Commissioner of Patents v Rokt Pte Ltd [2020] FCAFC 86

FEDERAL COURT OF AUSTRALIA

RARES, NICHOLAS AND BURLEY JJ

THE COURT:

1. INTRODUCTION

1 In this appeal the **Commissioner** of Patents contends that the primary judge erred in deciding that **patent application** No. 2013201494 relating to certain digital advertising systems and methods is a manner of manufacture within s 18(1)(a) of the ***Patents Act*** *1990* (Cth). It is not in dispute that a mere scheme or business method is not, of itself, patentable. However, the fact that the subject matter of a claim is a scheme does not exclude it from being patentable if it is more than an abstract idea. It must involve the creation of an artificial state of affairs where the computer is integral to the invention rather than a mere tool in which the scheme is performed. Where the claimed invention is to a computerised scheme (or business method), the *invention* must lie in that computerisation. It is not enough simply to locate a scheme within a computer in order to implement the scheme using the computer for its well-known and understood functions: *Commissioner of Patents v* ***RPL Central*** *Pty Ltd* (2015) 238 FCR 27 at [96].

2 The patent application is entitled "A digital advertising system and method" and relates to digital advertising systems and methods. The priority date of the claims is 12 December 2012. The Commissioner, by her delegate, considered the patent application in a re-examination

initiated pursuant to s 97(1) of the Patents Act and determined that the application should not proceed to grant in two decisions, the second in relation to an amended set of claims advanced by the patent applicant, **Rokt:** *Rokt Pte Ltd* [2016] APO 66; *Rokt Pte Ltd* [2017] APO 34. Rokt appealed from those decisions pursuant to s 100A(3) of the Patents Act and the Commissioner appeared before the Court as a contradictor. Both parties adduced expert evidence. The primary judge considered the matters raised in a hearing *de novo* and concluded that the invention as claimed was a manner of manufacture and should proceed to grant: *Rokt Pte Ltd v Commissioner of Patents* [2018] FCA 1988.

3 The Commissioner seeks leave to appeal to this Court pursuant to s 158(2) of the Patents Act. The only matter raised by Rokt in opposition to leave is that, in its submission, the decision of the primary judge was correct. The Commissioner contends that the decision below is attended by sufficient doubt to warrant the grant of leave. Furthermore, she submits that it is otherwise in the interests of justice to grant leave, because, amongst other things, the decision is inconsistent with existing Full Court authority, there is a public interest in the integrity of the Register of Patents, and the decision has led to doubt as to the correct approach to be taken by the Commissioner. Having regard to the matters raised by the Commissioner, at the outset of the hearing we granted leave to appeal.

4 The grounds of the appeal relied upon by the Commissioner are (particulars omitted):

(1) The primary judge erred in holding that the invention claimed in the patent application was a manner of manufacture;

(2) The primary judge erred in holding that the claimed invention solved a technical problem associated with computer technology;

(3) The primary judge erred in accepting Professor Verspoor's evidence as determinative of the issue of whether the claimed invention was a manner of manufacture; and

(4) The primary judge erred in placing weight upon the novelty of the combination of integers claimed in claim 1 as indicative of the claimed invention being a manner of manufacture.

5 For the reasons set out below we consider that the learned primary judge erred in characterising the invention clamed in the patent application as a manner of manufacture. Before addressing the parties' submissions and the relevant law, it is first convenient to set out a summary of the

patent application. The parties agreed that the appeal may be determined having regard to the invention as claimed in claim 1 of the patent application.

2. THE PATENT APPLICATION

2.1 The specification

6 The Field of the Invention is described in the specification to relate generally to digital advertising systems and methods.

7 The patentee states in the Background to the Invention that typical digital advertising falls under two main categories, namely "search-based" advertising and "display-based" advertising. Search-based advertising involves presenting advertisements to consumers based on keyword searches made by consumers whilst performing online searching. Advertisers bid on keywords they would like to appear alongside, and are typically charged on a performance based model, such as cost-per-click when a consumer engages with their advertisement. Display-based advertising involves presenting images to consumers while they are consuming online content. Normally advertisers using this mode are charged on a cost-per-impression or cost-per-click model. The specification then says:

> Traditionally, display advertisers would target their advertisements in association with a type of content currently being consumed by the consumer. In recent times, display-based advertising has evolved to additionally evaluate attributes of the consumer in order to better target the advertisements displayed to the consumer.

8 The two points emerging from this passage are first, that real-time or contemporaneous targeting of consumers with advertising material based on what the consumer is viewing is not part of the invention. Secondly, nor is the contemporaneous evaluation of the attributes of consumers in order to direct advertisements to them.

9 The specification then says, in what the Commissioner correctly characterises as a statement of the problem that the patentee has set out to solve:

> While digital search and display-based advertising are currently regarded as the most effective way for presenting advertising to consumers of digital content, the actual consumer engagement levels are still very low (often resulting in less than 0.1% of consumers actively following up on the advertisement).

10 The specification proceeds to identify a method and system that is arranged to enhance levels of consumer engagement. The first aspect of the invention is described as follows:

> In accordance with a first aspect of the present invention there is provided a computer implemented method for linking a computer user to an advertising message, the method comprising: presenting an engagement object comprising a selected

> engagement offer to the computer user while interfacing with digital content via a presentation interface, and responsive to the computer user accepting the engagement offer, presenting the computer user with the advertising message which comprises a selection of digital advertisements, wherein the engagement offer is selected from a pool of different offers based on one or more of a determined user context and interfacing context, and whereby the selection of engagement offer is made such that there is no direct advertising benefit to the advertisers of the selected advertisements through presentation of the selected engagement offer to the computer user.

11 After identifying other aspects of the invention, the specification then proceeds to explain the preferred embodiments by reference to 7 figures and a Detailed Description of those embodiments.

12 The Detailed Description of the Embodiments commences with the statement (page 8 lines 16 – 20):

> Embodiments of the invention described herein relate to methods for presenting advertisements to a computer user (hereafter "consumer") while viewing or otherwise interfacing with any form of digital content (provided by a publisher) on their computer device.

13 Figure 1 is as follows:

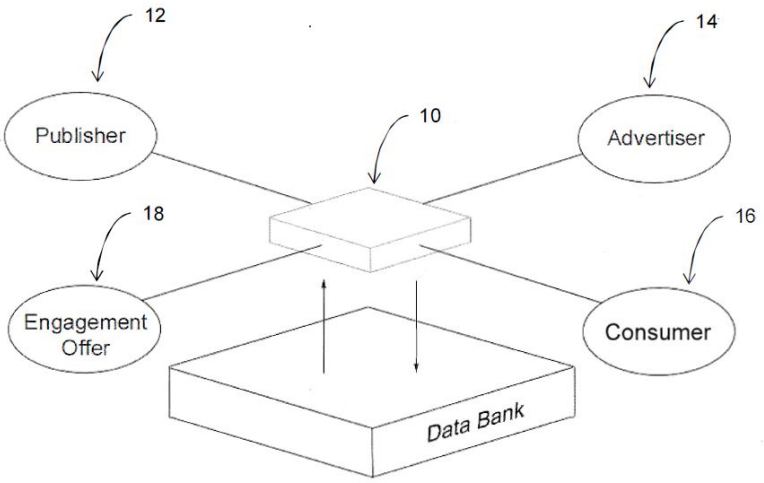

Fig. 1

14 The specification states with reference to figure 1 (page 8 lines 28 – 35), that the embodiments relate to a four dimensional **advertising model** hosted by an advertisement system 10 that includes a *suitable computer system* and associated hardware/software. The advertising model takes into consideration the interests of the publishers 12, advertisers 14, and consumers 16.

15 In a statement that is relevant to the characterisation of the invention, the specification continues (page 9 lines 1 – 15) (emphasis added):

> **Key to the four dimensional advertising model is an** "**engagement offer**" 18, which term is used herein to refer to any form of offer which is either contextually relevant to how the consumer is interfacing with the digital content and/or relevant to one or more user attributes of the consumer. The engagement offer 18 is displayed in association with the digital content and aims to encourage the user to engage with the offer, which according to embodiments described herein involves, for example, the consumer selecting the engagement offer (e.g. by way of a mouse click, touch screen selection or some other suitable offer selection). In this sense, the engagement offer 18 differs from traditional digital advertisements in that its primary function is not to sell a particular product or service, but instead is a mechanism for encouraging the consumer to initially engage with the advertisement system 10 in a positive sense.

16 It may be seen that the model so proposed dwells on the significance of a consumer's engagement with material designed to tempt her or him into a marketing web.

17 The specification then provides a non-exhaustive list of different types of engagement offers 18 that may be presented, including coupons, discounts, vouchers, scratch and win prizes, surveys and polls, competitions, video images, free games and the like. In modern usage, these may perhaps be termed "click bait".

