and culminated in the construction of the final data comprising the index. That final set of transformed data comprises a physical effect in the computer*”.

82 Is that sufficient? As the Commissioner puts it: is an “*invention*” which is in the nature of a business, commercial or financial scheme rendered patentable “*merely*” by reason of the fact that it is implemented by means of a computer?

83 It does not seem to be in dispute that business, commercial and financial schemes as such are not patentable (*Grant*). Research Affiliates does not resile from the proposition that the only difference between carrying out the method of the claim and using the method to generate the index with pen and paper was that the claim required it to be done on a computer. It submits that the invention so far as claimed in the claim is to a computer-implemented method and that this requirement cannot be ignored for the purposes of an analysis of patentability under s 18(1) of the Act.

84 Aside from the method being one that is ‘computer-implemented’, there is nothing in the character of the steps comprising the generation of the securities portfolio index that relates

the method to any particular hardware or software implementation. There is no description in the specification providing the detail of computer implementation.

85 Research Affiliates submits that the claim, considered as a whole, meets the requirements of *NRDC*, in that its subject matter results in an “*artificial effect*”, it consists of “*an artificially created state of affairs*” and the significance of the artificially created state of affairs is economic. It points to the relevance of the submissions in *NRDC* (at 268) that “*a process produces, either immediately or ultimately, a useful physical result in relation to a material or tangible entity*” and that, consistently with authority, a relevant artificially created state of affairs may be constituted by operating a computer in a particular way.

86 Research Affiliates recognises that there is a distinction between a method, that is the conception of an idea and mere intellectual information, and a method that results in a new machine or process, or an old machine giving a new and improved result, and that an apparatus that enables the method or idea to be realised in practice is patentable (*Burroughs* at 158-9). Research Affiliates draws on the reasoning in *IBM 2*, where Burchett J found a claimed invention to the application of selected mathematical methods to computers to produce an improved curve image, patentable. In *IBM 2*, the Court considered that a distinction could be drawn between the result of transmitting data, however achieved, and a method that causes the computer to transmit data, saying that a bare direction to display a curve on a computer is not a method but rather an abstract concept, idea or directions for use.

87 The Commissioner draws on the reasoning of Sir Robert Finlay A-G in *Re Cooper’s Application for a Patent* (1901) 19 RPC 53 (cited in *Grant* at [14]) that the fact that a plan is to be carried out in a particular way, such as by utilising a particular form with the invention being alleged to be an arrangement of words on the sheet, would not form a subject for letters patent as it would not be a manufacture: “*in substance it would be a scheme, and the mere arrangement of printed matter in connection with such scheme would not prevent you from looking at the real object of the Applicant*” (at 54). That is, writing down the scheme does not make it patentable. The Commissioner also points to *Re Virginia-Carolina Chemical Corporation’s Application* [1958] RPC 35, where Lloyd-Jacob J similarly rejected the patentability of information simply attached to a physical medium.

88 The Commissioner contrasts the reasoning in *NRDC*, where the claim was to a method and the result of the effect or the product of the method was an artificial effect, with the present case where the result of the method is an index and an index is not the kind of thing that can be

patentable. The Commissioner submits that the index is in the category of subject matter which, according to Professor Lahore (in “Computers and the Law: The Protection of Intellectual Property” (1978) 9 *Federal Law Review* 15 at 22-23, as cited in *Grant* at [14]), has never been considered to constitute a patentable invention, as it falls in the class of “*mere records of intelligence*”. In the Commissioner’s submission, while Research Affiliates’ approach might represent a better method of constructing an index intellectually, it has no effect on “the computer architecture”. Further, she says that merely to implement an unpatentable method in a computer does not convert what is otherwise inherently unpatentable into something that is patentable.

AUSTRALIAN AUTHORITY ON CLAIMS TO COMPUTER-IMPLEMENTED METHODS

89 In *CCOM*, the Full Court concluded that the use of word processing to assemble text in Chinese language characters was patentable. In *Welcome Real-Time SA v Catuity Inc* (2001) 113 FCR 110 (*Catuity*), Heerey J concluded that the necessary “*physically observable effect*” was sufficiently found in the writing of new information to a file and the printing of a coupon concerning the operation of smart cards in connection with traders’ loyalty programs.

