FEDERAL COURT OF AUSTRALIA

Rokt Pte Ltd v Commissioner of Patents [2018] FCA 1988

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| File number: |  |
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| Judge: | **ROBERTSON J** |
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| Date of judgment: | 12 December 2018 |
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| Catchwords: | **PATENTS** – standard patent – digital advertising system and method – whether claim 1 of the application disclosed a manner of manufacture within the meaning of s 18(1)(a) of the *Patents Act 1990* – whether invention lay in computerisation – whether a person skilled in the art was able to implement the patent based on the specification |
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| Legislation: | *Patents Act 1990* (Cth) ss 18, 40, 97, 100A |
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| Cases cited: | *Commissioner of Patents v RPL Central Pty Ltd* [2015] FCAFC 177; 238 FCR 27  *National Research Development Corporation v Commissioner of Patents* (1959) 102 CLR 252  *Research Affiliates LLC v Commissioner of Patents* [2014] FCAFC 150; 227 FCR 378 |
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| Date of hearing: | 18, 19 and 20 July 2018 |
|  |  |
| Date of last submissions: | 25 July 2018 |
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| National Practice Area: | Intellectual Property |
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| Sub-area: | Patents and associated Statutes |
|  |  |
| Category: | Catchwords |
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| Number of paragraphs: | 217 |
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| Solicitor for the Respondent: | Australian Government Solicitor |

ORDERS

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|  | | NSD 1292 of 2017 |
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| BETWEEN: | ROKT PTE LTD  Applicant | |
| AND: | COMMISSIONER OF PATENTS  Respondent | |

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| --- | --- |
| JUDGE: | ROBERTSON J |
| DATE OF ORDER: | 12 DECEMBER 2018 |

THE COURT ORDERS THAT:

1. The appeal is allowed.
2. The notice of contention is dismissed.
3. The decisions of the Commissioner given on 11 October 2016 and 11 July 2017 are set aside.
4. Australian patent application No. 2013201494, in the form which includes the claims dated 11 November 2016, proceed to grant.
5. The respondent pay the applicant’s costs, as agreed or taxed.

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

REASONS FOR JUDGMENT

ROBERTSON J:

## Introduction

1. On 13 March 2013, the applicant (**Rokt**) applied for the grant of a patent entitled “A Digital Advertising System and Method” and requested examination. The application number was 2013201494 and its claimed priority date was 12 December 2012.
2. The patent was the subject of a number of amendments and re-examinations in the period 2013-2017. Relevantly, the Commissioner, by her delegate, considering the patent in a re-examination initiated pursuant to s 97(1) of the *Patents Act 1990* (Cth), decided on 11 July 2017 that the patent application should not proceed to grant: *Rokt Pte Ltd* [2017] APO 34.
3. The applicant appeals, under s 100A(3) of the *Patents Act*, from the whole of that decision.
4. To the extent necessary, the applicant also appeals from the decision of the Commissioner, by her delegate, given on 11 October 2016 providing the applicant one month to file amendments and supporting submissions, absent which the delegate would proceed to refuse the application: *Rokt Pte Ltd* [2016] APO 66.
5. That step having been taken by the applicant, it is not necessary to consider whether the applicant needed to challenge both the Commissioner’s 11 October 2016 decision as well as her 11 July 2017 decision.

## The patent

1. Claim 1 of the patent, as amended, was as follows, the applicant accepting that claim 15, the other independent claim, was somewhat similar:

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:

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:

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;

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

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;

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, 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;

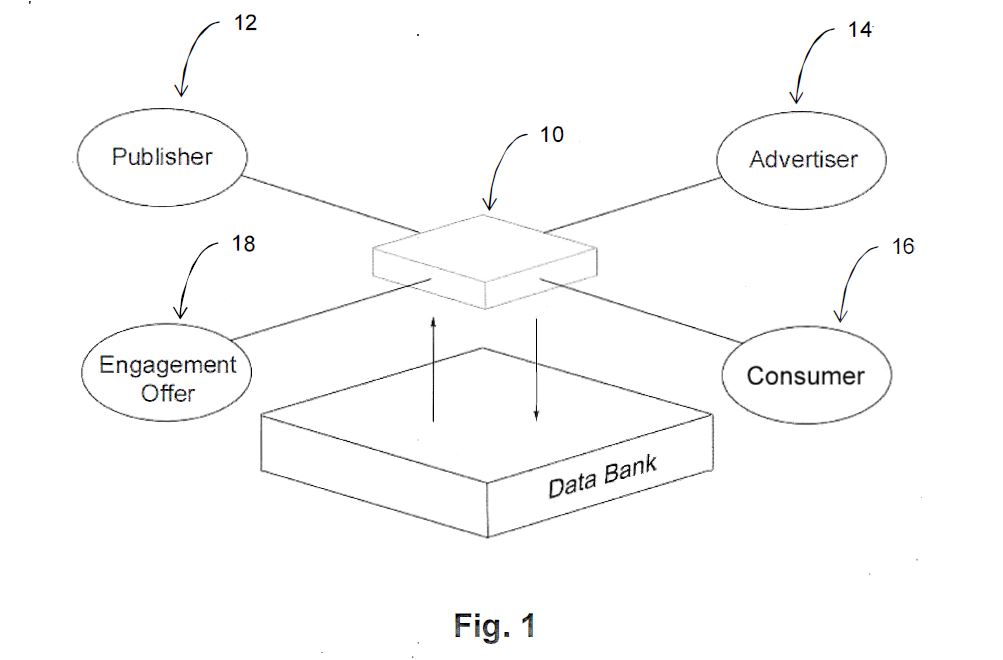
causing the interface to insert the selected engagement offer into the publisher content for displaying to the computer user;

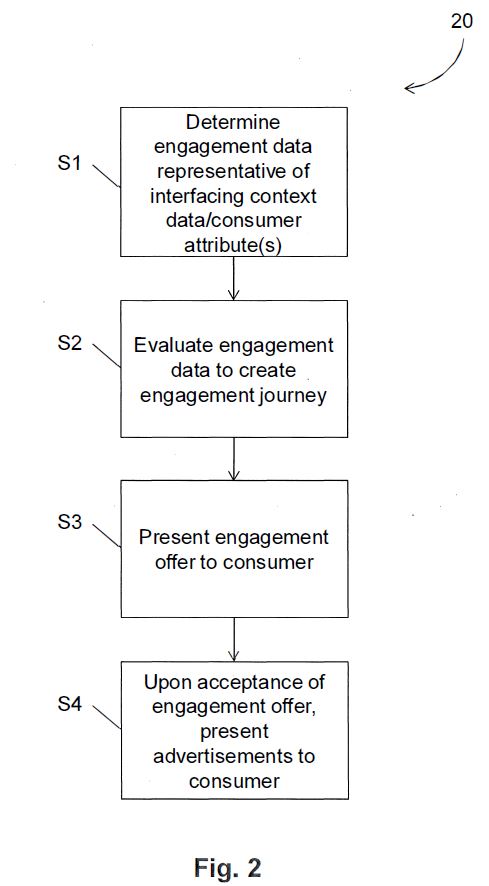
implementing the computer program code to determine an acceptance of the engagement offer by the computer user based on a user interaction with the engagement offer; and

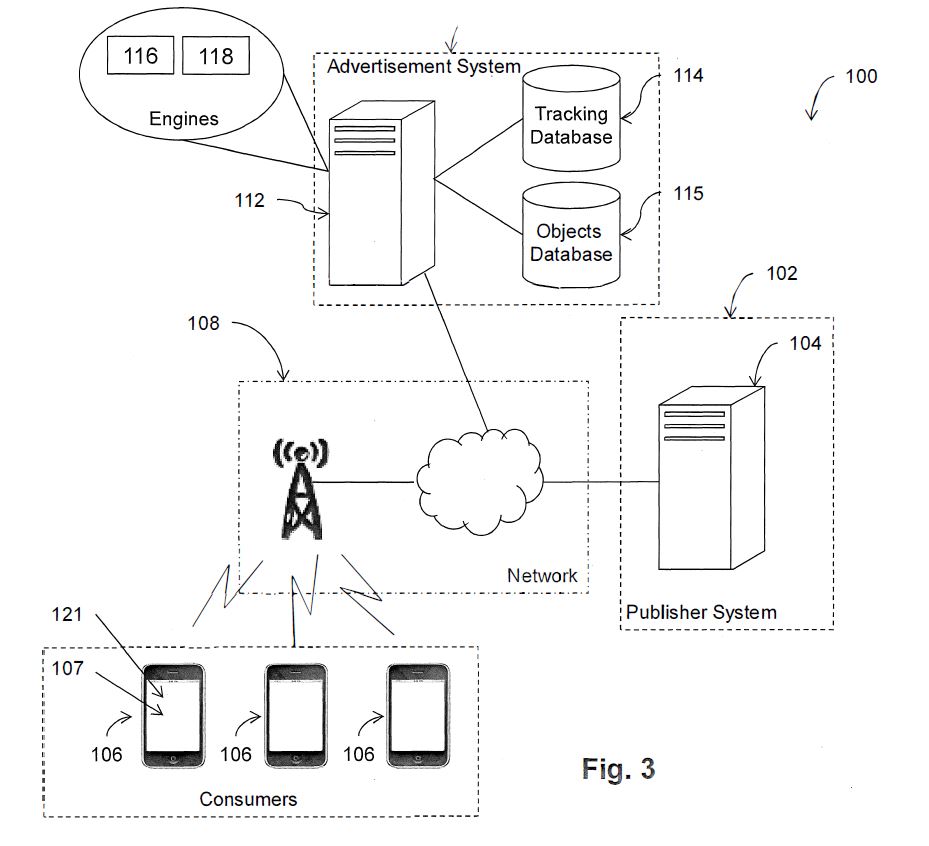
following the determined acceptance, presenting an advertising message comprising one or more advertisements selected from a pool of different advertisements on the interface and wherein user interactions with each of the presented advertisements are gathered by the widget script and communicated to the remote advertising system for use in selecting subsequent advertisements, and 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.

The primary difference between claim 1 and claim 15 was that claim 1 was a computer-implemented method and claim 15 was a system for linking a user to an advertising message by way of an intermediate offer. One element of difference which counsel drew to attention was that a remote advertising system implementing a database storing engagement offers and advertisements was claimed in claim 15, and that was not explicitly found in claim 1.

1. Figures 1, 2 and 3 were as follows:







## The pleadings

1. In its amended notice of appeal filed on 20 July 2018, the applicant relied on the following grounds:

1. The delegate erred in

a) holding that claim 1 of the application did not disclose a manner of manufacture within the meaning of section 18(1)(a) of the *Patents Act* 1990;

b) holding that the remaining claims of the application did not add any patentable subject matter to the substance of the invention; and

c) refusing to grant the patent.

2. The delegate ought to have concluded that claim 1 of the application (as amended) discloses a manner of manufacture within the meaning of section 18(1)(a) of the *Patents Act* 1990, that it and each of the remaining claims of the application contains patentable subject matter, and that the application should proceed to grant.

1. The Commissioner filed an amended notice of contention on 16 April 2018, as follows:

The Respondent contends that if the Court finds that the invention claimed in Australian Standard Patent Application No. 2013201494 (**Application**) involves a manner of manufacture within the meaning of s 18(1)(a) of the *Patents Act 1990* (Cth) (**Act**), then:

(a) the decision of the Commissioner should be affirmed on the separate ground for refusing the grant of the Application that is stated below;

(b) alternatively to sub-paragraph (a), the issue of whether the grant of a patent on the Application should be refused on the ground stated below should be remitted to the Commissioner to be dealt with in re-examination pursuant to s 97(1) of the Act.

**GROUND RELIED ON:**

1. The complete specification does not describe the invention fully, including the best method known to the applicant of performing the invention, as required by s 40(2)(a) of the Act.

**Particulars**

(a) The complete specification does not contain sufficient information concerning the following alleged aspects of the invention to enable a person skilled in the art to produce something within each claim without new inventions, or additions, or prolonged study of matters presenting initial difficulty:

(i) the “ranking engine” that is referred to in paragraph 58 of the affidavit of Professor Karin Verspoor filed on 28 November 2017 (**the Verspoor affidavit**);

(ii) the “algorithm” that is referred to in paragraph 60 of the Verspoor affidavit;

(iii) the combination of techniques and integration of components that is referred to in paragraphs 68 to 69 of the Verspoor Affidavit; or

(iv) the system that is used to determine what publisher content exists on the Internet that contains content that is contextually relevant to the pool of available engagement offers.

(b) Further or alternatively, the complete specification does not describe any method of performing the invention that addresses the alleged aspects of the invention referred to in sub-paragraphs (a)(i)-(iv) above.

(c) If the invention is, or includes, a superior system for assessing website contextual relevance and/or a superior engine or algorithm for ranking advertising objects compared with the systems, engines and algorithms that were conventionally used in display-based advertising before December 2012, then the Patent Application does not:

(i) contain sufficient information to enable a person skilled in the art to determine without new inventions, or additions, or prolonged study of matters presenting initial difficulty (1) why the Applicant’s system, engine or algorithm is superior or (2) what technical features enable that superiority to be achieved; or

(ii) further or alternatively, describe any method of performing the invention that enables that superiority to be achieved.