18 The specification then explains that when a consumer engages with an engagement offer, they are taken on an "engagement journey" involving the targeted presentation to the consumer of one or more advertisements based, at least in part, on behavioural, contextual and/or demographic attributes determined by the advertising system 10. "Real-time" tailoring of content to digital consumers is not of itself regarded within the specification as the inventive component, the Background to the Invention reciting, as we have noted, that targeting by reference to the type of content currently being used by the consumer is a traditional form of digital advertising. Nor is the targeting of advertising by evaluating the attributes of the consumer considered to be any more than part of the Background to the Invention. Rather, it is the idea of incorporating these known features together with an engagement offer that is the combination advanced by the patentee as lying at the centre of the invention.

19 This is reinforced when the specification then states at page 10 lines 10 – 20 that:

> Through extensive testing, it has been found that initiating engagement with the advertisement system 10 by way of an engagement offer results in a more positive and deeper engagement with advertisements subsequently presented to the consumer (i.e. during the engagement journey) than if those advertisements were presented in the traditional search or display based manner, as described in the preamble. In turn, the consumer is more likely to continue to engage with the advertisement system 10, thus creating a sustainable advertising revenue module which is of benefit to each of the advertisement system 10, publishers 12 and advertisers 14.

20 The specification then supplies in figure 2 a basic process flow for engaging with a consumer who is interfacing with digital content provided by a publisher 12, using (as examples) a browser, mobile application or "other suitable digital medium":

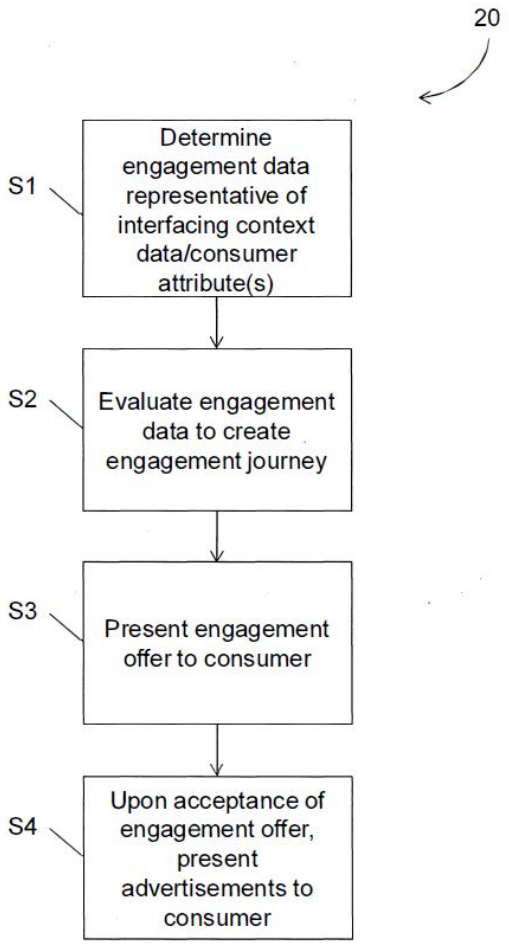

Fig. 2

21 The specification describes that in step S1 engagement data is collected from the interfacing context and/or "consumer attribute(s) data" which is collected while the consumer is interfacing with the digital content. In S2 the data is "evaluated by the advertisement system 10 to generate a tailored engagement journey for the consumer, that can include, for example, an initial engagement offer 18, followed by one or more advertisements from an advertiser 14". In step S3 the engagement offer is presented to the consumer, by, for example, a flash banner, as audio content, or "any other suitable presentation means" (whatever means used is called an "asset"). In step S4, when the consumer engages with the engagement offer, he or she continues on the engagement journey and is presented with one or more advertisements determined in

step S2, presented in a sequence of "modules" which may be pop-up banners or the like and which may have different functional and aesthetic variations.

22 The specification then provides an "example system configuration" by reference to figure 3 (below). It states that the computing system 100 comprises a publishing system 102 comprising a web server computer 104 hosting a website which presents "publisher content". One or more computer devices (here, internet-enabled smartphones 106) communicate with the website via a client browser 107 operated on the phones. A computer readable "widget script" 121, is placed within the publisher content and is executed on the client browsers and is operable to gather and communicate the engagement data to the advertisement system 10, and thereafter generate and display engagement journey objects on a consumer browser 107. The "widget script" is an item of software.

23 The widget script is also said to be operable to track behavioural metrics which are representative of a level/measure of engagement for the consumer. A long list of potential metrics is provided including: engagement offer take-ups; asset clicks (whenever a consumer clicks on an "asset"); advertisement take-ups or skips; requests for further information or advertisement declines, and so on. So, for instance, an advertised offer may be presented by the widget script within a displayed "coupon". The widget will at that point have recorded both a module impression and an advertisement impression count for the coupon module and advertisement. If the consumer takes up the offer, skips it or seeks further information, the widget records that information and adds it to the engagement data. In other words, the process records data about what the consumer sees on the display and how the consumer responds to it.

24 Figure 3 is as follows:

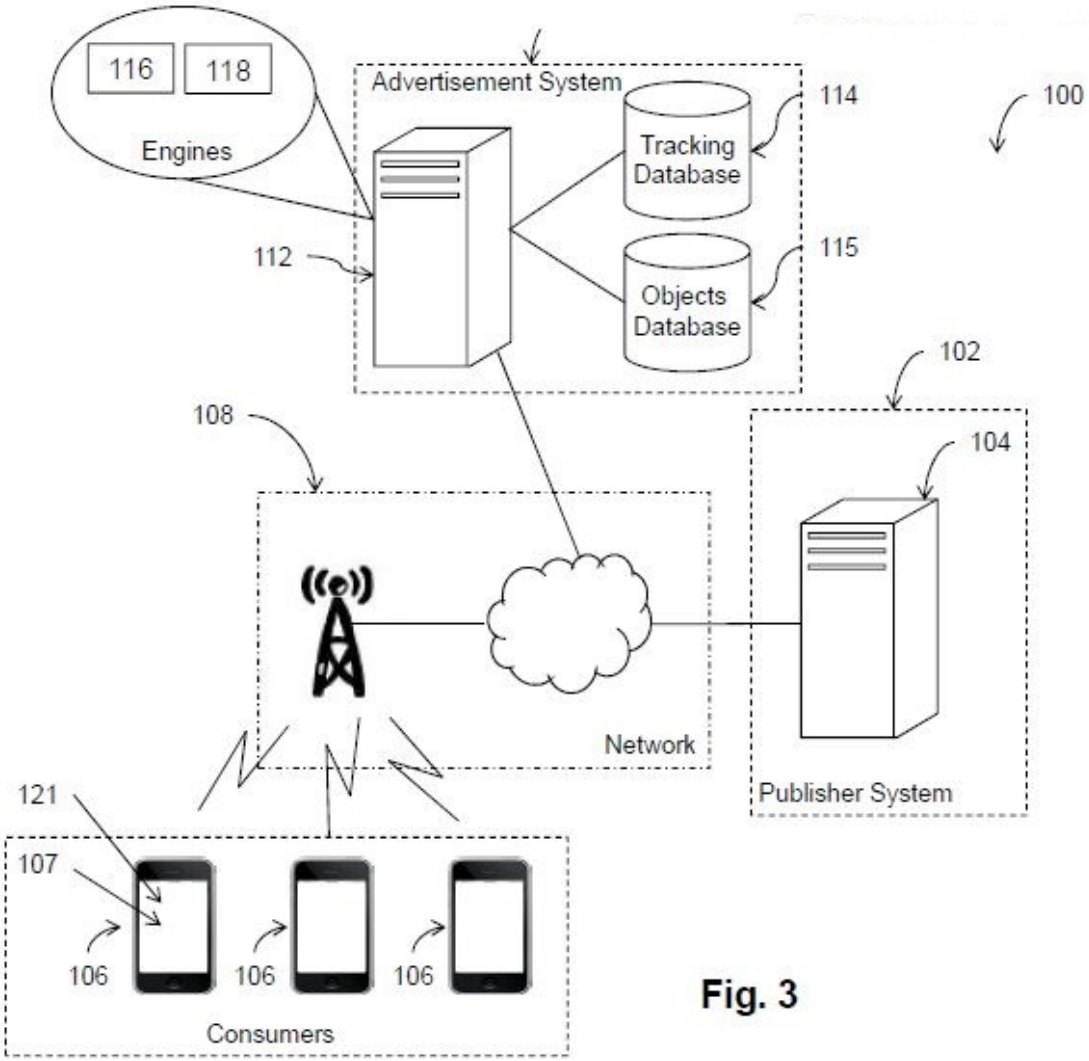

Fig. 3

25 In relation to figure 3, the specification also provides (page 15 lines 11 – 23):

> ...the advertisement system 10 comprises a server computer 112 hosting an engagement tracking database 114 (for storing the engagement data and behavioural metrics as afore-described) and an engagement objects database 115 storing the particular engagement objects, which can include engagement offers, assets, advertisements and modules. Each of the objects in the database 114 are stored in association with one or more relevant interfacing contexts and/or consumer user attributes. The server computer 112 additionally implements an engagement engine 116 and ranking engine 118 which are communicable with the respective databases 114 and 115 for dynamically generating consumer engagement journeys...