90 In *Grant*, the Full Court considered relevant authorities, to that time. It endorsed (at [14]) the principle that business, commercial and financial schemes as such have never been considered patentable. The Full Court, after consideration of the then state of authority, drew a distinction between an unpatentable idea or scheme and a method that results in a new machine or process or gives an old machine a new or improved result. Put another way, it was a distinction between mere intellectual information and a method that affected the operation of an apparatus in a physical form.

91 The Full Court adopted the reasoning in *NRDC*, including noting the following.

- The ability to adapt the notion of patentability to new scientific discoveries and technologies should not be fettered by contrived constraints and must be able to adapt to accommodate new inventions (at [8]).
- A process, to fall within s 6 of the Statute of Monopolies, must belong to a “*useful art as distinct from a fine art*” and must have an “*industrial or commercial or trading character*” (at [12] citing *NRDC* at 275).

- A product, in relation to a process, is “*only something in which the new and useful effect may be observed*”; that “‘*something*’ need not be a ‘*thing*’ in the sense of an article; it may be any physical phenomenon in which the effect, be it creation or merely alteration, may be observed” (at [12] citing *NRDC* at 276).
- The effect of a method is a product if it consists of “*an artificially created state of affairs*” (at [12] citing *NRDC* at 277).

92 Their Honours turned to some of the authorities concerning methods utilising computers, including UK authority in *Burroughs* and *IBM 1* to conclude that the distinction drawn was between mere intellectual information and a method that affected the operation of an apparatus in a physical form and that “[w]hen the method is practiced in a way that is embodied in a physical form it is a manner of manufacture” (at [18]).

93 Although much of the United States authority there cited has been superseded, the conclusion drawn in *Grant* at [23] stands, that the same tests apply for patents for business methods as for any other claimed invention and that the distinction is between the employment of an abstract idea or law of nature and the idea or law itself. There is a distinction between a technological innovation which is patentable and a business innovation which is not (at [24] citing *Catuity*). The Full Court’s description in *Grant* at [29] of what may be patentable is helpful: “[a] product of a method is something in which a new and useful effect may be observed. For claimed computer programs, the courts looked to the application of the program to produce a practical and useful result, so that more than “intellectual information” was involved”.

94 When the authorities in Australia prior to and including *Grant* are considered, a consistent approach emerges as to the relevance of:

- a distinction between a claim to a business scheme and claims to methods which in practice result in a new machine or process or an old machine giving a new and improved result – that is, a distinction between mere intellectual information and a method that affects the operation of an apparatus in a physical form (*Grant* at [18]);
- the fact that the claimed steps are foreign to the normal use of computers, such as the production of an improved curve image (*IBM 2* at 225-226);

- the particular mode or manner of achieving an end result which is an artificially created state of affairs, such as the storage of data as to Chinese characters and retrieval of graphic representations to enable word processing (*CCOM* at 295);
- whether part of the invention is an inventive method which includes the application and operation in a physical device (*Grant* at [30]);
- the distinction drawn in *Catuity*, as explained in *Grant* (at [24]), between “a technological innovation which is patentable and a business innovation which is not”. In *Catuity*, Heerey J did not accept that a physically observable effect was necessarily required (at [128]) but the Full Court in *Grant* expressed the opinion that a physical effect in the sense of a concrete effect or phenomenon, or manifestation or transformation is required (at [32]).
- the fact that a physical effect is required does not make it sufficient to confer patentability;
- the fact that a method may be called a business method does not prevent it being properly the subject of letters patent (*Grant* at [26] citing *Catuity* at [125]-[126]);
- the fact that for claimed computer programs, the courts look to the application of the program to produce a practical and useful result, so that more than “intellectual information” is involved (*Grant* at [29]). A method that is in the nature of directions for use does not constitute an invention or a manner of manufacture in the absence of some previously unrecognised property of an aspect of the method (*Grant* at [29]).

95 Since the first instance decision in the present case, Middleton J has had cause to consider patentability in *RPL Central Pty Ltd v Commissioner of Patents* [2013] FCA 871 (***RPL Central***) which concerned an invention entitled “Method and System for Automated Collection of Evidence of Skills and Knowledge”. It related to the assessment of the competency or qualifications of individuals with respect to recognised standards, or Recognition of Prior Learning (**RPL**). In very summary form, the invention was said to enable the automation of the process of converting extensive criteria into a more convenient single entry ‘question and answer’ format.