(d) The Respondent reserves her right to provide further particulars following the completion of evidence and other interlocutory steps.

## The statutory provisions

1. Sections 98 and 100A of the *Patents Act* were amended with effect from 15 April 2013: see items 17 and 18 of the *Intellectual Property Laws Amendment (Raising the Bar) Act 2012* (Cth), Sch 1. However, although the amendment to s 98 took effect in relation to ROKT’s application (expanding the grounds that can be considered), the amendment to s 100A (which changed the standard of proof) does not apply because ROKT had requested examination on 13 March 2013, which was before the date of commencement of the amendment: see the transitional provisions in items 55(4) and 55(5) of Sch 1 to the *Raising the Bar Act* respectively.
2. The central provision, s 18, was in the following form:

**18 Patentable inventions**

*Patentable inventions for the purposes of a standard patent*

1. Subject to subsection (2), an invention is a patentable invention for the purposes of a standard patent if the invention, so far as claimed in any claim:

(a) is a manner of manufacture within the meaning of section 6 of the Statute of Monopolies; and

(b) when compared with the prior art base as it existed before the priority date of that claim:

(i) is novel; and

(ii) involves an inventive step; and

(c) is useful; and

(d) was not secretly used in the patent area before the priority date of that claim by, or on behalf of, or with the authority of, the patentee or nominated person or the patentee’s or nominated person’s predecessor in title to the invention.

By Schedule 1, unless the contrary intention appears:

***invention*** means 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.

## The evidence

1. Rokt relied on two affidavits of Professor Karin Verspoor. Professor Verspoor is a Professor in the School of Computing and Information Systems at the University of Melbourne. Her academic focus is on computational, algorithmic and programmatic methods for analysis of natural language text and other digitally-represented data. The entirety of her first affidavit, affirmed 28 November 2017, was read. Some parts of her second affidavit, affirmed 4 May 2018, were not read as they were responsive to parts of the affidavit relied on by the Commissioner which were not read, as next explained.
2. The Commissioner relied on parts of an affidavit of Mr Scott Riesaffirmed 16 March 2018. Until recently, Mr Ries was the Director of Technical Services at DG/Sizmek, a large, independent digital advertising business. Mr Ries was unavailable to give oral evidence at the hearing of the matter. Only parts of that affidavit were read. The parts that were read were [1]-[28], all but the first sentence of [31], [42]-[45], [49], [53], the first sentence of [54], [60]-[61], the first sentence of [62], [69]-[71], [75], [76] but omitting the words “the same” in the first line, [79], [83] but omitting the last sentence, [84]-[85], the fourth sentence of [86], [88] and [90]-[92].
3. 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, the claimed 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 steps that are foreign to the normal use of computers (as at December 2012)?

1. Before addressing question 1, Professor Verspoor first set out her interpretation of each major feature of claim 1 as she would have understood that feature as at December 2012. What follows, at [16]-[38] below, is Professor Verspoor’s understanding.
2. The words “A computer implemented method for linking a computer user to an advertising message” meant a method that selected and presented an advertisement to a consumer through a computer-based device.
3. “Intermediate engagement offer” referred to a computer-based interaction opportunity that was presented to a consumer, for example one of the forms of engagement offers listed on page 9 of the patent, and described pictorially in figures 6 and 7. This opportunity was not an advertising message, but rather was designed to gain the consumer’s attention and interest and was therefore “intermediate”. As an “intermediate” offer, an advertising message would follow only if the consumer’s interest had been signalled through a positive response to the opportunity.
4. “Which is operable to drive a higher level of engagement with the advertising message than if the advertising message was present without the offer” meant that the objective of introducing the intermediate step of the engagement offer was to increase interest in the following advertising message. The patent indicated elsewhere (line 10, page 10) that testing had shown that this two-part strategy was indeed more effective at achieving engagement with the final advertising offers.
5. “Providing computer program code to be delivered with publisher content to a computing device operated by the computer user” introduced a piece of “computer program code”, also described in the patent as a “widget”, which was delivered to a consumer along with publisher content on the user’s device. For instance, this computer program code could be implemented as a piece of Javascript code which was delivered along with the publisher content on a webpage written in HTML (HyperText Markup Language) as described on line 25 of page 12 of the patent.
6. “Which computing device comprises an interface arranged to display the publisher content” meant a user’s device that was capable of accessing and displaying content available on the internet. For example, a laptop or mobile phone with an internet browser, or via an “app” (application) on such a device that directly accessed and displayed internet content. This was described on page 11, line 2 of the patent.
7. “The computer program code operable to be implemented by a processor of the computing device” referred to the execution of the program code, i.e. the “widget”, on the device that the user was using to access the publisher content. This meant that the “widget” effectively changed the local display of the content for the specific user only, by inserting a piece of code that ran on their specific device.
8. “Gathering engagement data associated with the user” meant that the widget that was running on the user’s device was collecting the data.
9. “The engagement data derived from interactions made by the user with the interface” meant that the data that the widget collected from the user’s device was related to at least one of:
   1. Data about the publisher’s content that the user was viewing: “an attribute of the publisher content” referred to characteristics of the content itself, such as the words on a webpage, the URL of the page, a product ID of a product that a user may be viewing, etc.
   2. Data about how the user was interacting with the publisher’s content that they were viewing: “an interaction with the publisher content by the computer user” referred to actions that the user took on a publisher webpage, including purchasing of a specific product or service, clicking on links for more information, etc.
   3. Data about the user: “an attribute of the user” referred to any data that could be collected from the user’s device, including the user’s current physical location (GPS coordinates), or demographic information such as age or gender that might be accessible.
10. “Communicating the engagement data as it is gathered to a remote advertising system implementing an engagement engine in real time” referred to the widget sending the engagement data from the user’s computer device to the advertising system through the computer network. The advertising system was hosted on a separate computer or computers, and would receive the data sent from the user’s device “in real time”, e.g. as soon as it could be transmitted through the network.
11. “The engagement engine operable to continuously evaluate the engagement data to determine whether a predefined engagement trigger has occurred” referred to the use of the data by the engagement engine that was part of the advertising system to decide when to present an engagement offer to the consumer. In other words, there was, as part of the engagement engine, a computer program running on a server that accepted the engagement data transmitted by the widget and continuously evaluated it against pre-defined rules, to determine when to instruct the widget to display an engagement offer. This engagement engine appeared in figure 3 as object 116, and was described, for example, on page 15 line 20 of the patent, as well as on page 17 lines 25-26.
12. “The predefined engagement trigger being representative of a user response or action that is contextually relevant for presentation of the engagement offer” indicated the rules defined by the engagement engine for deciding when to present an engagement offer to a consumer on the user device, specifically whether or not the user characteristics or interactions with the publisher content satisfied criteria for displaying an engagement offer. In other words, the rules were set such that the engagement offer was displayed at an appropriate time based on what the user was doing. For example, as described on page 21, lines 27-34 of the patent, an appropriate time for displaying an engagement offer to a user who was purchasing band tickets may be immediately after the purchase had been completed. The completion of the ticket purchase would be part of the engagement data transmitted by the widget to the engagement engine.
13. “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” meant that once the rules defined by the engagement engine for presenting an engagement offer were satisfied, then the engagement engine would select which engagement offer to present to the consumer from those stored in the advertising system in the objects database (item 115 in figure 3) based on the engagement data. The data had been defined in the claims as “the evaluated engagement data” which meant the specific user data that had been sent to the engagement engine from the user’s device, as described in [23] above, i.e., based on the consumer’s data previously gathered by the widget. In other words, to use the example just given, where the user was purchasing band tickets, relevant engagement offers were likely to include offers related to the band or the performance, such as the “VIP backstage pass” promotion mentioned on page 21 line 34 of the patent.
14. “Wherein, where multiple engagement offers are deemed to be relevant, the engagement engine implements a ranking algorithm operable to dynamically rank the relevant engagement offers” referred to an algorithm implemented in the engagement engine that used the consumer’s data and other historical user-specific data stored in the tracking database to select engagement offers and order them by preference (rank). An algorithm in this sense meant a specification of a series of computational steps acting on data involving calculation, evaluation, and modification of the data. Algorithms were usually defined in order to achieve a particular result or to solve a problem. In the case of a relevancy ranking algorithm, the result to be achieved was to order a series of “objects” (e.g., engagement offers) from most to least relevant.
15. One set of data used by this algorithm was “an engagement score determined from one or [sic] performance metrics recorded from past user interactions with the corresponding engagement offers;”, that is, data for each engagement offer, including whether or not the target user or other consumers responded to it, as well as what actions they took in responding to it. For example, as described on page 18, from line 22, any given consumer’s behaviour could be quantified with positive and negative points depending on how that user responded to an engagement offer.
16. Another set of data used by this algorithm was “a revenue score determined from one or more revenue metrics recorded from past user interactions with the corresponding engagement offers,” that is, data for each engagement offer about whether or not the target user or other consumers responded to the advertising message that followed after the engagement offer. For example, as set out on page 19, lines 3-11, this may include calculation of the amount of revenue earned by an advertiser resulting from a positive response to the advertising message.
17. “Wherein the engagement engine selects which engagement offer to present based on the rankings” referred to the use of the preference ordering (ranking) based on the data described in [29]-[30] above to pick the engagement offer to present to the user. In other words, after applying the ranking algorithm, the engagement engine might select the highest-ranked engagement offer (the engagement offer at the “top” of the ordered list) and send it to the widget on the user’s device for display to that user.
18. “Causing the interface to insert the selected engagement offer into the publisher content for displaying to the computer user” referred to the action that was taken by the computer program code (widget) on the user’s device after the engagement engine had selected which offers to present to the user. This meant that the computer program code (i.e., the widget) changed what the user saw on their device, i.e., that there were new images, text, or pop-up windows that were displayed to the user on their device when they were accessing the publisher’s content, such as through a web page. This was described pictorially in figures 4 and 6-7. The result was that after an engagement offer had been selected by the engagement engine, it would be transmitted over the internet to the widget and presented on the user device by the widget.
19. “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” referred to the widget recording how the user responded to the presentation of the engagement offer. If the consumer clicked on a relevant link or pressed a button on their display to indicate their interest, or pressed a “skip” button (recorded for example on page 22, line 30 of the patent) to express lack of interest, then the widget would record that action.
20. “Following the determined acceptance, presenting an advertising message ... on the interface” referred to the action that the advertising system took when the widget recorded a positive interaction from a user, specifically to display one or more advertisements on the user’s computer device, again through the widget program code modifying the content of what the user saw on their device.
21. “Comprising one or more advertisements selected from a pool of different advertisements” referred to the fact that there may be multiple advertising messages that could follow on from a given accepted engagement offer, and the advertising system would select one or more of these possible messages.
22. “Wherein user interactions with each of the presented advertisements are gathered by the widget script” meant that the widget monitored and recorded the actions that the user took when each advertising message was displayed, i.e., whether or not they responded positively to the advertising message (e.g., a positive response through purchasing the advertised product or service, or a negative response through skipping or declining the advertisement as mentioned for example on page 14 line 3 and page 15 line 2 of the patent). In other words, the widget introduced a user-monitoring aspect which was not part of the standard publisher content displayed in the browser.
23. “Communicated to the remote advertising system for use in selecting subsequent advertisements” referred to the transmission of data captured by the widget about the user’s response to the advertisement via the computer network for storage in the tracking database for subsequent use in selecting advertisements. The tracking database was a computer database shown as item 114 in figure 3. For instance, as described in claim 12 of the patent (page 31), this data could be used subsequently to select engagement offers to show to other users who shared one or more attributes with this user.
24. “Whereby the selection of 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” referred to the non-advertising nature of the engagement offer. The tracking database recorded the user’s response to each engagement offer and each advertisement that was presented, and that data may be used to select an engagement offer. As was made clear, however, the engagement offer itself was something that was not an advertisement promoting a specific advertiser, and it did not provide any direct benefit to an advertiser whose advertisement may be subsequently displayed. In other words, it would not directly benefit any individual advertiser but was used only to attract engagement with the subsequent advertising messages.
25. 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.
26. She deposed that there were four key stakeholders in the invention: the users (consumers), the publishers, the advertisers, and the operator of the advertising system itself. The role and participation of each of these stakeholders in the patent were set out in detail on pages 8-26. These stakeholders were shown in figure 1 and again, in a slightly different configuration, in figure 3 (although she noted that the role of the “advertiser” did not explicitly appear in figure 3, she understood that it was implicit in the reference to the “advertising system”). In particular, she noted that what the patent called the “basic process flow” was set out in figure 2 and the implementation of that basic process flow occurred within the overall architecture shown in figure 3. These figures are reproduced at [7] above.
27. Professor Verspoor deposed that by providing a common platform to relate consumers visiting content on publisher websites to advertising derived from advertisers, the invention was able to make use of wide-ranging data to rank engagement offers. This data derived from both the target consumer as well as from other consumers interacting with the system, and resulted in the calculation of an engagement score and a revenue score used for ranking.
28. In Professor Verspoor’s opinion, the process which she had described and which she observed to be the substance of the patent could be described as an improvement in computer technology. The invention introduced a novel architecture for the advertising system, through the new layer of engagement offers. Through direct collaboration with the publishers, the invention involved insertion of a widget into the publisher content to serve the engagement offer.
29. Further, the use of a data-based scoring algorithm to decide what engagement offers to serve presented an important improvement to existing computer-based advertising.
30. The invention also introduced a novel architecture for an advertising system, through the recording and transmitting of user interactions with advertisements and using that data to select subsequent advertisements.
31. She deposed that, having significant experience from both an academic and industry perspective in digital advertising methods, she was not aware of any similar methods of computer-based advertising models as at December 2012.
32. Turning to question 2, whether the invention solved a technical problem, 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 (for instance, as described on page 17 line 13 of the patent) 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.
33. In Professor Verspoor’s experience, an ever-present challenge in the context of data analytics (which was most definitely involved in this patent, particularly within the ranking engine feature) was being able to access relevant data to effectively tailor decisions or outputs, meaning having the right data utilised in the right context to personalise the experience of the system for a user. This naturally presented technical difficulties when multiple stakeholders were involved and when a system must manage each of their requirements.
34. Having regard to the patent, in Professor Verspoor’s view this technical problem was solved by introducing two databases - the tracking database and the objects database - and designing two engines - the ranking engine and the engagement engine - which accessed and manipulated the data in these databases to rank and select engagement offers.
35. In Professor Verspoor’s opinion, the ranking engine was important. Claim 1 of the patent included a feature of a ranking engine which included the running of an algorithm. This was further described commencing on page 18 of the patent, as follows:

At step S6a, the ranking engine 118 filters the retrieved behavioural metrics such that only those metrics relevant to the retrieved objects are kept for evaluation.