26 The specification then provides details of a particular embodiment illustrating how the widget script is operable to gather engagement data and track behavioural metrics. This is done by reference to figure 5 which defines a process flow illustrating the operation of the widget. It describes in steps S1a to S10a the following steps:

S1a Identify consumer

S2a Determine engagement data

S3a Determine engagement trigger from engagement data

S4a Retrieve behavioural metrics from database

S5a Retrieve engagement objects that are associated with determined engagement data

S6a Filter behavioural metrics for retrieved engagement objects

S7a Determine combined engagement and revenue score for objects

S8a Output listing of highest ranking engagement objects

S9a Select highest ranking engagement objects for inclusion in journey

S10a Render engagement journey on consumer journey.

27 The specification describes in further detail each of these steps. Some guidance is given for implementation. For instance, the specification provides, in relation to step S1a:

> According to the illustrated example, the unique identifier is created when the consumer 16 first engages with the advertisement system 10 and is held by a cookie in the consumer's client browser 107. The unique identifier is used by the widget script 121 for recording the behavioural metrics generated while completing an engagement journey (which metrics are subsequently communicated to the engagement engine 116 for storing in the tracking database 114, in association with the unique identifier for the consumer).

28 As another example, in relation to step S7a, the specification states that the ranking engine 118 (which is software located within figure 3) implements a "ranking algorithm" which ranks the retrieved objects by a combination of an "engagement score" and "revenue score" (where applicable). The engagement score:

> ...is associated with how well the consumer engages with the object and is determined based on the behavioural metrics recorded for that object...

29 The specification provides an example as to how the metrics may be assigned noting that the example scoring regime *should not be seen as limiting and that any suitable scoring regime could be implemented for the recorded metrics*. The "revenue score" is determined by the ranking engine 118 by evaluating how much revenue resulted through presentation of engagement objects to consumers. In a particular embodiment this is said to be achieved by evaluating the revenue resulting from offer take-ups which may, for example, be calculated by

multiplying the take-up count by the commission or fixed fee paid by the advertiser although, as the specification states, "*it will be understood any measure of revenue could equally be utilised for determining revenue depending only on the desired implementation*". Once the engagement and revenue scores have been determined, the ranking engine 118 sums or otherwise combines the two scores to produce a combined score and at step S8a outputs a listing of the highest ranking objects.

30 The specification then provides from pages 21 – 25 several examples of engagement journeys by reference to figures 6 and 7.

31 The specification then provides further detail of the system configuration, by reference to items in the broadly described figure 3. It provides:

> The server computer 112 on which the advertisement system 10 is implemented can be any form of suitable server computer that is capable of communicating with the consumer devices 106. The server 112 may include typical web server hardware including a processor, motherboard, memory, hard disk and a power supply. The server also includes an operating system which co-operates with the hardware to provide an environment in which software applications can be executed. In this regard, the hard disk of the server is loaded with a processing module which, under the control of the processor, is operable to implement the various afore-described engagement and ranking engines 116, 118 for determining engagement offers and advertisements.

32 It may be seen from the generality of this description that no aspect of the system configuration, or the component parts of the system, rises above the most general level of abstraction.

2.2 Claim 1

33 Claim 1 is lengthy, and for ease of exposition has had integer numbers in parentheses added (the letters are in the original):

> (1) A computer implemented method for linking a computer user to an advertising message by way of an intermediate engagement offer which is operable to drive a higher level of engagement with the advertising message than if the advertising message was presented without the offer, the method comprising:
>
> (2) providing computer program code to be delivered with publisher content to a computing device operated by the computer user and which computing device comprises an interface arranged to display the publisher content, the computer program code operable to be implemented by a processor of the computing device to perform the additional steps of:
>
> (3) gathering engagement data associated with the user, the engagement data derived from interactions made by the user with the interface and related to at least one of the following:
>
> an attribute of the publisher content;

an interaction with the publisher content by the computer user; and

an attribute of the user;

(4) communicating the engagement data as it is gathered to a remote advertising system implementing an engagement engine, the engagement engine operable to:

(5) continuously evaluate the engagement data to determine whether a predefined engagement trigger has occurred, the predefined engagement trigger being representative of a user response or action that is contextually relevant for presentation of the engagement offer;

(6) responsive to determining that the predefined engagement trigger has occurred, selecting an engagement offer from a pool of different engagement offers stored by the remote advertising system that is relevant to the evaluated engagement data and wherein,

(7) where multiple engagement offers are deemed to be relevant, the engagement engine implements a ranking algorithm operable to dynamically rank the relevant engagement offers based on at least one of:

(a) an engagement score determined from one or [more] performance metrics recorded from past user interactions with the corresponding engagement offers;

(b) a revenue score determined from one or more revenue metrics recorded from past user interactions with the corresponding engagement offers, and

wherein the engagement engine selects which engagement offer to present based [on] the rankings;

(8) causing the interface to insert the selected engagement offer into the publisher content for displaying to the computer user;

(9) implementing the computer program code to determine an acceptance of the engagement offer by the computer user based on a user interaction with the engagement offer; and

(10) following the determined acceptance, presenting an advertising message comprising one or more advertisements selected from a pool of different advertisements on the interface and

(11) wherein user interactions with each of the presented advertisements are gathered by the widget script and communicated to the remote advertising system for use in selecting subsequent advertisements, and

(12) whereby the selection of [sic] engagement offer is additionally made such that there is no direct advertising benefit to the subsequent advertisers of the selected advertisements through presentation of the selected engagement offer to the computer user other than encouraging positive engagement by the user with the advertising system prior to presentation of the advertising message.

3. THE DECISION OF THE PRIMARY JUDGE

34 The primary judge quoted claim 1 of the patent application and set out figures 1, 2 and 3. He then identified the grounds of appeal from the decisions of the delegate and the statutory provisions. He then provided in [12] – [171] a detailed summary of the evidence, which

consisted of affidavits from Karin Verspoor, a Professor in the School of Computing and Information Systems at the University of Melbourne, and an affidavit of Scott Ries, the Director of Technical Services at DG/Sizmek, a large independent digital advertising business. Professor Verspoor gave oral evidence, but Mr Ries was not available at the hearing and was not cross examined.

35 In his summary of the evidence the primary judge noted that in her first affidavit Professor Verspoor was asked to give her opinion on the following questions, as she would have understood the answer as at December 2012, being the priority date:

> (1) What is the "substance" of the invention? In other words, what specifically lies at the heart of the invention?
>
> (2) Does the invention solve a technical problem?
>
> (3) Is the use of a computer (or computers) integral to carrying out the invention, or could the invention be carried out in the absence of a computer (or computers)?
>
> (4) Does the invention involves [sic] steps that are foreign to the normal use of computers (as at December 2012)?

36 He noted that before answering these questions, Professor Verspoor set out her interpretation of each major feature of claim 1, which the primary judge summarised at [16] – [38].

37 The primary judge summarised Professor Verspoor's answer to question (1) as follows::

> [39] In Professor Verspoor's view, having regard to both the claims and the body of the specification, the substance of this invention was to introduce a dynamic, context-based advertising system. The invention introduced a distinction between an engagement offer, designed to capture a user's attention but without a direct advertising benefit, and an advertisement, designed to directly lead to the sale of the product. She referred to the specification at page 10. She referred to the contrast, in the preamble, with the traditional type of advertising where the actual consumer engagement levels were still very low.

38 After addressing Professor Verspoor's answer to question (1) in more detail in [40] – [45], his Honour then addresses her answer to question (2). He notes at [46] that Professor Verspoor deposed that the key technical problem that was addressed by the invention was that of providing a single platform in which user engagement data could be coupled with transactional data and user context data (including real-time information based on time, location, and mode of access to publisher content as well as historical data for both the user and similar users), in order to provide a personalised ranking of engagement offers to the user. The primary judge further summarised Professor Verspoor's answer to question (2) in [47] – [54], before to turning to question (3) at [55] – [57]. The primary judge said:

> [55] ...Professor Verspoor's opinion was that the use of computers was integral to carrying out the invention. In the first instance, the data bank (figure 1) that was the source of both engagement objects (item 115) and historical/tracking data (item 114) were critical components of the invention. In her experience, it was not feasible for a non-digital implementation (i.e. one which did not involve the use of computers) to: (a) store and manage large amounts of tracking data collected from real-time interactions with digital devices; and (b) manipulate large quantities of data for context-sensitive decision making.

39 In answer to question (4), at [58] the primary judge summarised Professor Verspoor's opinion that the invention involved steps foreign to the normal use of computers, namely, if the phrase "foreign to the normal use of computers" was intended to mean "the use of computers in a way that they have not been used before", she was of the view that the patent introduced a method which was foreign to the normal use of computers. This followed from her preceding observations about:

(a) the novel architecture adopted in the invention; and

(b) the existence of the technical problem that was said to be solved by the invention.

40 The primary judge then turned to the evidence of Mr Ries. Mr Ries was asked by the solicitors for the Commissioner to explain:

> 1. In December 2012, how did Internet advertising platforms select advertisements to display on third party websites?
> 2. In December 2012, how were databases and engines used to combine all of the following:
>
> 2.1. data about Internet user engagement;
>
> 2.2. data about transactions conducted by Internet users, and
>
> 2.3. data about Internet users' location, time of access to a website, mode of access to a website and Internet browsing history,
>
> in order to select Internet advertisements to display to users?
>
> 3. In December 2012, how were web scripts and widget scripts used to collect data about Internet users and select advertisements to display to users on third party websites?