96 At [40], Middleton J observed that while the invention was primarily concerned with the gathering of information relevant to the assessment of an individual’s competency relative to a recognised qualification standard, an objective of the invention was to facilitate improvements in the overall RPL process, by means of a use of, and configuration of, the

assessment server. As set out at [44], the invention enabled the automated generation of a wizard or similar user interface to perform the administrative work necessary to gather evidence from a prospective candidate, with a particular focus on ‘online’ implementation of such functions as the assessment of the competencies of individuals, the issue of qualifications, and the recommendation of suitable pathways based on an individual’s competencies.

97 Justice Middleton recognised the fact that methods of calculations and theoretical schemes were not patentable (at [61]) and the distinction between mathematical formulae and a formula applied to achieve an end, such as the production of an improved curve image by a computer (*IBM 2*) and using a particular method of characterisation of character stokes, applied to an apparatus in such a way that the operation of a keyboard would enable the selection (through a computer) of the appropriate Chinese characters required for word processing in that language (*CCOM*).

98 Justice Middleton summarised the invention in *RPL Central* at [139] as one that enabled the retrieval of relevant data from a remotely located server via the internet and the generation of questions for, and presentation of questions to, the user based on this data. The effect of the process was experienced by the individual user on a computer. The user’s responses were transferred to the assessment server. Importantly, “*the involvement of the computer in the invention is described in these claims in such a manner that it is inextricably linked with the invention itself*”. In [172], his Honour said that the specification and the claims provided significant information about the invention which was to be implemented by means of the computer and that the computer was “*integral*” to the invention there claimed. His Honour distinguished it from the primary judgment in the present case on that basis.

99 As we read his Honour’s reasons, he aligned the invention with a new use of a computer as in *IBM 2* and *CCOM*, in contrast to mere implementation of the invention by a computer.

100 Relevantly to this appeal, Middleton J looked to whether the ‘product’ itself gave rise to an artificially created state of affairs (at [133]). Insofar as there was computer implementation, his Honour recognised (at [135]) the distinction between a mere “*modern and efficient tool by which to perform the method of the claimed invention (being a method of performing an aspect of a business)*” which could be performed without use of a computer and would not be patentable, and an invention where “*the method was ‘tied to a machine’*” and which would be patentable, such as in *IBM 2*, *CCOM* and *Catuity*. Justice Middleton held that the invention fell into the latter category, distinguishing it from the method in *Grant* which

“truly” was, as there described, “a mere scheme, an abstract idea, mere intellectual information” with no relevant physical effect whatsoever.

CONSIDERATION

101 Turning to the present appeal, the relevant inquiry is not into the form of the words to determine whether what is claimed is properly the subject of a patent. If a process is to be patentable, it must offer some advantage which is material, in the sense that the process belongs to a useful art. The characterisation of patentability by reference only to the description in *NRDC* of a product which consists of an artificially created state of affairs of economic significance was part of the High Court’s reasoning but did not represent a sufficient or exhaustive statement of the circumstances in which a claimed invention is patentable.

102 Research Affiliates submits that the inexorable conclusion is that the present claim is to a patentable invention. It points to the steps of transformation of data occurring in the computer at each stage of the process, of accessing data, processing data, accessing the weighting function and applying the weighting function, culminating in the creation of an index. We do not agree. Rather, the inexorable conclusion applying the principles of patentability, is that the present claim is not to a patentable method.

103 As Thomas J said in *Alice Corporation*, there is a distinction, between mere implementation of an abstract idea in a computer and implementation of an abstract idea in a computer that creates an improvement in the computer. There is also a distinction between, on the one hand, a method involving components of a computer or machine and an application of an inventive method where part of the invention is the application and operation of the method in a physical device **and**, on the other, an abstract, intangible situation which is a mere scheme, an abstract idea and mere intellectual information.

104 A useful description of the distinction to be drawn was set out by Lourie J in *Bancorp Services LLC v Sun Life Assurance Co of Canada (US)* 687 F. 3d 1266 (2012), 1277, 1278 (citations omitted):

Modern computer technology offers immense capabilities and a broad range of utilities, much of which embodies significant advances that reside firmly in the category of patent-eligible subject matter. At its most basic, however, a ‘computer’ is ‘an automatic electronic device for performing mathematical or logical operations’. As the Supreme Court has explained, ‘[a] digital computer...operates on data expressed in digits, solving a problem by doing arithmetic as a person would do it by head and hand’. Indeed, prior to the information age, a ‘computer was not a machine at all; rather, it was a job title: ‘a person employed to make calculations’. Those

meanings conveniently illustrate the interchangeability of certain mental processes and basic digital computation, and help explain why the use of a computer in an otherwise patent-ineligible process for no more than its most basic function - making calculations or computations - fails to circumvent the prohibition against patenting abstract ideas and mental processes. As we have explained, '[s]imply adding a 'computer aided' limitation to a claim covering an abstract concept, without more, is insufficient to render the claim patent eligible'.