At step S7a, the ranking engine 118 implements a ranking algorithm which ranks the retrieved objects by a combination of an engagement score and revenue score (where applicable)...

1. In this way, Professor Verspoor deposed, the ranking engine optimised the personalised output for the consumer.
2. Professor Verspoor deposed, in effect, that the role of the relevant algorithm here was important because the quality of the result to the user depended on the quality of the algorithm.
3. Based on the statements in the patent, the implementation of the claimed advertising method may also have the effect of increasing user engagement with subsequent advertising offers. If this improvement had the effect of solving (or at least improving) the problem associated with traditionally low consumer follow-up, then the invention appeared to Professor Verspoor to also solve that problem.
4. To this end, in the context of the stakeholders, she noted that the patent stated the following on page 25:

Further, the ability to inter-connect stakeholders in this manner allows the advertising system 10 to provide a rich and deep pool of advertising content that can be drawn on to better match individual consumers with individual advertisers, in turn increasing the likelihood of a positive engagement.

1. Further, this solution to the technical problem was not, in Professor Verspoor’s view, limited to any specific content. This was a technical problem faced by all software that delivered online digital advertising. That is, the claimed advertising method was not dependent on the nature of the engagement or advertising content itself; the content could comprise any information from any advertiser. Similarly, the “consumer” (as described on page 12 and in figure 3 of the patent) could be any consumer, in any context.
2. Turning to question 3, whether the use of a computer was integral to the invention, 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.
3. Storage and manipulation of data, including real-time, context-specific data (with which the patent was concerned), at the magnitude and speed that was required to implement this method, could only be done on a computer. In Professor Verspoor’s view, it was infeasible to perform the type of data analysis claimed in the patent without a computer (indeed, without several computers). This was particularly so having regard to the gathering, manipulation and subsequent use of the data by the engagement engine.
4. Since the user interactions took place on a computer (i.e., the user’s device), it was also integral to the invention that data be collected, and engagement offers be presented, through that computer. The method could not be implemented without the user’s device. The transmission and receipt of data over the internet to and from the advertising system could also only be done using computers.
5. Turning to question 4, whether the invention involved steps foreign to the normal use of computers, Professor Verspoor’s opinion was that this invention introduced new uses of computer technology. 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:
   1. the novel architecture adopted in the invention; and
   2. the existence of the technical problem that was said to be solved by the invention.
6. In Professor Verspoor’s opinion, the invention the subject of the patent drew together different streams of information, put them together and worked with them in a way that was new and had not been done before. The combination of these techniques was therefore new. Certain elements of the invention were also new and were not known as at December 2012. The concept and implementation of an engagement offer, the use of a widget to continuously monitor the user’s interaction with the website to determine when to display the engagement offer, the use of a widget to monitor the user’s interaction with the engagement offer, the offering of a choice to engage with or skip the engagement offer, and the monitoring of the user’s interaction with an advertisement to determine which subsequent advertisement to show, were all new and innovative uses of computers as at December 2012.
7. Additionally, although some other components of the advertising system claimed in the patent, such as a database, a client-server architecture, the running of a Javascript program on a publisher’s website, the creation of a ranking engine to rank abstract data to achieve an ordered list, were, when taken in isolation, known as at December 2012, these components had been integrated into a single system in an innovative and previously unknown way. In other words, the invention that was the subject of claim 1 brought together some new elements and some known elements to form a working combination that had not previously been achieved and involved the use of computers in a way that was foreign to their normal use (as at December 2012).
8. In Professor Verspoor’s view, the architecture distinguishing between engagement offers and general advertising, coupled with the algorithms making use of background data for personalisation and ranking, represented a new combination of new and previously existing components and hence new use of computer technology. It therefore represented a contribution to the state of the art for the provision of digital advertising via a computer.
9. The paragraphs of the affidavit of Mr Scott Ries tendered by the respondent Commissioner were to the following effect.
10. Mr Ries wrote that he had specialised knowledge and experience of internet advertising techniques and strategies, advertising formats, systems, databases, hardware and software. He had developed this knowledge and experience through his work for companies engaged in internet advertising since 2006. As a result of that work, Mr Ries considered that he had developed a thorough understanding of the internet advertising market, techniques and strategies, including the roles played by advertising firms, creative agencies, publishers, ad server providers, demand side platform providers and data management platform providers, together with clients. He said he was also proficient in a number of computer programming languages, including HTML5, Javascript, ASP and SQL. He had used his computer programming skills to write the source code for digital advertisements and for a variety of other purposes related to internet advertising.
11. Mr Ries was asked by the solicitors for the Commissioner to briefly explain:
12. In December 2012, how did Internet advertising platforms select advertisements to display to users on third party websites?
13. In December 2012, how were databases and engines used to combine all of the following:
    1. data about Internet user engagement;
    2. data about transactions conducted by Internet users, and
    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?

1. 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?
2. Mr Ries addressed these questions by first explaining, having regard only to what he knew and regarded to be well-known and generally accepted in internet advertising in December 2012, what digital display-based advertising was, and how it was implemented by ad servers, demand side platforms and data management platforms, including the hardware and software involved.
3. He wrote that digital display-based advertising involved the display of advertisements on websites or mobile applications. Digital display-based advertising could be targeted or non­targeted. In non-targeted advertising, advertisements were displayed without any analysis of whether the advertising content was relevant to the particular viewer’s habit, interest or activity. In targeted advertising, the advertisement was selected for display based on some level of analysis of viewer engagement data. Engagement data was a record of viewer habit, activity or interest based upon data points such as the viewer’s past or current online searches, websites visited, specific webpages visited, online purchases, videos viewed and advertising engagement (e.g. clicks, views, expansions etc). Other data points could also be used.
4. He wrote that a data management platform was a centralised computing system for collecting, integrating and managing large sets of engagement data. Data management platforms obtained engagement data from site interaction in large part collected using cookies. A cookie was a small text file that contained a record of the user’s browsing activity. Cookies were stored on the user’s device while the user was browsing. Data management platforms had their own computer program code that they embedded in publisher/advertiser websites to write cookies and transmit those cookies back to the data management platform. The kinds of records that cookies captured included all of the engagement data recorded in [66] above. Other sources of engagement data that data management platforms utilised included online or offline purchase information, historical data, rewards cards etc.
5. Mr Ries said that a data management platform recorded engagement data about individual internet users, and identified those users’ habits, interests and/or activities based on that data. Generally, this process of using engagement data to identify habits, interests and/or activities was referred to as segmentation. To carry out the process of segmentation, the data management platform would maintain a central database. A data management platform database could be visualised as a very complex spreadsheet, where each user corresponded to a row in the spreadsheet. Each user was allocated a unique identifier, such as a customer identification number, an Internet Protocol (IP) address associated with their internet connection, a device identification number, and/or an email address.
6. Mr Ries wrote that users could be segmented based on a range of attributes. To extend the spreadsheet analogy, each attribute would correspond to a column in the spreadsheet. A data management platform could record a large number of attributes for each user, including the user’s gender, age, interests (e.g. recreational pastimes, hobbies, entertainment preferences, employment) and past purchases. These attributes were used to compare users. Where users shared attributes, a data management platform would assume that they were also likely to share habits or interests, or undertake similar activities. In this way, users were grouped into segments who may be interested in purchasing different goods or services.
7. Mr Ries wrote that a data management platform relied on hardware, including a server and distributed computer architecture. Distributed computer architecture was a model in which hardware components (e.g. processors) located on networked computers communicated and coordinated their actions by passing messages. The components interacted with each other in order to achieve a common goal. A data management platform also relied on at least one database (as earlier described) and software that collected data about users from cookies, and which caused the processor to analyse that raw data to identify user attributes and segments. The term “engine” may be used to describe these kinds of software components.
8. He wrote that a demand side platform was used to locate (track) individual users and present relevant targeted advertisements to those users. Demand side platforms gathered real time data about how and where individual users were interacting with the internet. Typically, they did this by providing website publishers with program code that would communicate to the demand side platform what a user visiting the website was viewing and/or doing. For example, demand side platforms were able to gather data that a user was visiting a particular webpage (e.g., an e-commerce site) and engaging in a particular transaction (e.g., a product purchase) while located in a particular geographic location (e.g., the Sydney CBD), at a particular time (e.g., around lunchtime on a weekday). A demand side platform relied on similar hardware to a data management platform, being a server and distributed computer architecture. Like a data management platform, a demand side platform also relied on at least one database and software that collected data about user activity online, and which analysed that raw data about users.
9. Mr Ries wrote that demand side platforms also contained a pool of potential advertisements. Demand side platforms used algorithms to select which advertisement(s) to display to individual users. These algorithms evaluated engagement data concerning the attributes of the user (obtained from a data management platform) together with the demand side platform’s own data concerning how and where the user was interacting with the internet. Other attributes may also be evaluated by demand side platform algorithms, such as the demand side platform provider’s profit margin that would be obtained from the particular advertising media (demand side platform providers received more advertising revenue from impressions or click-throughs of certain media, compared with other media). The demand side platform algorithms selected the most relevant (targeted) advertisement to present to that user.
10. He wrote that demand side platform algorithms typically involved multiple algorithm layers and sophisticated processes for attributing preferential weight to different algorithm parameters. It was industry practice for demand side platform providers to keep their algorithms confidential from one another.
11. Sometimes, Mr Ries wrote, demand side platforms were configured so that an advertisement was displayed at a particular point in time or activity in the user’s interaction with the website, for example, after completing a purchase transaction. This was achieved by the demand side platform gathering and analysing data gathered in real time about the user’s online activity. User inactivity (for example, failure to click-through advertisements) could also be monitored by demand side platforms and/or data management platforms and used as a basis for making advertising decisions (for example, a demand side platform may decide to no longer display particular types of advertising content to a user, where that user had never taken up that advertising content). In a similar way, demand side platforms and/or data management platforms could keep a record of which advertisements individual users had clicked on in the past. The demand side platform algorithm could use this data to determine that the same kind of advertising media should be displayed when selecting an advertisement for the user.
12. Mr Ries wrote that a demand side platform drew the content of advertisements from an ad server. An ad server contained the text, graphics and code that made up an advertisement. When a demand side platform identified a user to present advertising to, it communicated with the ad server to obtain the text, graphics and code and present them to the user in the form of the advertisement. The code that was used to present the advertisement format to the user could be referred to as a widget or web script. The terms “widget” and “web script” had different meanings in different contexts, and could also be used to refer to the code that collected information about a user’s online activity. By advertising format, Mr Ries meant the particular configuration of text, styling data and images which were displayed to the user.
13. Mr Ries wrote that a data management platform, a demand side platform and an ad server communicated with each other through an application programming interface (**API**). An API was a software application that was able to match data in a data management platform, demand side platform and/or ad server so that the data in each database could be compared to the data in the other. This matching process enabled a data management platform, demand side platform and/or ad server to work together. Segments identified by the data management platform were used by the demand side platform to identify users who might respond positively to an advertisement.
14. He wrote that before December 2012, data management platforms and demand side platforms were commonly operated by separate companies which co-operated with one another. However, Mr Ries wrote he was also aware, and regarded it as well-known and generally accepted before December 2012, that a dual data management platform/demand side platform distributed computer architecture could be operated by a single company. For example, as part of his work at MediaMind/DG/Sizmek before December 2012, Mr Ries worked directly with the businesses Lotame and Radium One to present online advertising. MediaMind/DG/Sizmek performed the role of the ad server provider and Lotame and Radium One each performed the dual role of a data management platform/demand side platform provider. The reason why other companies focussed on performing a single demand side platform provider role or data management platform provider role was that this enabled them to provide highly sophisticated data management platform or demand side platform functionality (e.g., the processing in real time of many billions of items of user data).
15. Mr Ries wrote that it was very common for websites to invite users to “opt in” to an emailing list by ticking a box while making a purchase through the website, or entering their email address into a field on the website. If the user opted in to the emailing list, the company that operated the website and/or the emailing list would send emails to the user containing advertisements. In other words, advertisements were only displayed to the user after taking up an online offer to see those advertisements. Best practice dictated that each such email should allow the user the opportunity to leave the emailing list. This was known in the industry as “opting out”.
16. 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, which stated:

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.