41 After setting out a summary of Mr Ries' evidence at [65] to [78], the primary judge summarised the view that Mr Ries had about the combination of claim 1:

> [79] Mr Ries wrote that the advertising format of claim 1 was implemented by way of computers (i.e. a "computer implemented method") and, more particularly, an online advertising system. All of the hardware components that were used to implement the system (servers, processors and network components) were well known and widely used in the digital advertising industry before

> December 2012. Mr Ries did not understand the invention to be any new or improved hardware technology. To the contrary, he understood the specification to teach the reader that the existing computer hardware could be used to implement the advertising system. He directed attention, in particular, to the patent application on page 25, lines 5-16.

Page 25, lines 5-16 are set out above at [31].

42 The primary judge then summarised Mr Ries' more detailed review of the specification (at [80] – [88]). He summarised some of the differences of opinion between the experts. One concerned the identification of the "substance of the invention":

> [91] Mr Ries wrote that in her affidavit (at [47]), Professor Verspoor stated that "the substance of the invention is to introduce a dynamic, context-based advertising system". However, context based advertising, Mr Ries wrote, was very common, and was very common in December 2012. The technology that he had earlier described was used in dynamic, context-based systems that determined what advertisements to display based upon parameters that could include website content, user attributes, historical behaviour, their interaction with the publisher's website and other websites, the user's location, the time of day, and other contextual data.

43 The primary judge recorded the agreement of the experts that it was necessary to use at least several computers to implement the invention because of the large volume of data involved, and the need to quickly retrieve and manipulate the data (at [95]). Later, the primary judge summarised the second affidavit of Professor Verspoor. His Honour said:

> [104] As to whether the specification in the patent application identified only a business problem but not a technical problem, Professor Verspoor deposed that the final paragraph of the first page of the specification did indeed identify a business problem. It was provided as motivation for the technical solution proposed in the patent application, clearly indicated as such by its presentation in the background of the invention. The specification then translated this business problem into the technical problem of how to utilise computer technology to address the business problem. That is, the technical challenge was how to design and implement computer programs that could work together in real time over the internet to display advertisements in such a way that a user was much more likely to engage with them voluntarily while the user was using a website for a different purpose (i.e., while visiting a publisher's website).
>
> [105] As Professor Verspoor had said in her first affidavit when addressing the question of whether the invention solved a technical problem, this involved creating a single platform that comprised the two databases and two engines described in [48] above. The specification introduced a novel system architecture with a novel method that addressed the technical problem of how to use computer technology to more effectively engage consumers with digital advertising. She said the invention in the patent application was not the first attempt to solve this technical problem; engaging users with advertisements was a long-standing challenge in online advertising. However, in her opinion, the method set out in the patent application was a new and improved way to

> overcome that problem. A "computer system" comprising hardware and software that implemented the method in the patent application was a new, more improved "computer system" for delivering online digital advertising.

44 Later, the primary judge noted at [114] that Professor Verspoor agreed that the specification did not present a technical contribution to hardware, that is, in the sense of disclosing new computing hardware components (e.g. circuitry, a chip). However, she disagreed that this meant that there was no improvement to technology described in the patent application. She deposed that computers were not just hardware; they were hardware plus software together. The software is run (executed) on hardware. A new invention that modified a computer by improving its software so that the computer performed a different function or set of functions was in effect an improvement in "the computer". This was the sense in which the patent application described an improvement in computer technology.

45 The primary judge also referred to the oral evidence of Professor Verspoor at [133] to [171].

46 The primary judge next summarised the submissions of the parties, and then at [198] – [216] set out his consideration of the issues. The following relevant points were made in his reasoning.

47 **First**, the primary judge found at [200] that the resolution of the appeal lay "largely in the realm of facts", noting that there was no substantial relevant difference in the positions of the parties on the legal principles to be applied. His Honour identified that the issue was:

> [201] ...whether there is a technological innovation. Where, as here, the claimed invention is to a computerised business method, the invention must lie in the computerisation and it is not enough simply to put a business method into a computer. The search is for an improvement in computer technology

48 **Secondly**, having generally preferred the evidence of Professor Verspoor over that of Mr Ries (at [198]), the primary judge accepted Professor Verspoor's evidence that the "substance of the invention":

> [203] ...was to introduce a dynamic, context-based advertising system, introducing a distinction between an engagement offer, without a direct advertising benefit, and an advertisement designed to lead directly to the sale of the product. This was an improvement in computer technology. It involved the new layer of engagement offers and the insertion of a widget into the publisher content to serve the engagement offer. A data-based scoring algorithm was used to decide what engagement offers to serve. This was an important improvement to existing computer-based advertising. The invention also introduced the recording and transmitting of user interactions with advertisements and the using of that data to select subsequent advertisements.

49 The primary judge found that it was the introduction of the intermediate "engagement offer" that provided an alternative advertising technique to previous systems and constituted the key feature of the invention of claim 1 (at [204]).

50 **Thirdly**, the invention so described involved the solution to both a **business problem** of attracting the attention of the user and having the user choose to interact with the advertiser, and a **technical problem** of how to utilise computer technology to address the business problem (at [207]). He rejected the Commissioner's submission that the invention solved only a business problem (at [206]). His Honour found that the technical problem was solved in two aspects. A first, by providing a single platform in which user engagement could be coupled with transactional data and user context data to provide a personalised ranking of engagement offers to the user (at [205]). His Honour found:

> [205] This technical problem of providing this single platform was solved by introducing the tracking database and the objects database and designing the ranking engine and the engagement engine which accessed and manipulated the data in the two databases to rank and select engagement offers. The ranking engine optimised the personalised output for the consumer. Critically, the ranking engine implemented a ranking algorithm which ranked the retrieved object by a combination of an engagement score and revenue score. I also accept the evidence Professor Verspoor gave, which is summarised at [46]-[54], [104]-[107], [134]-[135] and [145] above.

51 A second, by introducing the engagement offer and identifying what steps the software needed to execute in order to modify dynamically the website that the user was browsing while they were browsing it, to:

> [207] … first, implement in the web browser or device the concept of the engagement offer, second, to implement in the computer system the necessary software for selecting engagement offers and advertisements for the given user based on the previous interactions with the system and the interactions of other similar users and, third, to have that system interact with the widget in the web browser in real time.

52 **Fourthly**, the primary judge found that the use of computers was integral rather than incidental to the invention. The primary judge found that the user interaction could only take place on the user's computer and it was integral to the invention that data to be collected, and engagement offers presented, through that computer. Furthermore:

> [209] Storage and manipulation of data at the magnitude and speed that was required to implement the method could only be done on a computer or computers. The data analysis claimed in the patent could not be performed without a computer or computers, particularly having regard to the gathering, manipulation and subsequent use of the data by the engagement engine.

53 **Fifthly**, that the known components had been integrated into a single system in an innovative and previously unknown way (at [211], [212]).

4. THE SUBMISSIONS ON APPEAL

54 The Commissioner submits that the Full Court in ***Encompass*** *Corporation Pty Ltd v InfoTrack Pty Ltd* (2019) 372 ALR 646 confirmed the correctness of *RPL Central* and ***Research Affiliates*** *LLC v Commissioner of Patents* (2014) 227 FCR 378*,* and explained the language in those and other authorities as seeking to describe the conceptual distinction between a manner of manufacture and an unpatentable abstraction. In that context, *Encompass* applied the principle that a mere scheme or idea implemented using "generic" computer technology is not a manner of manufacture. In so holding, the Commissioner submits that the Full Court endorsed the approach in *RPL Central* at [99] and [110] of asking whether a computer implemented method "merely require[s] generic computer implementation" of a scheme or abstract idea.

55 The Commissioner submits that having regard to the text of the specification and the language of claim 1, the invention disclosed and claimed is to an advertising scheme, the key feature of which involves displaying an "engagement offer" to the user before any digital advertisements are shown. Despite the use of a computer and internet connectivity to implement the scheme, the invention claimed is no more than an instruction to apply an abstract idea or scheme, using generic computer technology. She submits that: first, claim 1 does not characterise the computing devices that are required to implement the claim; secondly, the claim does not characterise how the identified computing functions are performed; and thirdly, no computer programming code or software is disclosed.

56 The Commissioner submits that the primary judge erred in reasoning that the resolution of the appeal lay largely in the realm of facts, when according to established principle it lay in the proper characterisation of the invention. That is a question of law for the Court, and not a question of fact for an expert. She emphasises the limited role that expert evidence has to play in the proper characterisation of an invention, noting that in each of *Encompass, Research Affiliates* and *RPL Central* the Full Court characterised the claimed inventions based on the claims and specifications without relying on expert evidence. In this regard the Commissioner submits that there was no dispute as to the background common general knowledge, Professor Verspoor largely agreeing with the evidence of Mr Ries, which the primary judge summarised at [64] – [77] of his reasons.