To salvage an otherwise patent-ineligible process, a computer must be integral process, a computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not.

(emphasis added)

105 The use of a computer necessarily involves the writing of information into the computer's memory. This means that there are a number of "*physical effects*" in the sense of transformed data and memory storage during the claimed process. The claimed index in this case is data that exist in computer-readable form. The question is whether this is sufficient to make the claimed method properly the subject of letters patent. Research Affiliates contends that the information, once entered into or produced by means of the computer, becomes "*an artificially created state of affairs*" which is of economic significance. It submits that the primary Judge erred in importing "*extraneous requirements*" on computer implemented schemes that "*have no basis in the Australian authorities*" which required there to be "*a specific effect being generated by the computer*" (at [70]) or that the invention must "*improve the operation of or effect of the use of the computer*" (at [70]). Research Affiliates challenges the primary Judge's description of the claimed invention as one which, absent computer implementation, could be simply written on paper (at [67]). It says that the fact of computer implementation simply cannot be ignored or dismissed as a modern equivalent of writing down on a piece of paper, thus ignoring the artificially created state of affairs. This, it submits, ignores an essential integer of the claim.

106 The determination whether the claimed invention is truly "*an artificially created state of affairs*" in satisfaction of *NRDC* is made not by some mechanistic application of the criterion of artificiality or physical effect, but by an understanding of the claimed invention itself. The invention is to be understood as a matter of substance and not merely as a matter of form.

107 It is apparent from the description in the specification that the computer is simply the means whereby the analyst accesses data to generate an index. The work in generating the index and weighting is described in terms of the work of the analyst rather than as some technical generation by the computer. Indeed, while the specification states that the invention

may be used for investment management or investment portfolio benchmarking, the exemplary embodiment makes it clear that it may be, but is not necessarily, implemented on a computer.

108 The computer that may be utilised is described in general terms, without an indication that any unusual technical effect is utilised. Although the specification states that “[t]hese computer program products may provide software to computer systems” and that “[t]he invention may be directed to such computer program products”, little further specificity is provided.

109 The accepted evidence is that the result of implementation in a computer, and using computerised databases, will be a set of data relating to securities and other assets, stored in electronic form in the computer’s RAM, which will initially comprise electrical signals in the computer’s RAM. The required processing must be expressed as a series of algorithms in a programming language. Those algorithms can be incorporated into a computer program to implement the index generation method. The evidence also explains how one of the inventors made changes to a pre-written computer program, which caused the program to gather and process data and perform data manipulations and calculations to generate four “fundamental” metrics. The inventor also outlined the steps of selecting and weighting the securities forming part of the index, which involved writing algorithms or ‘macros’ to further manipulate and refine the data. The end result of the entire process is an Excel file which identifies the top securities within the index (say, 200 top securities of the 250 securities in the index), which are then reweighted by dividing the fundamental score for each security by the sum of the fundamental scores of those top securities. This file is the index.

110 From the evidence, it cannot be said, as it was in *IBM 2* at 225-6, that the claimed method and the use of the algorithms involved steps which are foreign to the normal use of computers. In *CCOM*, the Full Court (at 291) warned against bringing into the determination of ‘manner of manufacture’ considerations of whether what was claimed involved anything new and unconventional in computer use and repeated the test in *NRDC* (at 276-277), that in so far as ‘manufacture’ suggests a ‘vendible product’, this is to be understood as covering every end produced or artificially created state of affairs which is of utility in practical affairs and whose significance thus is economic. Their Honours also drew upon the reasoning of Graham and Whitford JJ in *IBM 1*, where software had been designed to calculate automatically the selling price of stock or shares by comparing a set of buying and selling orders. The scheme was not itself novel and a standard computer could be programmed to perform it. The method

was held to involve the operation or control of a computer, such that it was programmed in a particular way to operate in accordance with the inventor's method. The method was involved in the program and in the apparatus in physical form and was patentable. In *CCOM*, the field of economic endeavour was the use of word processing to assemble text in Chinese language characters. The end result achieved was the retrieval of graphic representations of desired characters, for assembly of text. The mode or manner of obtaining this was the storage of data as to Chinese characters analysed by stroke-type categories.