1. Mr Ries noted that, while the above passage referred to a (single) “server computer”, implementing the invention of claim 1 on a commercial scale would require a large number of computers that were organised in a distributed architecture, because a very large volume of engagement data would need to be processed at any given time.
2. Mr Ries wrote that figure 3 illustrated the databases, software and consumer device components that could be used to implement the online advertising system of claim 1. The components shown included:
3. a tracking database 114, which was used for storing the user engagement data and behavioural metrics (patent application, page 15, lines 11-14);
4. an engagement object database 115, which was used for storing the engagement offers and advertisements (patent application, page 15, lines 14-16);
5. an engagement engine 116, which was used to retrieve user engagement data and behavioural metrics from the tracking database and pass that data to the ranking engine (patent application, page 18, lines 4-7);
6. a ranking engine 118, which retrieved objects (engagement offers and/or advertisements) from the object database. The ranking engine also applied the ranking algorithm, for the purposes of selecting the object to be displayed (patent application, page 18, lines 8-20);
7. a publisher system 104, which housed the content on the website that the user was browsing (patent application, page 12, lines 9-13);
8. the consumer devices 106 that were used for web-browsing and connected to the publisher system 104 and the advertisement system 112 over the network (e.g. internet) 108 (patent application, page 12, lines 15-21); and
9. the widget script 121, which was the program code that gathered engagement data and behavioural metrics and presented the engagement offer and (if accepted) subsequent advertisements to the user (patent application, page 14, line 19 to page 15, line 4; page 16, lines 4-9).
10. Mr Ries recognised each of the databases and the software components depicted in figure 3 to be standard components that were routinely used in demand side platform and data management platform display-based advertising systems before December 2012. For example:
11. user engagement data and behavioural metrics data was kept in a data management platform database that was conceptually the same as the “tracking database” of the patent application;
12. the advertisements themselves were kept in a database maintained by a demand side platform and/or ad server that was conceptually the same as the “object database” of the patent application; and
13. program code, such as widgets, was routinely used to gather the user engagement data (including behavioural metrics about past user interaction with advertising content) and present advertising content to the user.
14. Mr Ries wrote that, as with conventional demand side platform and data management platform implemented digital advertising, the invention of claim 1 could be implemented as a third party advertisement system (that is, a system that was operated by a third party who was independent of the website publisher and advertiser). The patent application referred, on page 25 line 27 to page 26 line 10, to various advantages of third party advertising systems. In Mr Ries’ opinion, the advantages of using third party systems were already well-known and generally accepted in the internet advertising industry before December 2012. For example, a well-known advantage of demand side platform and data management platform advertising over customer relationship management database advertising was that even if a user had not previously accessed a publisher’s website, data management platform and demand side platform based systems were able to provide targeted advertising the first time the user visited that website, based on engagement data gathered from the user having visited other websites: cf the patent application, page 26, lines 1-7.
15. Mr Ries wrote that for the advertising system to make a determination that a user’s interaction with website (publisher) content was “contextually relevant for presentation of the engagement offer”: claim 1, page 28, line 34 and for the system to determine that the engagement offer was “relevant to the evaluated engagement data”, the advertising system must first gather the relevant engagement data. Claim 1 stated that computer program code (a widget script) was delivered with the publisher content to gather the engagement data: claim 1, lines 14-21. Consistently with claim 1, the following passage on page 16, line 30ff of the patent application stated:

At step S2a, the widget script 121 determines engagement data representative of the interfacing context. In a particular embodiment, the engagement data determined by the widget script 121 comprises at least one of the following: a URL for the website; a referring URL; screen content obtained through capturing the HTML of a current page for particular keywords and content (also known in the industry as “scraping”); through API (application programming interface) parameters passed directly to the widget script 121 by the publisher 102; a current location of the consumer; a time at the current location; a type of network over which the consumer is making the connection (e.g. wi-fi hotspot, cellular network, etc.); and/or any other data that can be determined in order to glean an understanding of how the consumer is interfacing with the digital content.

1. Mr Ries wrote that this passage described techniques for gathering engagement data that he knew and regarded as well-known and widely used in internet advertising before December 2012.
2. Mr Ries wrote that the discussion in the patent application of the ranking algorithm appeared on page 18, line 17 to page 20, line 18. This discussion provided an example (in table 1) of how user behavioural metrics for each engagement offer could be scored. The patent application also stated that the revenue score was determined by “evaluating how much revenue resulted through presentation of the engagement objects to consumers”: page 19, lines 3-5. The patent application then continued, on page 19 line 16ff:

It will be understood that any combination of engagement score and revenue score may be evaluated by the ranking engine and need not simply be the sum of the two scores. For example, the ranking algorithm implemented by the ranking engine 118 may apply a greater weighting to the determined engagement score than for the revenue score, so as to enable selection of engagement objects that are more likely to keep a consumer engaged during an engagement journey, in turn resulting in greater sustainability of the model. In this regard, the ranking engine 118 may be configured to dynamically adjust the weightings responsive to determining that levels of consumer engagement have fallen below a predefined threshold. This may be applied on an individual basis (i.e. by an evaluation of the metrics for a particular consumer) or across the consumer base as a whole (i.e. by an evaluation of the aggregated metrics).