57 Furthermore, even if the opinions that the primary judge adopted from the evidence of Professor Verspoor are accepted, they did not support a conclusion that the claimed invention is patentable subject matter. In this regard, in relation to each of the questions that the primary judge answered at [203] – [213], the primary judge failed correctly to identify that the substance of the invention was a mere scheme that was simply implemented in a generic computerised arrangement.

58 Rokt emphasises that the proper question is whether the subject matter in issue is "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", and is to be answered "consistently with a "widening conception of the notion [which] has been a characteristic of the growth of patent law", citing *D'Arcy v* ***Myriad Genetics*** *Inc* (2015) 258 CLR 334 at [18] and *Encompass* at [77]. It submits that there is no rigid formula to be applied, but that whilst the existence of an artificially created state of affairs of economic significance is neither necessary nor sufficient, in many cases it will suffice where there are "no countervailing considerations", citing *Myriad Genetics* at [28] and *Encompass* at [83].

59 Rokt submits that software that has the effect of controlling computers to operate in a particular way is patentable, citing ***Data Access*** *v Powerflex Services* (1999) 202 CLR 1 at [20]. It submits that one aspect that confirms unpatentability is when the Court recognises that the true character of the invention that is claimed is a method amounting to no more than an abstract scheme, which does not become patentable *merely because* the method is implemented by the instrumentality of a computer (citing *Encompass* at [90] – [91]). Thus simply adding a computer does not change the substance. However, that does not presuppose that, to constitute patentable subject matter, there must be a claim to an advance in the computer hardware. That proposition was rejected by the Full Court in *Encompass* at [110].

60 Rokt submits that the Commissioner oversimplifies and trivialises the invention. It submits that claim 1 is for a method and system of digital advertising wherein the method starts by downloading program code (a widget) to a user when he or she has access to a website, and running it on their browsing device. The widget gathers certain data stored in the user's device, including data about the user and about what the user is doing while browsing the website. It then sends engagement data over the internet in real time to the advertising system run by the person implementing the method. That is a collection of computer hardware and software that performs specific functions. An engagement engine evaluates the engagement data against pre-

defined rules to determine when to instruct the widget to display an "engagement offer" to users. For instance, this may be an offer to a person who has just purchased tickets to see a band. Once an engagement trigger is activated, the engagement engine selects an engagement offer from a pool of different offers stored in the system, such as an offer for a VIP backstage pass for a person who has just purchased tickets to see a band. Significantly, Rokt emphasises, the engagement offer is not itself an advertisement. If there is more than one potentially relevant engagement offer, the engagement engine implements a ranking algorithm – a series of computational steps – which acts on data and performs calculations to rank them from most to least relevant in a way that may personalise offers to the specific user. The widget then causes the interface to insert the selected engagement offer into the publisher content so that the user sees it on his or her device. The widget records what the user does in relation to the engagement offer. If he or she interacts with it, then one or more advertisements (selected by an algorithm) from a pool may be shown. The widget then tracks how the user interacts with the advertisements, which is not part of the standard publisher content displayed on the browser. Those responses are stored in a tracking database and are used in selecting engagement offers for other users who share one or more attributes with the user.

61 Rokt submits that the Commissioner's criticisms of claim 1 as (a) not characterising how the identified computing functions are performed and (b) not disclosing programming code or software, wrongly conflate the requirements of s 40 of the Patents Act with the test for patentable subject matter. If functional elements identify the method disclosed sufficiently for a person skilled in the art, vested with the common general knowledge, to make something within the claim, then it is not necessary for code to be disclosed.

62 Rokt submits that the Commissioner wrongly criticises the primary judge for stating that the resolution of the matter lies in the realm of facts. At [200] the primary judge was doing no more than indicating that the resolution of the ultimate issue could be determined based on a reading of the patent, informed by expert evidence of its meaning by a person skilled in the art.

63 Rokt answers the Commissioner's submission that even if the opinions that the primary judge adopted from the evidence of Professor Verspoor are accepted, they did not support a conclusion that the claimed invention is not patentable subject matter by reference to the specification, the claims and the evidence. We address this submission further below.

64 Rokt issues a *cri de coeur* that if known chemical components can be used in a new way to produce an economically useful result, known hardware and software components can likewise

be used in a new way, where they are used to implement new concepts of which they were not previously known to be capable (engagement offers) and new computing tasks related to those new concepts (tracking and manipulating engagement data) to produce a computer system having a new mode of operation resulting from a technical contribution from the intervention of the inventors.

5. CONSIDERATION

65 Section 18(1)(a) of the Patents Act provides that an invention is a patentable invention for the purposes of a standard patent if the invention, so far as claimed in any claim:

> is a manner of manufacture within the meaning of section 6 of the Statute of Monopolies.

66 The other requirements of s 18(1), being that the invention so far as claimed be novel, contain an inventive step, be useful and not have been secretly used before the priority date, are separate and logically distinct grounds of validity. They are not relevant to the present appeal, which proceeds on the assumption that the invention claimed satisfies all of these requirements.

67 In *Myriad Genetics* the plurality said (citations omitted, emphasis added):

> [12] The term "patentable invention" is defined in the Dictionary in Sched 1 to the Act as "an invention of the kind mentioned in section 18." The term "invention" is defined as:
>
> > "any manner of new manufacture the subject of letters patent and grant of privilege within section 6 of the Statute of Monopolies, and includes an alleged invention."
>
> It is not clear, and was not debated in this appeal, how the expression "manner of manufacture" differs from the expression "manner of new manufacture". The definition of "invention" has been used in Commonwealth patent statutes since federation. It allows for exclusion from the class of "invention", and therefore from the class of "patentable invention", anything which is not, on the face of the specification, a proper subject of letters patent according to traditional principles. That anterior exclusion may be based upon an admission, on the face of the specification, which makes clear that the invention claimed is not novel or does not involve an inventive step. This appeal, however, collapses the anterior and subsequent questions — "Is there an invention?" and "Is there a patentable invention?" — into one inquiry. That inquiry requires a definition of the allegedly patentable invention. **That definition depends upon the construction of the impugned claims read in the light of the specification as a whole and the relevant prior art**...

68 The present appeal also calls attention to the single enquiry identified in this passage, namely whether, upon construction, claim 1 as read in the light of the specification as a whole in the light of the relevant prior art, which in the present case is the common general knowledge, is a

manner of manufacture. That question may be re-cast by asking whether the invention as claimed is 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*, and is to be answered according to a common law methodology under the rubric of "manner of manufacture" as developed through the cases: *Myriad Genetics* at [18], citing *National Research Development Corporation v Commissioner of Patents* (1959) 102 CLR 252 (**NRDC**) at 269.

69 The common law conception of whether or not a computer implemented invention is a manner of manufacture requires distinguishing between a patentable subject matter and a mere scheme or plan and its application to computer technology as considered in more recent times in: ***Grant** v Commissioner of Patents* (2006) 154 FCR 62, *Research Affiliates, RPL Central* and *Encompass*. In each case, the Full Court has reiterated the importance of the task of characterising the invention claimed. This is a matter of substance, not merely of claim form: *Encompass* at [80], [81]. It requires definition of the allegedly patentable invention, based on the construction of the claims. See also *Watson v The Commissioner of Patents* [2020] FCAFC 56 at [30].

70 The correct approach to the characterisation of the invention adopts some significance in the present appeal. The Commissioner contends that the primary judge erred in accepting Professor Verspoor's evidence as determinative of whether the claimed invention was a manner of manufacture and that his Honour erred in finding that the resolution of the appeal lay "largely in the realm of facts". There is force in this criticism.

71 First, it is fundamentally a matter for the Court to determine and characterise the invention having regard to the principles of construction that are now well settled. Many are summarised in *Jupiters Ltd v Neurizon Pty Ltd* (2005) 222 ALR 155 at [67]:

> [67] There is no real dispute between the parties as to the principles of construction to be applied in this matter although there is some difference in emphasis. It suffices for present purposes to refer to the following:
>
> (i) the proper construction of a specification is a matter of law: *Décor Corp Pty Ltd v Dart Industries Inc* (1988) 13 IPR 385 at 400;
>
> (ii) a patent specification should be given a purposive, not a purely literal, construction: *Flexible Steel Lacing Company v Beltreco Ltd* (2000) 49 IPR 331 at [81]; and it is not to be read in the abstract but is to be construed in the light of the common general knowledge and the art before the priority date: *Kimberley-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* (2001) 207 CLR 1 at [24];
>
> (iii) the words used in a specification are to be given the meaning which

the normal person skilled in the art would attach to them, having regard to his or her own general knowledge and to what is disclosed in the body of the specification: *Décor Corp Pty Ltd* at 391;

(iv) while the claims are to be construed in the context of the specification as a whole, it is not legitimate to narrow or expand the boundaries of monopoly as fixed by the words of a claim by adding to those words glosses drawn from other parts of the specification, although terms in the claim which are unclear may be defined by reference to the body of the specification: *Kimberley-Clark v Arico* at [15]; *Welch Perrin & Co Pty Ltd v Worrel* (1961) 106 CLR 588 at 610; *Interlego AG v Toltoys Pty Ltd* (1973) 130 CLR 461 at 478; the body of a specification cannot be used to change a clear claim for one subject matter into a claim for another and different subject matter: *Electric & Musical Industries Ltd v Lissen Ltd* [1938] 56 RPC 23 at 39;

(v) experts can give evidence on the meaning which those skilled in the art would give to technical or scientific terms and phrases and on unusual or special meanings to be given by skilled addressees to words which might otherwise bear their ordinary meaning: *Sartas No 1 Pty Ltd v Koukourou & Partners Pty Ltd* (1994) 30 IPR 479 at 485-486; the Court is to place itself in the position of some person acquainted with the surrounding circumstances as to the state of the art and manufacture at the time (*Kimberley-Clark v Arico* at [24]); and

(vi) it is for the Court, not for any witness however expert, to construe the specification; *Sartas No 1 Pty Ltd*, at 485–486.