111 With great respect to the primary Judge, we do not see that the question of patentability can be answered by the observation that the method is simply the writing down of the information – a modern equivalent of writing the schemes on a piece of paper. This ignores the utilisation of the power of a computer to generate information. It would also render unpatentable many methods that are inventive uses of a computer that utilise previously unknown abilities of software and hardware.

112 However, as well as this analogy drawn upon by the primary Judge, his Honour drew a distinction between 'mere' use of a computer and a method involving a specific effect being generated by the computer or an improvement in the operation of, or effect of the use of, the computer (at [70]).

113 The effect of Research Affiliates' submissions is that the mere implementation of any abstract idea or scheme in a well-known machine is sufficient to render that unpatentable subject matter patentable because it gives rise to an "*artificial effect*". This approach is inconsistent with *NRDC* and is one of form not substance.

114 The invention set out in the specification is directed to the index itself. The method of the invention is not one that has any artificial or patentable effect other than the implementation of a scheme, which happens to use a computer to effect that implementation. There is no technical contribution to the invention or artificial effect of the invention by reason of the intervention of the inventors. To take the words of *NRDC* at 268, the process does not produce "*either immediately or ultimately, a useful physical result in relation to a material or tangible entity.*" The claimed method, the result of the ingenuity of the inventors, does not **produce** such a result; the ingenuity is in the scheme. Again, drawing from *NRDC* at 270, there is a useful result of the claimed process but there is no physical thing "*brought into existence or so affected as the better to serve man's purposes*". There is no "*physical phenomenon in which the effect, be it creation or merely alteration, may be observed*" (*NRDC* at 276).

115 The High Court (in *NRDC* at 277) spoke in terms of a separate result achieved by the claimed method that has its own economic utility consisting in the improvement. By this reasoning, the High Court directed attention to the subject matter to which the claimed method was directed, which needed to exhibit the required characteristics of a manner of manufacture to be patentable. Here, that subject matter is truly the scheme, the idea, the index. As set out in the specification it may be, and in the claimed method it is, implemented in a computer, but the ingenuity of the inventors, the end result of which is the invention, is directed to the idea, which is not patentable. That method does not have an artificial effect falling squarely within the true concept of what must be produced by a process if it is to be held patentable (*NRDC* at 277).

116 The approach to be taken to deciding whether a claimed method or product is properly the subject of letters patent must be flexible and must allow for new technologies presently unknown. The principles should be applied irrespective of the area of human endeavour and invention under consideration. However, that is not to say that any and every claimed method or process is properly the subject of a patent. Examples of exceptions have been identified, such as abstract ideas and mere schemes. There is no formula to be mechanically applied. It is a question of understanding what has been the work of, the output of, and the result of, human ingenuity, and to apply the principles that have been developed and explained so well in *NRDC*.

117 In the context of the claim, the significance lies in the content of the data rather than any specific effect generated by the computer. The computer-implementation is an essential integer of the claimed process. That is, of course, important. It is of particular importance in the assessment of, for example, novelty and infringement. However, in examining whether a claimed invention is properly the subject of letters patent, it is necessary to look not only at the integers of that claimed invention but also at the substance of that invention.

118 The claimed method in this case clearly involves what may well be an inventive idea, but it is an abstract idea. The specification makes it apparent that any inventive step arises in the creation of the index as information and as a scheme. There is no suggestion in the specification or the claims that any part of the inventive step lies in the computer implementation. Rather, it is apparent that the scheme is merely implemented in a computer and a standard computer at that. It is no part of the claimed method that there is an improvement in what might broadly be called “computer technology”.

119 The claims are not to a patentable invention within s 18(1)(a) of the Act.

120 Based on the reasoning in the cases discussed above, they would not be found to claim
patentable subject matter in the UK or the United States either.

CONCLUSION

121 Leave to appeal should be granted and the appeal dismissed with costs.

I certify that the preceding one
hundred and twenty-one (121)
numbered paragraphs are a true copy
of the Reasons for Judgment herein of
the Honourable Justices Kenny,
Bennett and Nicholas.

Associate:

Dated: 10 November 2014