1. Mr Ries wrote that, before December 2012, algorithms that ranked parameters such as engagement data (including behavioural metrics) and revenue metrics were in widespread use in internet advertising. However, it was common practice for industry participants to keep the algorithms they used strictly confidential. For example, every demand side platform provider that he was aware of before December 2012 did so. In Mr Ries’ opinion, industry participants kept their ranking algorithms confidential, because devising their algorithms involved complex, time consuming and costly work.
2. The passages of the patent application set out above indicated, Mr Ries wrote, that the ranking algorithm had the same functionality of ranking content based on behavioural and revenue metrics that was routinely used to rank advertisements before December 2012.
3. Mr Ries wrote that Professor Verspoor stated that “the key technical problem” that was addressed by the invention was “providing a single platform in which user engagement data can be coupled with transactional data ... and user context data ... in order to provide a personalised ranking of engagement offers to the user”: at [55] (underlining added by Mr Ries). Professor Verspoor stated that this problem was “solved by introducing two databases - the tracking database and the objects database - and designing two engines - the ranking engine and the engagement engine - which access and manipulate the data in these databases to rank and select engagement offers”: at [57]. Mr Ries wrote, however, that the ranking and selection of advertisements based upon user engagement data (including “transactional” or “context” data about the user) was routinely performed before December 2012 by demand side platform and data management platform systems. Moreover, he wrote that this function was performed by using tracking databases (in which engagement data was stored) and objects databases (in which advertisements were stored).
4. Mr Ries agreed with Professor Verspoor (at [65]) that it was infeasible to perform the type of data analysis claimed in the patent application without several computers. Therefore, he wrote, at least several computers (on a large commercial scale, hundreds of processors) would underlie any “single platform”. These computers would be programmed to communicate with one another, including by extracting, communicating and evaluating the data and content that was stored in the tracking database and the objects database. Mr Ries wrote that the process of extracting, communicating and evaluating engagement data and objects data was routinely performed by data management platform and demand side platform systems before December 2012. The data management platform and demand side platform systems were programmed to communicate with one another using an API. Once an appropriate API was coded, Mr Ries wrote, it made no difference to how the computing technology functioned whether human instructions were received through one interface, or multiple interfaces, from a single provider or two companies. Source code that performed an API equivalent role was needed even if the advertising system was instructed using a “single platform” operated by one provider (the multiple computers must always be programmed in a way than enabled them to communicate with one another).
5. 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, context­based 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.
6. Mr Ries wrote that, for many years before December 2012, advertisements were inserted into published content by program code (sometimes referred to as a widget) that was provided by the advertising system to the website publisher. He wrote that, at [52], Professor Verspoor stated that “the use of a data-based scoring algorithm to decide what engagement offers to serve represents an important improvement to existing computer-based advertising”. However, Mr Ries wrote, in December 2012, it was widely known and generally accepted that demand side platforms used algorithms to process engagement data and rank which advertisements should be displayed to users. He wrote that in the invention of claim 1, the same kind of software tool (a ranking engine that applied a ranking algorithm) was applied to different content i.e. an engagement offer.
7. Mr Ries wrote that, at [53], Professor Verspoor stated “the invention also introduces a novel architecture for an advertising system, through the recording and transmitting user interactions with advertisements and using that data to select subsequent advertisements.” However, Mr Ries wrote, in December 2012, it was very common for data management platforms and demand side platforms to record data about a user’s interaction (or lack of interaction) with advertisements and use that data to decide whether or not to display an advertisement to that user, or a user with similar attributes.
8. Mr Ries wrote that the ability to provide contextual ranking of the website and user behaviour to select the most appropriate advertisement was routinely done by demand side platforms and data management platforms before December 2012.
9. At [64] to [66] of her affidavit, Professor Verspoor explained why it was necessary to use a computer to implement the invention. In light of the large volume of data involved, and the need to quickly retrieve and manipulate that data, Mr Ries agreed that it was necessary to use (at least several) computers to implement the invention.
10. In her second affidavit, Professor Verspoor responded to the material tendered from Mr Ries’ affidavit. As I have said, parts of Professor Verspoor’s second affidavit were not read as they were responsive to paragraphs of Mr Ries’ affidavit which were not tendered.
11. In summary, Professor Verspoor deposed, none of the computer programming languages referred to by Mr Ries would be used on their own by software engineers to build standalone applications, such as a robust advertising system or a ranking engine. She deposed that on the basis of Mr Ries’ statements he had no direct technical experience with implementation of large-scale software systems but was, rather, a user of the systems. In her opinion, in order to be able to comment in an informed way on the technical characteristics of a software system of the kind described in the patent application (including any technical problem it solved and how it solved that problem), it was necessary to have sufficient technical programming and system design expertise to be able to build such a system oneself. For example, in order to understand the detailed flow of logic to be implemented by the system, one would need to have the experience of implementing similar logic flows in computer code. Professor Verspoor deposed that she did have that expertise: she was fluent in several advanced programming languages. In addition, she had experience developing a front-end application (that ran in a web browser) in Javascript in the context of a web-based visualisation tool she designed in the last two years. She had the experience of building large software systems including the implementation of algorithms for retrieving data from databases and manipulating that data. Her experience included writing the code to implement ranking engines of the kind described in the patent application.
12. Professor Verspoor deposed that she was one of four co-authors, along with the Principal Investigator of the IBM Watson project, David Ferrucci, of the “Unstructured Information Management Architecture” technical standard. That standard was promulgated by OASIS, which was an international “not-for-profit consortium that brings people together to agree on intelligent ways to exchange information over the internet and within their organizations” (per the OASIS website at https://www.oasis-open.org/) whose foundation members included IBM and Microsoft. The standard defined a protocol for building large modular systems that manipulated and analysed unstructured data such as text, by defining an interface for the integration and interoperability of analytic modules developed by various technical teams.
13. Professor Verspoor disagreed with Mr Ries’ definition of “engagement data”. She said his use of the word “engagement” should not be confused with the use of the word in the patent application in the context of the phrase “engagement offer”, where the engagement represented the objective of displaying an offer. To paraphrase, “engagement offer” in the patent application meant “an offer intended to engage”.
14. Professor Verspoor disagreed with Mr Ries’ statement as to whether a data management platform relied on a “distributed computer architecture”, defined as networked computers. She did not agree that a data management platform must necessarily be implemented via a distributed architecture. She deposed that the basic definition of a data management platform as a central hardware server with at least one software database was in no way dependent on having multiple computers in a network to instantiate the data management platform.
15. Professor Verspoor disagreed with Mr Ries’ explanation of demand side platforms. Her understanding of demand side platforms as they stood in December 2012 was that a demand side platform was a real-time bidding system that connected media buyers with data exchanges through a single interface. A demand side platform supported valuation of advertising opportunities by providing access to and utilisation of data of how and where individual users were interacting with the internet. This data could be collected via placing computer program code into a website.
16. As to Mr Ries’ explanation that demand side platforms used algorithms to select advertisements, using attributes including user attributes but also attributes related to the demand side platform provider’s profit margin and revenue, Professor Verspoor deposed that Mr Ries did not carefully explain the competitive aspect that determined the pricing of the advertising selected by demand side platforms. He appeared to overlook the bidding aspect of the demand side platforms. He focused on the revenue to the demand side platform provider but did not describe the role of the advertisers in the system; these advertisers and their preferences and limits were not captured in Mr Ries’ description. The “profit margin” that was associated with an advertisement was ultimately determined by what the advertiser was willing to pay for that advertisement to be displayed; this was not captured in Mr Ries’ explanation.
17. Professor Verspoor deposed that at a technical level the software that might cause advertisements to be displayed was very different from email technology.
18. 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).
19. 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.
20. In Professor Verspoor’s opinion, it was not only the structure and content of the “engagement offer” (as presented to the user) that differed from a traditional advertisement. The patent application described a sequence of technical steps that were executed to select an “engagement offer”, display it, track the user’s interaction with it, and eventually select and present an advertisement to a user. These technical steps were also different as compared to the standard process of displaying advertisements to a user in demand side platform plus data management platform­based systems as at December 2012. This difference in both content and the sequence of technical steps described a technical solution using the novel concept of an “engagement offer” plus additional data sources that were then used by algorithms described in the patent application.
21. As captured in figures 1 and 2 of the specification (as reproduced at [7] above), Professor Verspoor deposed, there was an additional component of the overall architecture, the “engagement offer” itself (element 18 of figure 1), as well as a distinct “engagement journey” (captured in figure 2). Mr Ries had acknowledged that “whether or not an engagement trigger event has occurred is determined by continuously evaluating the user’s engagement data”. In Professor Verspoor’s opinion, this continuous evaluation of user engagement data required the use of a computer program to collect and analyse the data. It also introduced the new intermediate step of selecting and displaying an “engagement offer” into the process of displaying advertising in response to user behaviour.
22. The purpose of the “engagement offer”, Professor Verspoor deposed, was to provide a user something that they would engage with, i.e. click on or otherwise continue to interact with, such that they were more likely ultimately, after the “engagement journey”, to engage with (click on) subsequently displayed advertising (if any). This problem of attracting the attention of a user, and having the user choose to interact with the advertiser was a problem that advertisers had long been trying to solve.
23. The invention in the patent application aimed to solve this problem through the introduction of the “engagement offer”, and identified what steps the software needed to execute in order to dynamically modify the website that the user was browsing, while they were browsing it, to (a) implement in the web browser or device the concept of the “engagement offer”, (b) implement in the “computer system” the necessary software for selecting “engagement offers” and advertisements for the given user based on their previous interactions with the system, and the interactions of other similar users, and (c) to have that system interact with the widget in the web browser in real time.
24. Professor Verspoor’s interpretation of the description in the specification was that the “engagement offer” would not include a direct request related to a user’s interest in advertising from a specific source. In the patent application, page 9 line 21ff, the list did not include anything of that nature. An offer for a coupon or discount was perhaps the closest in the list, but it was qualitatively different because the user was offered an immediate opportunity within their current session interacting with the browser, rather than an offer to be put on a list to obtain unspecific benefits at some point in the future.
25. Professor Verspoor’s opinion was that the “engagement offer” did not have the immediate purpose of asking for permission to serve advertising, but rather had the purpose of maintaining an interaction with the user. This was stated directly in the patent application, page 9 lines 11-15. Furthermore, the “engagement offer” was described as having “no direct advertising benefit to the advertisers of the selected advertisements through presentation of the selected engagement offer” in claim 1, page 28, lines 13-16; an opt-in process or pop-up would have direct advertising benefit for the advertiser.
26. She deposed that the timing in which subsequent advertising would be delivered to the user was substantially different as described in the patent application, as compared to an “opt-in” for email or future advertisements. As captured in figure 2, and described in the patent application page 12 lines 1-3, the advertisements were presented to the consumer in a sequence of “modules” during the engagement journey, which proceeded within the immediate session, that is, while the user was on the website. In contrast, Mr Ries’ idea was that the user was choosing to receive advertising that would be delivered hours or days later. In Professor Verspoor’s opinion, Mr Ries fundamentally did not understand the process of the engagement journey described in the invention.
27. Professor Verspoor deposed further that the mechanism by which subsequent advertising would be delivered to the user was also substantially different as described in the patent application, as compared to an “opt-in” for email or future advertisements. The patent application described in claims 1 (page 28, lines 13-16) and 14 (page 30, lines 21ff) the presentation of digital advertisements responsive to acceptance of the “engagement offer” via the presentation interface (page 28, lines 7-10 and page 30, line 14). This was a technically distinct process as compared with future display or provision of advertising. Additionally, the patent application involved a step of continuously evaluating engagement data (i.e., the data derived from the user’s interaction with the interface) which was not present in email advertising (or indeed in a company using its customer relationship management database to choose users to receive targeted advertising).
28. 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.
29. In Professor Verspoor’s opinion, it was the invention making use of the known hardware in new ways that constituted the contribution of the patent application. In other words, Professor Verspoor deposed, it was the overall architecture and use of the hardware, by software using computer code, that was novel. The invention effectively created a new advertising selection and display “computer”. Therefore, she stood by her statement in [55] above that the use of computers was integral to carrying out the invention, and her statement in [58] above “that this invention introduces new uses of computer technology”.
30. Professor Verspoor disagreed that the components that involved “engagement offers” and “engagement objects” were routinely used in online advertising systems as at December 2012. As Mr Ries accepted, “engagement offers” as referred to in the patent application did not exist as at December 2012 and were therefore new. Therefore, the components she had identified that involved “engagement offers” or processing of data involving “engagement offers” were also new.
31. For the same reason, Professor Verspoor deposed, the user engagement data and behavioural metrics data and advertisements did not include “engagement offers”, engagement objects, or data about interaction with “engagement offers”. It was not possible that all of the components identified in Mr Ries’ paragraph [44] (see [81] above) were conceptually the same as components identified in his paragraph [45] (see [82] above). They explicitly involved distinct objects with distinct data types. User engagement and behavioural data were not the same as “engagement offers” or data about users’ interaction with “engagement offers”. “Engagement offers” were distinct from advertisements, as was clear in claim 1 of the patent application.
32. Professor Verspoor deposed that the notion of an intermediate “engagement offer” was new as at December 2012 and hence strongly supported the novelty of the invention. She did not agree with Mr Ries that the presentation of an “engagement offer” was the only thing that differed.
33. In addition to presenting the “engagement offer”, Professor Verspoor deposed, the invention required selecting an appropriate “engagement offer”, continuously evaluating the user’s interaction with the website to determine when to display the offer, at a contextually relevant time, causing the user’s device to display the “engagement offer”, and monitoring the user’s interaction with the engagement offer. Additionally, selecting an appropriate “engagement offer” may involve dynamic use of the ranking algorithm in the engagement engine described in claim 1. Reducing the difference to the presentation of an “engagement offer” minimised the importance of that difference in a manner that belittled the value and novelty of the difference. It overlooked a large amount of the technical detail involved in the invention. The “engagement offer” and what the advertising system did in relation to choosing, presenting, and monitoring the user’s interaction with the “engagement offer” was in fact the critical component of the invention, and it was that component that achieved the overall objective of increasing consumer engagement with advertising. It was the introduction of the intermediate “engagement offer” that provided an alternative digital advertising technique to previous systems and constituted the key feature of the invention in claim 1 of the patent application.
34. Professor Verspoor deposed that data about a user’s interaction with “engagement offers” as described in the invention was also something that was new. So too was manipulation or use of that data, such as the use of data about past user interactions with “engagement offers” described in claim 1 (page 29, lines 5-19). As was set out on page 13 of the specification, some of the relevant data included “engagement offer take-ups” and “engagement offer skips/declines”. Analysis and use of that data was not the same as analysis and use of data about interactions with advertisements themselves.
35. Professor Verspoor deposed that the “opt-in” approach for email advertising was substantially different to the proposed approach and did not constitute an “engagement offer” in the sense of the patent application.
36. As to whether there were any problems or difficulties in attempting to implement the invention of claim 1 as at December 2012, Professor Verspoor said a skilled person would understand that there would be some prior commercial agreement between the website publisher and the operator of the advertising system to enable the widget script to be delivered with the publisher content. This was made explicit in the specification. Page 12, lines 24-26, specifically described the widget script “placed within the publisher content”, and “in the presently described embodiment, being communicated with the HTML page code for the website”. Additionally, the specification referred to “subscribing publisher sites” (page 5, lines 23 and 28-30), “a plurality of different publisher sites subscribing to a third party advertising system” that “the computer user [is] interfacing with” (page 6, lines 8-19), “a range of different subscribing publisher sites” (page 25, line 23) and “subscribing publishing sites 12” (page 26, line 2). The reference to “subscribing” in Professor Verspoor’s opinion made clear that there was a prior relationship between the website publisher and the operator of the advertising system.
37. Professor Verspoor deposed that the patent disclosed the fact that the algorithm was used (“ranking engine 118”, described page 18, lines 17ff), the aim (page 18, lines 13-15) and structure (figure 5) of the algorithm, and the inputs to the engine including detailed metrics (page 15, lines 25ff and table 1). It also disclosed “an example metric score table” (page 18, line 28) which was set out on page 19, and also how to determine the “engagement score” (page 18, line 22-page 19, line 3) and the “revenue score” (page 19, line 3-11). It then described how the ranking engine “sums or otherwise combines the two scores to produce a combined engagement and revenue score” (page 19, line 14), “outputs a listing of the highest ranking objects” (page 19, lines 14-15), and notes that the combination “need not simply be the sum of the two scores” (page 19, lines 16-18) but can apply weightings on an individual basis or across the consumer base (page 19, line 19-page 20, line 9).
38. In Professor Verspoor’s opinion, this was sufficient information for a person skilled in the art to implement a ranking algorithm that achieved the stated aim. She deposed that there were many known ranking and scoring algorithms; the specific details of the algorithm were not important, as a skilled technical user was given enough information about what the algorithm had to accomplish. Further, a skilled technical user would be able to arrive at a satisfactory algorithm based on their experience. The lack of detailed specification in the patent application did not impact operational use of the concept. As Mr Ries had stated in the paragraph summarised at [88] above, the patent application indicated that the ranking algorithm had the same functionality as advertisement ranking algorithms in use as at December 2012. The extension of these algorithms to consider distinct metrics (which were defined in the patent application) and to rank distinct objects (as defined, “engagement offers” vs. advertisements) would be straightforward for a person skilled in the art of advertisement ranking, despite other such algorithms being proprietary.
39. Professor Verspoor deposed that in her opinion a theoretically possible difficulty for any advertising system was usually overcome in practice by devoting sufficient server resources (hard disk, memory, CPUs) and distributed architectures to handle the relevant computing load (i.e., that the system comprised a “suitable server computer”, page 25, line 6 of the patent application). In her opinion, a skilled person would understand that the patent application would involve using sufficient computing resources to handle the expected load. The fact that this theoretical challenge appeared to have been overcome in Professor Verspoor’s opinion was evidenced by the existence of the system and its use in practice to achieve the stated business objective of improving customer engagement rates.
40. In response to Mr Ries’ point that demand side platform and data management platform systems before December 2012 ranked and selected advertisements based on user “engagement data”, Professor Verspoor deposed that this did not include the use of data about users’ interactions with “engagement offers” which were introduced for the first time with this patent application. Therefore, in her view, Mr Ries’ point was not a relevant criticism of the novelty of the invention.
41. As to her use of the words “single platform”, Professor Verspoor deposed that in her experience the word “platform” was typically used to describe any computational environment that could be built upon; an underlying framework that provided the foundation for the development of differentiating business applications. Platforms provided the logic functions to applications, including decision logic and analytics. In this case, the architecture that was described in the patent application provided a foundation for bringing together distinct data from diverse sources (the user context, the publisher data, etc.) and manipulating that data; different specific applications could be built on top of this foundation, depending on how the data was to be used. That was how she understood the use of the word “platform” to be intended on page 25, line 21 of the patent application, and how she intended it to be interpreted in her first affidavit.
42. Professor Verspoor did not intend to limit the interpretation of the word “platform” to a single “interface that enables human instructions to be input” to the system. She had acknowledged the need for multiple computers for a practical implementation in her first affidavit. She further noted that the terms data management platform and demand side platform incorporated the word “platform”, without limiting the interpretation of that word to one computer or one interface. In her opinion, although Mr Ries may be correct that the word “platform” may be used by users of advertising systems to refer to the “interface that enables human instructions to be input” to an advertising system, the word “platform” was used by skilled technical practitioners who developed (i.e., designed and wrote the code to build) on-line systems in the sense that she had set out.
43. Professor Verspoor deposed that it was not necessary to have “a *more efficient or effective way* of gathering, storing and analysing data to make advertisement decisions” in order to have a new invention. It was sufficient to have a new way of using such data to achieve advertising objectives. The efficiency or efficacy of the invention was primarily relevant to the scalability or value of the invention in commercialisation. In was her opinion that the patent application did introduce a new method of advertising even without making any claims related to efficiency or efficacy. Regardless, the specification did at page 10 refer to user testing that supported the efficacy of the introduced method.
44. She deposed that even if context-based advertising was very common in December 2012, context-relevant “engagement offers” as an intermediate step prior to delivery of advertising, were not known.
45. As to the novel architecture introduced by the invention, Professor Verspoor deposed that the architecture she referred to in her first affidavit was not the content of the widget or the “engagement offer” itself; it was the overall process of (steps involved with) connecting a user to an advertisement through several computer technology components, including the “new layer” of an “engagement offer”. This was stated explicitly in her first affidavit where she stated “*the process* which I describe above … can be described as an improvement in computer technology”. She deposed that there was a change to the structure of the advertising system, in the form of the introduction of the intermediate “engagement offer” layer.
46. In relation to the proposition that in December 2012 it was very common for data management platforms and demand side platforms to record data about a user’s interaction or lack of interaction with advertisements and use that data to decide whether or not to display an advertisement to that user, or a user with similar attributes, Professor Verspoor deposed that her emphasis was on a new combination of elements with a new structure and emphasising the introduction of “engagement offers” as an intermediate step, not individual elements.
47. Professor Verspoor was cross-examined.
48. Professor Verspoor agreed that the background of the invention on page 2 of the patent application did not identify any technical problem in the ability of the computing technology used in digital advertising to perform computational processes. She did not agree that the remainder of the specification of the patent application did not identify any such technical problem. She said that the passage on page 3 of the patent application, which was 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.

identified specifically the linking of a computer user to an advertising message, and that was the description of the technical problem that they were attempting to address through the method.