72 In our respectful view, by characterising the problem as one that lay in the realm of fact, and preferring the evidence of Professor Verspoor over that of Mr Ries in order to resolve it, his Honour fell into error. Professor Verspoor could not address and determinatively answer the legal question of the proper construction of the specification and characterisation of the claimed invention.

73 The role of expert evidence in construing the patent specification and the claims is limited. It is to place the Court in the position of the person acquainted with the surrounding circumstances as to the state of the art and manufacture as at the priority date: *Kimberly-Clark Australia Pty Ltd v Arico Trading International Pty Ltd* (2001) 207 CLR 1 at [24]; *Myriad Genetics* at [12]. Typically, the Court will read the specification with the benefit of expert evidence as to the meaning of words that are terms of art, or with an explanation of technical concepts relevant to the understanding of the invention as described and claimed. The question of construction remains with the Court. However, in his reasons, the primary judge adopted the approach of preferring the expert opinion evidence of Professor Verspoor over that of Mr Ries, and then adopting Professor Verspoor's view as to the identification of the invention as claimed and characterised in the specification. It is not apparent that his Honour separately gave consideration to these matters. In our respectful view, that is an error in approach.

74 Secondly, as we have noted, the task of construing the specification involves arriving at a characterisation of the invention claimed in order to determine whether or not it is in substance for a manner of manufacture. That involves the application of the common law principles developed to separate patentable inventions from schemes or methods of business. The latter can, in the context of computer implementation, appear to be dressed in the clothes of invention. In each of *Research Affiliates*, *RPL Central* and *Encompass*, the Full Court found the computer implemented inventions not to be patentable; each was a case of the Emperor's new clothes.

75 The injunction against the grant of patents for mere schemes has been long established. *Grant* involved a claim for a scheme whereby a hypothetical unsecured creditor who recorded judgment against a user of the method could not levy against the user's assets to the extent that they were subject to the charge (at [31]). The Court noted (original emphasis):

> [14] Business, commercial and financial schemes as such have never been considered patentable (J Lahore, "Computers and the Law: The Protection of Intellectual Property" (1978) 9 *Federal Law Review* 15 at 22–3, approved in *CCOM Pty Ltd v Jiejing Pty Ltd* (1994) 51 FCR 260 at 292) in the same way that the discovery of a law or principle of nature is not patentable. Sir Robert Finlay A-G observed in *Re Cooper's Application for a Patent* (1901) 19 RPC 53 at 54, '[y]*ou cannot have a Patent for a mere scheme or plan – a plan for becoming rich; a plan for the better government of a State; a plan for the efficient conduct of business*'. A law of nature becomes patentable when applied to produce a particular practical and useful result (*Welcome Real-Time SA v Catuity Inc* (2001) 113 FCR 110 at [117]). While a mere scheme or plan is not the proper subject of a patent, an alleged invention which serves a mechanical purpose that has useful results does not become such an unpatentable scheme or plan merely because the purpose is in the carrying on of a branch of business (*Re Fishburn's Application* (1938) 57 RPC 245 at 248).

76 In subsequent cases the Court has been astute to consider whether a claim utilising computer technology does so as simply a means of implementing the scheme or whether it does more. The position in *Grant* was relatively straightforward. Applying *NRDC*, it was found not to produce any artificial state of affairs in the sense of a concrete, tangible or observable effect (at [30]). It was an abstract idea or mere intellectual information of a type that has never been held to be patentable (at [32]).

77 In ***CCOM*** *Pty Ltd v Jiejing Pty Ltd* (1994) 51 FCR 260 the Court found that there was a physically observable effect in the retrieval of graphical representations of desired characters for the assembly of text that was a patentable invention. It said at 295:

> The *NRDC* case at 275-277 requires a mode or manner of achieving an end result which is an artificially created state of affairs of utility in the field of economic endeavour. In the present case, a relevant field of economic endeavour is the use of word processing

> to assemble text in Chinese language characters. The end result achieved is the retrieval of graphic representations of desired characters, for assembly of text. The mode or manner of obtaining this, which provides particular utility in achieving the end result, is the storage of data as to Chinese characters analysed by stroke-type categories, for search including "flagging" (and "unflagging") and selection by reference thereto.

78 The plurality in *Myriad Genetics* made reference to this passage, saying (citations omitted):

> [21] In *CCOM Pty Ltd v Jiejing Pty Ltd*, the Full Court of the Federal Court said the *NRDC* case "requires a mode or manner of achieving an end result which is an artificially created state of affairs of utility in the field of economic endeavour". As Professor Monotti wrote in an article in the *Federal Law Review* in 2006, the passage from the judgment in *NRDC* characterising the process claimed before the Court as a product consisting in an "artificially created state of affairs" merely explained "the qualities of the invention before the court". The Court could hardly have intended the phrase to be seen as a definition of manner of manufacture because it had already denounced the idea of an exact formula. The formulation in *CCOM*, like the so-called vendible product "rule" should be taken as a guide rather than as a rigid formula.

79 Accordingly, as the Full Court in *Encompass* noted at [90], *CCOM* should not be taken as laying down a rule or rigid formula. Even if a claim is to "an artificially created state of affairs of economic significance" it does not follow that the demonstration of a physical effect mandates patentability. In this appeal no challenge is made to this proposition, or any aspect of the *Encompass* decision.

80 In each of *Research Affiliates* and *RPL Central* the Court was concerned to describe the conceptual distinction between a manner of manufacture and an unpatentable abstraction that was said to nonetheless be implemented using computer technology. In both cases the Full Court explained that a claimed method that is unpatentable does not change its legal character merely because the method is implemented by the instrumentality of a computer: *Encompass* at [91].

81 In *Research Affiliates* the Full Court noted that the use of a computer necessarily involves the writing of information into the computer's memory. This meant that there were a number of *"physical effects"* in the sense of transformed data and memory storage during the claimed process. The claimed index in that case was data that existed in computer-readable form. The question was whether this was sufficient to make the claimed method properly the subject of letters patent. The Court found at [114] (underlining added, bold and italics in the original):

> 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 <u>other than the implementation of a scheme</u>, 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).

82 Of course the Court was not there considering the question of the inventive step involved in the invention claimed in the sense required by s 7(2) of the Patents Act. Nor was evidence led going to the common general knowledge. Nevertheless, the Court distinguished between the "mere" use of a computer and the use of a computer involving a specific effect being generated or an improvement in the operation of, or effect of the use of the computer (at [113]). The use of an abstract idea or scheme in a "well-known machine" is not sufficient to render the unpatentable subject matter patentable simply because it gives rise to an "artificial effect" (at [114]). The Court found that to take that approach would be inconsistent with *NRDC* and elevate form over substance.

83 In this context it may be noted that earlier in its reasons the Court in *Research Affiliates* identified a distinction between mere implementation in a computer and implementation of an abstract idea in a computer that creates an improvement in the computer. It said (original emphasis):

> [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, '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.

84 In *RPL Central,* which was decided after *Myriad Genetics*, the Full Court found that a mere scheme that was operated in a computer environment was not patentable, because merely plugging an unpatentable scheme into a computer does not make it a manner of manufacture. As the Full Court said in *RPL Central* in a passage endorsed in *Encompass* at [95]:

> [96] A claimed invention must be examined to ascertain whether it is in substance a scheme or plan or whether it can broadly be described as an improvement in computer technology. The basis for the analysis starts with the fact that a business method, or mere scheme, is not, per se, patentable. The fact that it is a scheme or business method does not exclude it from properly being the subject of letters patent, but it must be more than that. There must be more than an abstract idea; it must involve the creation of an artificial state of affairs where the computer is integral to the invention, rather than a mere tool in which the invention is performed. Where the claimed invention is to a computerised business method, the invention must lie in that computerisation. It is not a patentable invention simply to "put" a business method "into" a computer to implement the business method using the computer for its well- known and understood functions.

85 The reference to using the computer for its "well-known and understood functions" involved consideration of computers having regard to their basic and well-known functions. This did not require, and should not be taken to encourage, a review of the common general knowledge beyond the use of the common general knowledge, to the extent necessary, to construe the specification.

86 In *Encompass* the Full Court found that the method claimed was for a scheme for displaying information relating to "entities" so as to provide "business intelligence" (at [11]). The question for the primary judge, and for the Full Court on appeal, was whether that scheme was nonetheless patentable because of the manner in which it was implemented. The Court noted (at [28]) that the method claim involved 6 steps, being: (a) generating a network representation by querying remote data sources; (b) causing the network representation to be displayed to a user; (c) in response to user input commands, determining at least one user-selected node corresponding to a user-selected entity; (d) determining at least one search to be performed in respect of the corresponding entity associated with the (at least one) selected node; (e) performing at least one search to determine additional information regarding the entity from at least one of a number of remote data sources by generating a search query; and (f) causing any additional information to be presented to the user. It noted that the claim does not characterise the electronic processing device which performs the method but simply said that "any suitable processing system" may be used (at [30]).

87 The Full Court found that the claims were no more than an instruction to apply the abstract idea, being the steps of the method, using what it characterised as "generic computer technology". It said (bold emphasis added, italic emphasis in the original):

> [99] Turning to the present case, we accept the respondent's submission that the method claims in suit are, in truth, no more than an instruction to apply an abstract idea (the steps of the method) using generic computer technology. The appellants endeavoured to explain why the claimed method falls within the notion of an artificially created state of affairs by attributing computer functionality to the method: the computer (or, in the language of the claims, the electronic processing device) searches remote data sources; the computer generates a network representation; and the computer responds to a user's selection to conduct a further search. The appellants also attributed computer functionality to the method by the computer determining additional information relating to the *same* entity. As we have previously noted, this involves the contentious question of "entity matching"—a step which the primary judge found was not a step in the claimed method. We discuss this below when dealing with the grounds relating to innovative step. **But even if for present purposes "entity matching" is taken to be a step in the claimed method, neither it nor the other steps, individually or collectively, amount to anything more than a method in which an uncharacterised electronic processing device (for example, a computer) is employed as an intermediary to carry out the method steps—where the method itself is claimed in terms which amount to no more than an abstract idea or scheme.**

88 The bold passage is of present significance because it emphasises that having first found the method to be a scheme, the enquiry as to whether it was an unpatentable "mere scheme" concerned the manner in which the scheme was to be implemented. In that case the uncharacterised electronic processing device (a computer) was the hardware. No invention lay in the means of implementation from that perspective.

89 The Full Court also noted the appellant's submission that the claimed method cannot be implemented using "generic software". That submission was no doubt intended to indicate that software written for purpose was required to implement the invention. Despite assuming that this would be so, the Full Court observed that a difficulty with that submission was that the claims in suit did not secure, as an essential feature of the invention, any particular software or programming that would carry out the invention, it being left entirely to those wishing to use the method to devise and then implement a suitable computer program for that purpose (at [100]).

90 The purpose of that observation was not, as Rokt's submissions in the present case suggest, a conflation of the requirement that the claim define the invention fully pursuant to s 40 of the Patents Act with the requirement that the claim be for a manner of manufacture. Rather, it

provided a litmus test for whether the use of software in conjunction with the hardware was simply a means of implementing the scheme. Although not determinative, the fact that the method was no more than a description of what a computer, when programmed, would implement, indicated that the claim was no different in principle to a "method...in an electronic processing device" which itself is not characterised. As the Full Court observed in *Encompass,* to find otherwise would be to elevate form over substance (at [101]).

91 It is apparent that where the cases refer to "generic software" or to the use of computers for their "well-known" purpose, it is not a finding as to common general knowledge. Rather, it is a reference to computer technology that is utilised for its basic, typical or well-known functions. The means of determining that this is so is primarily by a careful review of the specification in order to ascertain, by construing that document, whether the invention described and claimed is in substance any more than a scheme that utilises computers in such a way. This is a question of characterising the invention as set out in the specification.

92 In the present case, by adopting the opinions of Professor Verspoor the learned primary judge did not address the question of the proper characterisation of the invention according to these authorities. Professor Verspoor was first asked her to give her opinion as to "*What is the "substance" of the invention. In other words what specifically lies at the heart of the invention?"*. The primary judge adopted her answer, finding that it lay in the introduction of an intermediate engagement offer providing an alternative advertising technique to previous systems (at [203] – [204]). This was effected by introducing a "dynamic, context-based advertising system, introducing a distinction between an engagement offer, without a direct advertising benefit and an advertisement designed to lead directly to the sale of the product" (at [203]).

93 It was suggested by Rokt in argument that the primary judge made a finding of fact that this Court on appeal is precluded from revisiting. That suggestion must be rejected. The correct characterisation of the invention is a matter of law, based on the construction of the specification that may, where appropriate, be assisted by the evidence of experts. As we develop below, it is apparent from a consideration of the specification as a whole that the invention disclosed and claimed is to a scheme to induce consumers to respond more favourably to advertising content displayed to a consumer on a screen. As the specification says at page 9 lines 11 – 15, the engagement offer differs from traditional digital advertisements in that its primary function is not to sell a particular product or service, but instead is a

mechanism for encouraging the consumer to initially engage with the advertisement system in a positive sense. The proper question is whether that scheme has simply been put into effect using computer technology, a subject to which we return below.

94 In relation to the second question, "*Does the invention solve a technical problem?*", Professor Verspoor considered that the invention solved a technical problem insofar as it provided a "single platform" in which user engagement data could be coupled with transactional data and user context data to provide a personalised ranking of engagement offers to a user. The primary judge adopted this answer in [205] of his reasons, and found at [207] that there was a "business problem" of attracting the attention of the user. The primary judge concluded that the business problem was solved by the two aspects of the solution to the technical problem. The first aspect was providing a "single platform" (emphasis added):

> [205] ... in which user engagement data could be coupled with transactional data and user context data to provide a personalised ranking of engagement offers to the user. This technical problem of providing this single platform was solved by introducing the *tracking database* and the *objects database* and designing the *ranking engine* and the *engagement engine* which accessed and manipulated the data in the two databases to rank and select engagement offers. The ranking engine optimised the personalised output for the consumer. Critically, the ranking engine implemented a ranking algorithm which ranked the retrieved object by a combination of an engagement score and revenue score. I also accept the evidence Professor Verspoor gave, which is summarised at [46]-[54], [104]-[107], [134]-[135] and [145] above.

95 It is apparent that his Honour was not at this point adverting to the method of the claim, which refers to an engagement engine but contains no integer requiring a ranking engine (only a ranking algorithm). Nor does the claim require that there be a tracking database or an objects database. Those features are present in the system architecture identified in figure 3 in the specification, but not in claim 1. Section 18(1)(a) of the Patents Act draws attention to whether the invention *so far as claimed in any claim* is a manner of manufacture. That is, while the claims must be read with reference to the body of the specification, the invention is defined by the claims. Professor Verspoor, and the primary judge, relied upon the technical problem and solution identified in the specification, and the primary judge did not address the important question of whether the technical solution was claimed.

96 The second aspect of the technical solution addressed in Professor Verspoor's evidence, and accepted by the primary judge, involved the identification of the steps that the software needed to execute to modify dynamically the website that the user was browsing. However, the primary judge did not engage in any analysis of the central question of whether *invention* was said to

lie in this implementation, or whether it amounted simply to an instruction to "put" the scheme into computer technology. The error in adopting Professor Verspoor's approach in this respect is perhaps illustrated by reference to her opinion as to the role of computer software in the analysis, which his Honour summarised as follows (emphasis added):

> [114] Professor Verspoor agreed that the specification did not present a technical contribution to hardware, that is, in the sense of disclosing new computing hardware components (e.g. circuitry, a chip). However, she disagreed that this meant that there was no technology improvement described in the patent application. She deposed that computers were not just hardware; they were hardware plus software together. The software ran (executed) on hardware. *A new invention that modified a computer by improving its software so that the computer performed a different function or set of functions was in effect an improvement in "the computer". This was the sense in which the patent application described an improvement in computer technology.*

97 This evidence formed the basis for the conclusions expressed by the primary judge. However, the italicised passage serves to confirm that Professor Verspoor was, understandably, not considering the question in the manner mandated by legal authority.

98 It is axiomatic that a change in software can modify the operation of a computer. In each of *RPL Central*, *Research Affiliates* and *Encompass*, the fact that software was used to perform a different and new function was not of itself sufficient to found a conclusion that there was a technical advance in the use of computers such that a mere business scheme was patentable because of its means of implementation. This was so even where bespoke software may have had to be written in order to bring about the claimed outcome: *Encompass* at [100]. This was a point that the Commissioner sought to emphasise before the primary judge by cross examining Professor Verspoor by reference to the claim that was in contention in the *RPL Central* appeal. As his Honour observes at [171], Professor Verspoor concluded that that claim also reflected an advance if no computer had ever before been programmed with software that enabled the computer to implement the method. That evidence serves to emphasise the distance between the legal approach to understanding the invention and that taken (quite understandably, we emphasise) by Professor Verspoor, and the danger in adopting an expert's view without additional legal analysis.