1. She referred also to claim 1 of the patent application. Professor Verspoor did not agree that the specification did not identify a technical problem in the ability of the computing technology used in digital advertising to perform computational processes. She said it was implicit in the entire objective of the application, implicit in the specification. She agreed the words “there is a technical problem” did not appear, but disagreed that no technical contribution was claimed in the invention. She said it was implied by the fact that the method itself was a technical contribution, and that it solved the advertising problem, and more specifically, the linking of a computer user to an advertising message.
2. In relation to the statement in her second affidavit:

That is, the technical challenge is how to design and implement computer programs that can work together in real time over the internet to display advertisements in such a way that a user is much more likely to engage with them voluntarily while the user is using a website for a different purpose, ie, while visiting a publisher’s website…

Professor Verspoor agreed that before December 2012 computer programs existed that worked together in real time over the internet to display advertisements and that the patent application did not refer to any technical challenge that existed in how to design and implement computer programs that could work together in real time over the internet to display advertisements. She said that the basic mechanisms of using computers to display advertisements was known. She agreed that the challenge that she was referring to lay in the second part, which was 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.

1. Professor Verspoor agreed that whether or not a user was more likely to engage with advertising depended on what the user saw and experienced when interacting with the publisher content.
2. Professor Verspoor did not agree that which of the many available computational methods was used would not affect how likely the user was to engage with the advertisement, even if the advertisement was presented at the same time, in the same way and it was the same advertisement, because she believed that the process by which that advertisement was selected and displayed changed the overall impact of that advertisement on the user.
3. There was also the issue of when the advertisement was selected. In Professor Verspoor’s view, if the methods were different for selecting the advertisement and for arriving at the advertisement, in fact the situations were not identical and could not be identical – it was the engagement with the advertisement that had been altered, potentially, by the change in the method. The user had arrived at that moment in time through a different series of preceding experiences and that was dependent on what was displayed to the user and at what time. It was context dependent.
4. Professor Verspoor agreed that the only claim to efficacy that was made in the patent application was at page 10 which stated:

Through extensive testing, it has been found that initiating engagement with the advertisement system 10 byway 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.

1. She agreed that the efficacy claimed there was obtaining a more positive and deeper engagement of the computer user with advertisements.
2. Professor Verspoor agreed that an advertising object was something that was displayed to the user in digital advertising and a specific advertisement object could consist of text or graphics that were displayed using program code written in a language such as HTML5 or Javascript. She agreed that databases were used by digital advertising platforms before December 2012 to store advertising objects and databases were used by digital advertising platforms before December 2012 to store engagement data that could relate to how users were interacting with a website or an advertisement.
3. Professor Verspoor agreed that ranking engines were used by digital advertising platforms before December 2012 to rank and select the most appropriate advertising object to display. She also agreed that software engines were used by digital advertising platforms before December 2012 to gather and analyse engagement data.
4. Professor Verspoor was taken to the following passage on page 15 of the patent application:

Returning to Figure 3, 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, as will be described in more detail below.

She agreed that the statement that the objects database stored the engagement objects, which could include engagement offers, assets, advertisements and modules, was defined by reference to the kind of objects it stored rather than how the database was arranged or functioned. She also agreed that the last sentence of that extract, the part referring to “for dynamically generating consumer engagement journeys” referred to the purpose of the engagement engine and the ranking engine.

1. Professor Verspoor agreed it was her view that the issue of how to program a single platform to couple the three kinds of data to provide a personalised ranking of engagement offers to the user was a technical problem addressed by the patent application. She said that the overall solution that combined these multiple elements was responsive to the objectives of the advertising system as a whole and she used the phrase “single platform” to highlight how those different components were brought together. There was no specific claim that required that there be a single platform but that was her interpretation of the methods that were presented: it was implied by the figures and the description of the overall method that was introduced in the claims.
2. Professor Verspoor was taken to [57] of her first affidavit (summarised at [48] above) and agreed that the solution there identified had four components: a tracking database, an objects database, a ranking engine and an engagement engine. She was asked whether the method defined in claim 1 used only one engine, the engagement engine. She agreed she did not find any reference to one of the four, a ranking engine, in claim 1.
3. Professor Verspoor agreed that, as defined in the claim, the engagement engine that was identified was being defined as performing both the claim functions of evaluating the engagement data and implementing the ranking algorithm to rank the engagement offers. She responded to the question whether it was not necessary to have both an engagement engine and a ranking engine to perform the method by saying that coupled with the more detailed explanation of the specific role of the two engines labelled 116 and 118, the engagement engine and the ranking engine together achieved the overall process that was described as the engagement engine in claim 1. Professor Verspoor said the functions that were referred to were both necessary in order to have the overall effect, and whether it was implemented in two sub-engines or a single engine, she did not think was an important distinction from a technical perspective. She agreed it would be technically possible to have one piece of software, so one engine that could perform two functions in that way.
4. Professor Verspoor agreed that claim 1 did not state where or how the engagement offers must be stored. She agreed that claim 1 did not state where or how the advertisements must be stored but added that it did not matter. She said that the distinction between having two different databases that stored the engagement offers on the one hand and the advertisements on the other, as compared with storing both of those in a single objects database, was not important from a technical perspective.She said were many ways to implement databases and there were many structures that could be used, and they were all different in some physical sense. However, they represented the same kind of information. What was important in her view was that the advertisements and the engagement offers were stored, whether it was in one or more databases, and could be accessed for the purposes of the method.
5. In answer to the question whether the details as to whether or not the advertisements and the engagement offers were stored in one or two separate databases, that could affect how the system operated at a computational level, in order to access those things for the method, Professor Verspoor said it would mean that different pieces of the code would be attempting to find information, or objects in this case, out of different physical locations in the storage of the computer system. She agreed that the patent application was not teaching that any one or other of those particular arrangements of the database that stored the advertisements and the engagement offers was the one that should be followed. In re-examination, Professor Verspoor said that she emphasised *how* data was stored rather than *where* it was stored because when thinking about storing data in computers it was necessary to consider what that information represented and the logic a computer program hinged on, what that information that it used represented and how it was combined in different ways, so that the effect was not the technicality of where one database began or ended but rather what the information in those databases represented and how it was manipulated and used.
6. Professor Verspoor agreed that she used the term “tracking database”, coming from the description of figure 3 in the specification, to mean a database for storing engagement data and behavioural metrics. Claim 1 did not use the term “tracking database” but referred to the engagement data. She agreed claim 1 did not identify where or how the engagement data must be stored and did not identify where or how the behavioural metrics data must be stored.
7. She agreed that in the method of claim 1, it could be possible, as one way of implementing it, to store the engagement data in one database and the behavioural metrics in another. She agreed that the details as to whether those two types of data were stored in one or two databases was not important although those details would affect the system operation at a computational level.
8. She agreed that one component that was used to implement the method was a remote advertising system, where she understood “remote” as referring to not necessarily at the user’s device.
9. Professor Verspoor did not agree that before December 2012 server computers existed that were capable of performing each step done by the remote advertising system identified in claim 1. She did agree that a server computer that existed at December 2012 would be capable of implementing the advertisement system if it was programmed in the way that was required to implement the method, adding that it would have to follow the logical structure of the method outlined in the application.
10. Professor Verspoor said any computer needed to be programmed in order to do anything and that in order to implement the invention of claim 1 as at December 2012, at the remote advertising system end, you would need to program a computer or a number of computers in order to implement the steps of the claim. There were certainly existing computers as at December 2012 that could be programmed to perform the function.
11. Professor Verspoor agreed that before December 2012 there were consumer devices that could display the advertising and perform each of the other steps identified in claim 1. The consumer devices would have had to be capable of receiving the instructions for, for instance, displaying the advertising or displaying the engagement offer. However, they were not necessarily being programmed directly in order to do that. There were some which were capable of, for instance, displaying a web browser which would have been receiving the instructions to display an advertisement.
12. Professor Verspoor agreed that in digital advertising systems before December 2012 widgets were used to deliver program code together with publisher content to a user’s computing device. She agreed that the widgets that existed before December 2012 could have been used to deliver the program code necessary to cause the user computer device to perform the steps identified in claim 1. She agreed that the patent application did not disclose what the program code was that was delivered by the widget to the user’s computer nor what the program code was that was used to program the remote advertising system. In re-examination, Professor Verspoor said that by “code” she was referring to the actual computer language that was used to implement the logic of the method. There was no reference to Python code or Java code or anything of that nature in the application. She agreed that a software engineer, as at December 2012, would have been able to write the program code that was needed to implement the invention of claim 1 using their ordinary knowledge and skill.
13. Professor Verspoor agreed that the technology for the ranking engine and the widget script 121 existed at December 2012 but said that although the database concept itself existed at December 2012, the content of the engagement object database 115 was not in use. It was the storage and use of the engagement offers that was the reason for her disagreement with [44.2], [44.4] and [44.7] of Mr Ries’ affidavit, as reproduced at [81] above. The subject matter of the information that had been stored was something that was not routinely done. She said that the notions of databases and scripts existed at December 2012 but the content did not.
14. Professor Verspoor considered engagement offers and data about how users engaged with engagement offers involved distinct objects with distinct data types. What made the data distinct was not its format but the information that the binary numbers represented. In particular, the binary numbers represented information about how the user had engaged with an engagement offer, instead of how the user had engaged with advertising and that was what made it distinct.
15. Professor Verspoor was taken to [53] of her second affidavit, as follows:

Data about a user’s interaction with “engagement offers” as described in the invention is also something that is new. So too is manipulation or use of that data, such as the use of data about past user interactions with “engagement offers” described in claim 1 (page 29, lines 5-19). As is set out on page 13 of the specification, some of the relevant data includes “engagement offer take-ups” and “engagement offer skips/declines”. Analysis and use of that data is not the same as analysis and use of data about interactions with advertisements themselves.

Professor Verspoor agreed that the data that was being analysed represented different information and the data was analysed for a different purpose, the purpose being to select and then present an engagement offer. She said the analysis and use of the data and the analysis and use of the data about the advertisements themselves represented different kinds of information.

1. Professor Verspoor agreed that, like advertisements, engagement offers were text and graphics that the user’s computer was programmed to display and, like advertisements, an engagement offer was programmed using a language such as HTML5 or Javascript among other languages. Advertisements could also be done in other languages. She said that things like images were not exactly programmed but were a digital representation of something which was external to the computer. It was not programmed specifically but was displayed by the user’s device. That would be the same whether it was an image in an advertisement or an engagement offer.
2. Professor Verspoor was taken to page 9 of the patent application, as follows:

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 18is 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.

(Underlining added.)

Professor Verspoor agreed that the underlined statement was an apt summary of why she said that an engagement offer was distinct from an advertisement. She said the functional use of the engagement officer was distinct from that of a normal advertisement. She said it was not about the information but it was about the objective and the effect on the user. She agreed that arose from the informational content of the engagement offer.

1. Professor Verspoor was taken to [52] of her second affidavit, as follows:

However, I do not agree that the presentation of an “engagement offer” is “the only thing that differs” as Mr Ries has stated. In addition to presenting the “engagement offer”, the invention requires selecting an appropriate “engagement offer”, continuously evaluating the user’s interaction with the website to determine when to display the offer, at a contextually relevant time, causing the user’s device to display the “engagement offer”, and monitoring the user’s interaction with the engagement offer. Additionally, selecting an appropriate “engagement offer” may involve dynamic use of the ranking algorithm in the engagement engine described in claim 1. Reducing the difference to the presentation of an “engagement offer” minimises the importance of that difference in a manner that belittles the value and novelty of the difference. It overlooks a large amount of the technical detail involved in the invention. The “engagement offer” and what the advertising system does in relation to choosing, presenting, and monitoring the user’s interaction with the “engagement offer” is in fact the critical component of the invention, and it is that component that achieves the overall objective of increasing consumer engagement with advertising. It is the introduction of the intermediate “engagement offer” that provides an alternative digital advertising technique to previous systems and constitutes the key feature of the invention in claim 1 of the Patent Application.