99 In answer to the third question posed to Professor Verspoor, "*Is the use of a computer (or computers) integral to carrying out the invention, or could the invention be carried out in the absence of a computer (or computers)?"*, her view was that the use of computers was integral to carrying out the invention because the data bank which was the source of the engagement objects and the historical/tracking data were critical components of the invention. It was not

feasible for there to be an implementation of the invention without the use of computers (see primary judge at [55]). This was adopted by the primary judge as a further reason in support of the conclusion that the invention claimed was a manner of manufacture. However, the question is not simply whether the claimed invention could not be implemented other than by the use of computers. That fact of itself is not sufficient, as the Full Court in *Encompass* observed at [91]. A claimed method that is unpatentable does not change its legal character merely because the method is implemented by the instrumentality of a computer.

100 The fourth question asked of Professor Verspoor was whether "*the invention involves steps that are foreign to the normal use of computers (as at December 2012)?*". She answered that question in the affirmative on the premise that the method introduced an answer to a technical problem that had not been solved by computer technology before. In adopting this answer, the primary judge found at [211] that the invention claimed drew together different streams of information and put them together and worked with them in a way that was new, making a combination that was new. However, the steps are foreign to the normal use of computers only in the sense that they have not previously been performed by a computer. That is not the same as saying that a computer would not normally be used to perform such steps. On the contrary, as the expert evidence showed, the scheme could only be implemented by the use of computer technology. The answer to the fourth question does not add to the answer given in response to the third.

101 Having regard to these matters, we respectfully consider that the learned primary judge fell into error in adopting the opinions of Professor Verspoor and in his consideration of whether or not the invention in claim 1 is a manner of manufacture. It now falls to us to consider the specification and the claim: *Aldi Foods Pty Ltd v Moroccanoil Israel Ltd* [2018] FCAFC 93 at [47], [48] per Perram J; Allsop CJ and Markovic J agreeing.

102 We have reviewed the specification in some detail above and set out the claim at [33]. The **claim** may be considered by reference to its 12 integers.

103 In the prefatory words in integer (1) the invention is described as a computer implemented method for linking a computer user (defined in the specification to be a consumer) to an advertising message by way of an intermediate engagement offer to drive higher engagement with an advertising message than would otherwise be the case. The method involves several steps:

(a) installing software (such as a "widget") on the consumer's computer together with publisher content (integer (2));

(b) the widget gathering "engagement data" derived from the consumer's interactions with the interface related to: attributes of the publisher content; the consumer's current interaction with that content; and the attributes of the consumer (integer (3));

(c) communicating that data to a remote advertising system able continuously to check to see if an engagement trigger has been signalled (integers (4) and (5));

(d) if signalled, selecting an engagement offer from a pool of relevant alternatives (integer (6)) using a ranking algorithm dynamically to rank the available offers based on an engagement score or a revenue score and selecting an offer based on the ranking (integer (7)), the selection of the engagement offer being subject to the further proviso that the choice provides no direct advertising benefit to the subsequent advertiser of the later selected advertisement, other than to encourage positive engagement by the consumer with the advertising system (integer (12));

(e) causing the interface to display the selected offer (integer (8));

(f) implementing the widget to determine an acceptance of the engagement offer by the consumer based on his or her interaction with the offer (integer (9));

(g) upon determination of acceptance, presenting an advertising message selected from a pool of different advertisements (integer (10)); and

(h) communicating information gathered by the widget about the consumer's interaction with each of the presented advertisements for use in selecting subsequent advertisements (integer (11)).

104 As the expert evidence reveals, the process identified in the claim is to take place whilst the consumer is interacting with the publisher content, with calculations being made rapidly in "real time" to ensure that the consumer is presented with the engagement offer and subsequently the advertisement at an appropriate moment.

105 The following observations may be made about the invention claimed, having regard to the disclosure of the specification (see Section 2 above).

106 **First**, the Background to the Invention makes plain that that real-time or contemporaneous targeting of consumers with advertising material based on what the consumer is viewing is not part of the invention. Nor is the contemporaneous evaluation of the attributes of consumers in order to direct advertisements to them. Existing digital advertising systems are recited as using these components. The use of widgets installed in a consumer interface for such purposes is assumed by the specification.

107 **Secondly**, the problem that the invention sets out to address is to enhance consumer engagement levels. The feature of the invention that solves the problem is the provision of an intermediate "engagement offer" targeted to the consumer interacting with digital content. This is identified in the Summary of the Invention and also in the Detailed Description of the Preferred Embodiments. The latter makes clear that the invention is a four dimensional "advertising model" that "*differs from traditional advertisement in that its primary function is not to sell a particular product or service, but instead is a mechanism for encouraging the consumer to initially engage with the advertisement system 10 in a positive sense*". This consists of the idea to enhance engagement by presenting what we have perhaps uncharitably described "click bait" to a consumer at an early stage in the consumer's interaction with content, based on the ranking made by the ranking algorithm in integer (7) and the proviso in integer (12). Thereafter a selected advertising offer is advanced.

108 There is no doubt that so understood, the invention is a scheme or, more accurately, a marketing scheme. The question that arises is whether it can broadly be described as an improvement in computer technology; whether the computer is a mere tool in which the invention is performed or whether the *invention* lies in the computerisation: *RPL Central* at [96].

109 In this regard in our view nothing about the way that the specification describes the computer hardware or software indicates that either is any more than a vehicle for implementing the scheme, using computers for their ordinary purposes.

110 The specification does no more than describe the architecture of the hardware in a most general sense. We have noted the broad description that the specification provides of the hardware by reference to the architecture set out in figure 3. We have also noted the statements at page 25 to the effect that the method may be implemented on *any form* of suitable server computer capable of communicating with consumer devices (such as smart phones) using *typical* web server hardware. The Background to the Invention recites the prior use of digital advertising systems whereby online consumers' reactions to content are targeted by reference to their

online interactions and personal attributes. These factors indicate that neither the system architecture, the hardware nor the software required to achieve these outcomes form part of the invention. They point to the fact that the marketing scheme that involves the use of the engagement offer is simply implemented by the instrumentality of computer hardware and software. It is true to say that the specification on its face represents a solution to the marketing problem caused by insufficient engagement with targeted online advertising, but these factors suggest that the scheme whereby that is achieved does not involve the use of computer technology other than as a vehicle to implement the scheme.

111 **Thirdly**, the claim provides no content to suggest a different conclusion. Despite its length and detail, it contains no integer that serves to characterise the invention by reference to the implementation of the scheme beyond the most general application of computer technology utilised in an online environment.

112 In this regard, the hardware is identified elliptically by reference to function and location. In integer (2) the widget is delivered with publisher content to a consumer's computer. Information collected by the widget is communicated to a "remote advertising system" (integer (4)) that implements an "engagement engine" to perform the functions described in integers (5) – (7).

113 The software is characterised by reference to the steps set out in integers (3) – (12). Rokt submits that it is not the role of the specification or the claim to set out an algorithm or any coding for computer software. It first submits that the High Court in *Data Access* at [20] articulated the distinction between copyright and patent protection wherein the latter depends on function and the former on a form of expression. It secondly submits that it is wrong for the court to adopt an approach whereby a claim that involves computer implementation by software should always be rejected because it is a "mere instruction to apply an abstract idea" in the absence of software code being incorporated in the claim.

114 In *Encompass* the Full Court found that where the claims in suit do not secure, as an essential feature of the invention, any particular software or programming that would carry out the method *and* the method is entirely left to those wishing to use the method to devise and implement a suitable program for that purpose *and* all the specification teaches is that the processing system may be "suitably programmed" *then* the method is really an idea for a computer program, it being left to the user to carry out the idea in a computer system (*Encompass* at [100], [101]). In making these observations, the Full Court did not purport to

preclude a scheme implemented using computer software from patentability. It manifestly did not lay down principles of general application (at [77]). It was considering whether *invention* lay in the implementation of computer technology based on the disclosure of the specification. By the claim and the specification leaving entirely to those wishing to use the method to devise and implement a suitable computer program for purpose, it was apparent that the invention did not rise above the level of being an instruction to use computer technology for its well-known and understood functions to implement the scheme. As the Full Court said:

> [101] ... Patentable subject matter is not provided simply because the method is a "method … in an electronic processing device", which itself is not characterised. To find otherwise would be to elevate form over substance.

115 In the present case, the claim amounts to an instruction to carry out the marketing scheme. The level of abstraction at which it is expressed demonstrates that it does no more than provide a list of steps to be implemented using computer technology for its well-known and understood functions. Nothing in the specification suggests otherwise. This may be seen from the instructions explained as steps S1a to S10a in the specification (see [26] above). They comprise a list of general instructions to write software. Even if the scheme is new and ingenious, it is not made patentable merely because it can or must be implemented using computer technology. Rather, the language of the specification and the broad statements of steps required to be taken in claim 1 do no more than locate the scheme in computer technology, using its well-known and understood functions. The position is not distinguishable from that in *Encompass*. In our respectful view, the learned primary judge erred in finding otherwise.

116 The appropriate orders are:

(1) The appeal be allowed.

(2) The orders made by the primary judge on 12 December 2018 be set aside and in their place it be ordered that:

  (a) the appeal be dismissed; and

  (b) the applicant pay the respondent's costs.

(3) The respondent pay the appellant's costs.