1. She agreed that in that paragraph she referred to a series of steps that the remote advertising system performed in relation to the engagement offer, and they included selecting an appropriate engagement offer, continuously evaluating the user’s interaction with the website to determine when to display the offer at a contextually relevant time, causing the user’s device to display the engagement offer, and monitoring the user’s interaction with the engagement offer. She agreed that selecting the appropriate engagement offer may involve dynamic use of the ranking algorithm in the engagement engine described in claim 1. Professor Verspoor agreed that the purpose and effect of each of the steps she identified in [52] were to present the right engagement offer at the right time and in the right context and the reason for doing that was to maximise the effect the engagement offer would have in engaging the user.
2. Professor Verspoor was asked whether none of the steps identified in [52] of her second affidavit had as their object improving the underlying programming that enabled the steps to occur, those steps being to gather, communicate and evaluate data, rank objects or monitor the user’s interaction with an object. She answered that because the underlying programming did not exist in the absence of the steps she did not see how the steps could make a statement about improving something that would not exist if they were not there.
3. Professor Verspoor was taken to paragraphs [51]-[53] of her first affidavit and agreed that she identified in those paragraphs why she considered the invention in the patent application provided a novel architecture. Those paragraphs were as follows:

51. In my view, the process which I describe above and which I observe to be the substance of the Patent can be described as an improvement in computer technology. The invention introduces a novel architecture for the advertising system, through the new layer of engagement offers. Through direct collaboration with the publishers, the invention involves insertion of a widget into the publisher content to serve the engagement offer.

52. Further, the use of a data-based scoring algorithm to decide what engagement offers to serve represents an important improvement to existing computer-based advertising.

53. The invention also introduces a novel architecture for an advertising system, through the recording and transmitting [sic] user interactions with advertisements and using that data to select subsequent advertisements.

Professor Verspoor agreed that data-based scoring algorithms were used to decide what advertisements to serve in digital display advertising before December 2012. She accepted that the fact that the invention in the patent application recorded and transmitted user interactions with advertisements and used that data to select subsequent advertisements was not of itself a novel feature of the invention.

1. With reference to [63] of her second affidavit, Professor Verspoor disagreed that she had said that the ranking algorithm itself was an improvement, but rather the use of that ranking algorithm in the context of the overall system. She said she was not making a claim about the improvement in the ranking algorithm.
2. Professor Verspoor was asked about [67] of her first affidavit, which is as follows:

For the reasons I have discussed above, it is my opinion that this invention introduces new uses of computer technology. If the phrase “foreign to the normal use of computers” is intended to mean “the use of computers in a way that they have not been used before” then I am of the view that the Patent introduces a method which is foreign to the normal use of computers. This follows from my observations above about:

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

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

1. She agreed that that was the same sense in which she said the patent application introduced a novel architecture.
2. Lastly, Professor Verspoor was taken to [45] of her second affidavit, which is as follows:

Computers are not just hardware; they are hardware plus software together. The software runs (executes) on hardware. A new invention that modifies a computer by improving its software so that the computer performs a different function or set of functions is in effect an improvement in “the computer”. This is the sense in which the Patent Application describes an improvement in computer technology.

1. She was then taken to an example (Exhibit 1)in the following terms:

**A computer-implemented method of gathering evidence to assess an individual’s competency relative to an employment qualification standard**

1. A computer is used to retrieve the criteria for assessing competency via the Internet.
2. It then processes the criteria to generate automatically corresponding questions relating to the competency of the individual to satisfy the elements of competency and performance criteria associated with the recognised qualification standard.
3. An assessment server presents the generated questions via the Internet to a computer of an individual requiring assessment.
4. The server receives from the user via their computer responses to the automatically generated questions. At least one response includes a file which is transferred to the assessment server.
5. Professor Verspoor was asked to assume that no computers had ever before been programmed with software that caused them to implement the method of the example. There was no software that implemented this method. On that assumption, Professor Verspoor was asked whether the computer implemented invention of the example would be an improvement in the computer technology. She agreed that, under the assumption that it had not existed previously, that was consistent with the way she had used “improvement in computer technology” in [45] of her second affidavit, set out at [169] above. The assumption was that the process was not previously implemented, the question referring specifically to modifying the computer and improving the computer and predicated on the technical implementation of it as a piece of software.

## Submissions

1. The applicant submitted that as this was a pre-grant re-examination, the matter had to be resolved against the patentee only if was practically certain that the patent was invalid. In those circumstances, in relation to the Commissioner’s notice of contention, the applicant submitted that for the Commissioner to go back to a s 40 point, in a further round, would be quite inappropriate. If, in fact, someone was aggrieved and wanted to run the s 40 point that had not hitherto been run, either by the Commissioner or by an opponent, it could be dealt with on a revocation suit. But there must be a limitation as to how many bites at the apple there were in a process that was supposed to be fast and efficient, where the test was practical certainty.
2. The applicant submitted the starting point in construing “a manner of manufacture” within the meaning of s 18(1)(a) was *National Research Development Corporation v Commissioner of Patents* (1959) 102 CLR 252 (***NRDC***). The applicant submitted that the invention satisfied the test of the creation of an artificial state of affairs of economic utility. The applicant referred to a number of other authorities, including *International Business Machines Corporation v Commissioner of Patents* (1991) 33 FCR 218 (***IBM***), *CCOM Pty Ltd v Jiejing* *Pty Ltd* (1994) 51 FCR 260, *Welcome Real-Time SA v Catuity Inc* [2001] FCA 445; 113 FCR 110, *Grant v Commissioner of Patents* [2006] FCAFC 120; 154 FCR 62, *Research Affiliates LLC v Commissioner of Patents* [2014] FCAFC 150; 227 FCR 378 and *Commissioner of Patents v RPL Central* *Pty Ltd* [2015] FCAFC 177; 238 FCR 27.
3. The applicant submitted that what was claimed was something which created an artificially created state of affairs of economic utility and was something that was new and innovative. It created an effect in a device for use in a business, as distinct from conducting something that was a business.
4. The applicant submitted that several crucial points emerged from the authorities. First, the 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*”. If it was the former, it may be still the subject of letters patent if there was “*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*”: *RPL Central* at 49 [96]. If it was the latter, then it would be a “technological innovation” that was the subject of letters patent: *RPL Central* at 50 [100]. In the present case, the applicant submitted that the invention was of the latter kind, but submitted in the alternative that it was the former.
5. Second, the applicant submitted, a patent may be granted for a combination of known integers, provided that the combination was new and inventive: *CCOM* at 290-1; *NRDC* and *Merck & Co Inc v Arrow* *Pharmaceuticals* [2006] FCAFC 91; 154 FCR 31 at 51-2 [63]. There was no basis for suggesting that this principle had some different operation for inventions which involved software; indeed, *Catuity* was such a case. The applicant submitted that questions about the novelty and combination of known integers were dealt with under separate limbs of s 18, and were not part of the question whether a manner of manufacture existed. In any event, the applicant submitted, it was common ground that at least the integer of an engagement offer was novel, meaning that there was no objection based on novelty.
6. Third, the applicant submitted, the relevant effect required by *NRDC* was not limited to a physical effect: *Research Affiliates* at 397 [92], 398 [95]. In the present case, as in *CCOM*, there was a useful artificial stateof affairs in a field of economic endeavour (digital advertising), but it went further – there was alsoan observable “physical phenomenon” by the affection and alteration of a “physical thing”: *Research Affiliates* at 402 [115], namely the fact that the screen of the user’s device was changed,to show an engagement offer and to allow the user to interact with it, followed by the presentationof advertisements. The applicant submitted this involved ingenuity in using the computers involved (the user’s deviceand the advertising system) (*RPL* at [104]) and created either a new machine or process or anold machine giving a new and improved result (*IBM*, citing *Burroughs Corps Application* [1974] RPC 147).
7. The applicant submitted the substance of the invention was a method to display digital advertising to users, and a method that produced a higher level of engagement with those advertisements than traditional methods of digital advertising. The applicant referred to [47] of Professor Verspoor’s first affidavit and submitted that the operation of the method produced a “dynamic, context-based advertising system”. It submitted that this was accurately described as a “technological innovation”, referring to *RPL* at 50 [100], which was a manner of manufacture. The method produced a physical thing (a server maintained by the user of the method running software with particular functions) and software (the widget code that was stored to be distributed with the publisher content) that interoperated in real time over the internet. There was an observable physical phenomenon: the user’s browsing experience was altered by the real-time display of the engagement offer, and the user’s ability to interact with it, and then again by the possible display of advertisements. There were new images, text, or pop-up windows that were displayed to the user on their device when they were accessing the publisher’s content: [40] of Professor Verspoor’s first affidavit. The change in the user’s browsing experience was caused by a change in operation of the user’s browser caused by the widget running in the browser, coupled with information sent by the server to the widget over the internet in real time: [29] of Professor Verspoor’s first affidavit; [27], [38] of Professor Verspoor’s second affidavit.
8. The applicant submitted the method produced a useful physical result, in that users were not shown advertisements indiscriminately (and may not see any at all if they skipped the engagement offer); advertisers did not pay to have their ads shown to users uninterested in them but had their advertisements shown to users to whom they were much more relevant; publishers were able to obtain revenue from advertising on their sites; and the operator of the method was able to operate a computerised ad-delivery system that was more effective than the prior art. In the words of *NRDC* and *CCOM*, this result was an economically useful, artificial state of affairs in fields of economic endeavour.
9. The applicant submitted the method could not be operated without computers. Unlike in *RPL* and *Research Affiliates*, there was not just some scheme “put into” a computer. The method altered the way that running computers (the user’s device and the advertising system) functioned.
10. Equally, the applicant submitted, the use of a computer was integral to carrying out the invention, as it was not feasible for a non-digital implementation of the method to store and manage large amounts of tracking data collected from real-time interactions with digital devices, or to manipulate large quantities of data for context-sensitive decision making: [64] of Professor Verspoor’s first affidavit. Moreover, the invention involved steps foreign to the normal use of computers as it drew together different streams of information and put them together and worked with them in a way that was new and had not been done before: [67]-[68] of Professor Verspoor’s first affidavit. Additionally, the concept and implementation of an engagement offer, the use of a widget to continuously monitor the user’s interaction with the website to determine when to display the engagement offer, the use of a widget to monitor the user’s interaction with the engagement offer, the offering of a choice to engage with or skip the engagement offer, and the monitoring of the user’s interaction with an advertisement to determine which subsequent advertisement to show were not normal uses of a computer as at the priority date: [68] of Professor Verspoor’s first affidavit.
11. The applicant submitted that, as Professor Verspoor explained in her first affidavit at [51], the method also constituted an improvement in computer technology. The invention was a novel architecture for the advertising system, through the new layer of engagement offers ([51]), and its use of a data-based scoring algorithm to decide what engagement offers to show represented an important improvement to existing computer-based advertising: [52]. There was an improvement in “the computer”: [45]. Additionally, the invention introduced a novel architecture for an advertising system through the recording and transmitting of user interactions with advertisements and using that data to select subsequent advertisements ([53]). Even if it was the case that all other integers were known (which Professor Verspoor did not accept: see [49] of her first affidavit), the combination of them with the new element of an engagement offer made the invention novel.
12. The applicant submitted the claimed method also solved technical problems. The key technical problem was that described at [55] of Professor Verspoor’s first affidavit, being “that of providing a single platform in which user engagement data can 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”. That problem was solved by introducing two databases (the tracking database and the objects database) and designing two engines (the ranking engine and the engagement engine) which accessed and manipulated the data in these databases to rank and select engagement offers: [57] of Professor Verspoor’s first affidavit. The technical problem of 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) was addressed by the novel system architecture implementing a novel method involving the use of an engagement offer, and (particularly) the sequence of technical steps that were executed to implement the engagement offer by identifying and collecting the data needed to calculate what to display, manipulating what was displayed on the user’s device in order to display it, and monitoring the user’s interaction with it: [30], [33] of Professor Verspoor’s second affidavit.
13. Additionally, the applicant submitted, if the low effectiveness of existing digital advertising methods was considered a technical problem, the invention overcame it by producing substantially improved user engagement with advertisements: [48], [61] of Professor Verspoor’s first affidavit.
14. The applicant submitted there was invention and ingenuity in the operation of a computer, via implementation of the computer to perform the method, to determine when and what to display as the engagement offer, to display the engagement offer, to track the user’s interaction with the engagement offer, to determine whether to show one or more advertisements, and then to display those advertisements and track the user’s interaction with them: cf *RPL Central* at [104], [110].
15. The applicant submitted the invention involved multiple computer programs operating at the same time, communicating with each other in real time over the internet. There would be as many widgets running simultaneously on multiple devices as there were users using those devices to view content of publishers who offered advertising via operators of the claimed method. The widgets caused the displays of all of those devices to be altered to present images, text or pop-up windows when displaying engagement offers, and may again do so if they subsequently displayed advertisements. Users’ browsing experiences were therefore visibly affected. The advertising system specifically claimed servers running software, which, in addition to communicating with the widget, operated ranking algorithms to select the most relevant engagement offer(s) and advertisement(s). This involved implementing databases that recorded user behaviour, and software which manipulated that data, so as to optimise personalised output for each consumer: [59] of Professor Verspoor’s first affidavit.
16. The applicant submitted the invention claimed here was much more extensive and complex than those in *IBM*, *CCOM* and *Catuity*. It produced an economically useful result, as well as artificial physical effects visible to each user interacting with the invention. It involved a technological innovation that solved existing technical problems in digital advertising and produced a new digital advertising system of software and hardware. According to the principles set out in *NRDC*, *CCOM*, *Research Affiliates* and *RPL*, the claimed invention clearly disclosed a manner of manufacture.
17. The respondent Commissioner submitted the delegate was correct to find that the invention claimed in the applicant’s patent application was not a manner of manufacture. In summary, that was because the substance of the claimed invention was an unpatentable business method or scheme, for advertising. That method or scheme was implemented using computer technology, but the innovation or the ingenuity did not lie in the way in which the method or scheme was implemented in the computer. Rather, the innovation or ingenuity which was asserted in the patent application resided in the method or scheme itself, and in particular, in the concept of presenting an engagement offer to engage the user so that he or she was more inclined to interact positively with the digital advertising that was subsequently displayed. So it was an innovation or an ingenuity in relation to the advertising method, not its implementation in a computer system.
18. The respondent submitted that the law as laid out in *Research Affiliates* and *RPL Central* held that:

17.1 The Court must decide, as matter of substance not form, whether the claimed invention is the proper subject-matter for a patent: *RPL Central* at [99]; *Research* *Affiliates* at [106], [117].

17.2 This requires consideration of both the claims of the Application and the invention described in the body of the specification: *RPL Central* at [114].

17.3 The assessment is not done mechanically. There are no precise guidelines or mathematical formula. It is “*a question of understanding what has been the work* *of, the output of, and the result of, human ingenuity*” and then applying the developed principles: *Research Affiliates* at [116]. See further *RPL Central* at [112]:

Recognising that the claims are to a method and system comprising a combination of integers, it is necessary to understand where the inventiveness or ingenuity is said to lie ...

17.4 One well-settled principle is that a distinction exists between a technological innovation and a business innovation. A technological innovation is patentable. A business innovation is not: *Research Affiliates* at [94]; *RPL Central* at [100]. Consequently, a business method or scheme is not, *per se*, a proper subject for letters patent: *RPL Central* at [96]. Nor are abstract ideas, mere intellectual information or mere directions for use patentable: *Research Affiliates* at [101]; *RPL Central* at [100].

17.5 A computerised business method or scheme *can*, in some cases, be patentable. However, “*[w]here the claimed invention is to a computerised business method,* *the invention must lie in that computerisation*”: *RPL Central* at [96] (emphasis added). This requires “*some ingenuity in the way in which the computer is used*”: *RPL Central* at [104]. It is not a patentable invention *“to simply ‘put’ a business* *method ‘into’ a computer to implement the business method using the computer* *for its well-known and understood functions*”: *RPL Central* at [96]. In other words, if the ingenuity lies in the business method or scheme alone, the invention will not be patentable despite the computer-implementation.

17.6 Thus, 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: *RPL Central* at [96]. Contrary to [the applicant’s submissions at [49]], this is a binary distinction: the invention is either an unpatentable scheme or plan, or it is a patentable improvement in computer technology. In conducting the analysis, it is useful to:

17.6.1 ascertain whether the contribution to the claimed invention is technical in nature: *RPL Central* at [99], *Research Affiliates* at [114];

17.6.2 consider whether the invention solves a “*technical*” problem within the computer or outside the computer: *RPL Central* at [99], *Research Affiliates* at [103];

17.6.3 consider whether the invention results in an improvement in the functioning of the computer, irrespective of the data being processed: *RPL Central* at [99], *Research Affiliates* at [118];

17.6.4 consider whether the invention requires merely “*generic computer implementation*”, as distinct from steps which are “*foreign*” to the normal use of computers: *RPL Central* at [99], [102]; *Research Affiliates* at [101]; and

17.6.5 consider whether the computer is merely the intermediary, configured to carry out the method using program code for performing the method, but adding nothing to the substance of the idea: *RPL Central* at [99].

The respondent also referred to *Encompass Corporation Pty Ltd v InfoTrack Pty Ltd* [2018] FCA 421; 130 IPR 387.

1. The respondent submitted that the following facts should be found.
2. First, the Court should find that digital advertising systems were used before the priority date and that the digital advertising systems before the priority date were implemented using the same hardware and software components as the components shown in figure 3 of the patent application. The Court should further find that the engagement data was communicated, evaluated and analysed in the format of binary numbers and that the digital advertisements consisted of text or graphics that were displayed using program code written in a language such as HTML5 or Javascript.
3. In relation to engagement offers and data about engagement offers, the respondent submitted that the Court should find that the difference between the prior digital advertising systems and the invention of the patent application was that the patent application used the same kind of hardware and software components to gather, communicate and analyse an additional type of engagement data, namely data about the user’s interaction with the engagement offer, and to present an additional type of advertising object, namely an “engagement offer” which was displayed before the digital advertising was shown, in the manner set out in claim 1. The respondent submitted there was no dispute between the experts that this was the difference between the invention of the patent application and the prior digital advertising systems.
4. The respondent submitted that the Court should further find that what made the engagement offer “distinct” was the advertising function performed, rather than the physical form of the object inside the computer.
5. The respondent submitted that the Court should find that the existing computer servers, user devices and widgets were all capable of being programmed to implement the advertising method that was disclosed in the patent application.
6. The respondent submitted that these findings supported the Commissioner’s position that there was no manner of manufacture. If the inventive ingenuity lay only in the advertising scheme, the respondent submitted the invention was not patentable.
7. The respondent submitted that the difference between the prior systems and the invention of the patent application lay in the content of the data and objects that the computing systems gathered, analysed, ranked and displayed. The respondent submitted that the ingenuity was advertising ingenuity, to engage the user prior to displaying advertisements, and there was no ingenuity in computer implementation.
8. The respondent also submitted that Professor Verspoor’s conclusions as to “novel computer architecture”; “an improvement in computer technology/foreign use of computers” and “technical problem/technical solution” did not support the Court holding that the claimed invention was, in substance, a manner of manufacture.

## Consideration

1. I prefer the evidence of Professor Verspoor to that of Mr Ries. This is for two principal reasons. First, I had the benefit not only of Professor Verspoor’s written opinions but also of her oral evidence. I found her oral evidence to be both frank and independent. Because Mr Ries was not available for cross-examination, but by virtue of an arrangement between the parties whereby some of his report was tendered, I had the benefit of only part of his opinions and then only his written opinions. Also he gave no oral evidence with the result that his written opinions were not able to be elucidated or tested.
2. Second, Professor Verspoor’s qualifications as an expert were, in my opinion, more impressive and more relevant than those of Mr Ries. For example, I find that Mr Ries did not have the relevant direct technical experience with implementation of large-scale software systems but was, rather, a user of those systems. In contrast, Professor Verspoor had the experience of implementing logic flows in computer code and was fluent in several advanced programming languages. She also had the experience of building large software systems including the implementation of algorithms for retrieving data from databases and manipulating that data. Professor Verspoor had highly developed coding skills.
3. Turning to the substance of the appeal, in my opinion, despite the copious reference to the authorities in the submissions of the parties, the resolution of the appeal lies largely in the realm of facts. I did not discern any substantial relevant differences between the positions of the parties as to the legal principles to apply.
4. For example, both sides agreed that the matter had to be addressed as a matter of substance. I agree. I also accept that there is no formula to be mechanically applied, and that it is necessary to understand where the inventiveness or ingenuity is said to lie. A mere business innovation is insufficient and a business method or scheme is not, per se, a proper subject for letters patent. Nor are abstract ideas. The issue is 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. I accept generally the respondent’s submissions reproduced at [189] above.
5. Where I discerned a difference of substance between the approaches of the applicant and of the respondent was in relation to the *level* of detail at which the submissions were made and in relation to the claimed significance of any distinctions. In my opinion, the respondent’s focus tended to be on issues of separate or indeed discrete differences or distinctions rather than on the claim or claims as a whole and as a matter of substance. This thread also ran through the respondent’s cross-examination of Professor Verspoor. For example, there were, as one would expect, undoubted similarities between what computers could do or what computers were used for in December 2012 and the claimed invention. This focus on similarities does not of itself gainsay that the claimed invention solved a technical problem or involved steps foreign to the normal use of computers as at December 2012. A focus on elements known as at December 2012 in isolation tends to lose sight of the combination of techniques or components in an innovative and previously unknown way.
6. I make the following findings. I accept Professor Verspoor’s evidence generally. In particular, I accept her evidence that the substance of the invention 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.
7. I accept Professor Verspoor’s evidence that it was the introduction of the intermediate “engagement offer” that provided an alternative digital advertising technique to previous systems and constituted the key feature of the invention in claim 1 of the patent application. I accept Professor Verspoor’s evidence that Mr Ries fundamentally did not understand the process of the engagement journey that was described in the invention. I accept the applicant’s submission that what Mr Ries recognised as an “engagement engine” was not the “engagement engine” from the current invention; it was a subset, which did not involve engagement offers or data about engagement offers.
8. The invention solved not only a business problem but also a technical problem. As to the latter, 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 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.
9. I reject the respondent’s submission that the specification in the patent identified only a business problem but *not* a technical problem.
10. I find that there was a business problem of attracting the attention of the user and having the user choose to interact with the advertiser, but this problem was translated into the technical problem of how to utilise computer technology to address the business problem. The invention aimed to solve this technical problem through the introduction of 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, 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.
11. The use of computers was integral, rather than incidental, to the invention in the sense that there is an invention in the way in which the computer carries out the business scheme: see *RPL Central* at [107]. It was not feasible to store and manage large amounts of tracking data collected from real-time interactions with digital devices and manipulate large quantities of data for context-sensitive decision-making without the use of computers. The data bank that was the source of engagement objects and historical/tracking data was a critical component of the invention. I accept the applicant’s submission that the computer was not merely acting as an “intermediary” but that the substance of the invention involved the new functioning given to the computer. I accept Professor Verspoor’s evidence summarised at [55]-[57] above.
12. 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.
13. The user interactions took place on the user’s computer and it was integral to the invention that data be collected, and engagement offers presented, through that computer. The transmission and receipt of data over the internet to and from the advertising system could also only be done using computers.
14. It followed that the patent introduced a method which was foreign to the use of computers as at December 2012. Not only did it draw together different streams of information and put them together and worked with them in a way that was new, making the combination of these techniques new, but certain elements of the invention were also new in their own right. The concept and implementation of an engagement offer, the use of a widget to monitor continuously the user’s interaction with the website to determine when to display the engagement offer, the use of a widget to monitor the user’s interaction with the engagement offer, the offering of a choice to engage with or skip the engagement offer, and the monitoring of the user’s interaction with an advertisement to determine which subsequent advertisement to show were all new and innovative uses of computers.
15. In addition, known components had been integrated into a single system in an innovative and previously unknown way. The invention brought together some new elements and some known elements to form a working combination that had not previously been achieved and involved the use of computers in a way that was foreign to their normal use as at December 2012.
16. Taken in isolation, a database, a client-server architecture, the running of the Javascript program on a publisher’s website and the creation of a ranking engine to rank abstract data to achieve an ordered list were each known as at December 2012 but, in combination, the distinction between engagement offers and general advertising, coupled with the algorithms making use of background data for personalisation and ranking was a new combination of new and previously existing components and a new use of computer technology.
17. I turn now to consider the respondent’s notice of contention. I have accepted the evidence of Professor Verspoor as a person skilled in the art. I accept her evidence that once she read and understood the specification she could give effect to it. On that evidence, I do not accept the Commissioner’s contention that the complete specification does not describe the invention fully as it does not contain sufficient information to enable a person skilled in the art to produce something within each claim without new inventions, or additions, or prolonged study of matters presenting initial difficulty or does not describe any method of performing the invention. I accept Professor Verspoor’s evidence which is summarised at [122]-[124] and [153]-[157] above.
18. I do not accept the respondent’s submission that the cross-examination of Professor Verspoor on Exhibit 1, reproduced at [169]-[171] above, established that there was a distinction between what she considered to be an improvement in computing technology and what the decided cases say. Neither do I accept the respondent’s submission that Professor Verspoor’s conception of what was an improvement in computing technology was nothing more than the proposition that the claimed method in this case was doing something that computers or computing technology had not been used to do before. In my opinion, the respondent’s deployment of Exhibit 1 travelled no further than an abstract exercise and did not sufficiently intersect with the substantial detail of Professor Verspoor’s evidence. Put differently, in my opinion, Exhibit 1 did not sufficiently intersect with the evidence Professor Verspoor gave as to the substance of the claimed invention.
19. I do not accept the Commissioner’s submission that, if there was a respect in which the patent application provided a technical advance over and above what was done in December 2012 that involved some ingenuity in the way in which the scheme was implemented in the computer to do with the programming or arrangement of the components, there was no description in the specification that would enable a person skilled in the art to carry that out.

## Conclusion and orders

1. For these reasons, I allow the appeal and dismiss the notice of contention. I set aside the decisions of the Commissioner given on 11 October 2016 and 11 July 2017. I order that Australian patent application No. 2013201494, in the form which includes the claims dated 11 November 2016, proceed to grant. The respondent should pay the applicant’s costs, as agreed or taxed.

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| I certify that the preceding two hundred and seventeen (217) numbered paragraphs are a true copy of the Reasons for Judgment herein of the Honourable Justice Robertson. |

Associate:

Dated: 12 December 2018