Intellectual Property Office

BL O/0954/23

05 October 2023

PATENTS ACT 1977

APPLICANT	Siemens Mobility Limited
ISSUE	Whether patent application GB2019779.4 complies with section 1(2) of the Patents Act 1977
HEARING OFFICER	Phil Thorpe

DECISION

Introduction

1 Patent application GB2019779.4 has a filing date of 15th December 2020 and was published as GB 2602018 A on 22nd June 2022.

2 The examiner considered that a search would not serve any useful purpose and so declined to search the application under section 17(5)(b) of the Act. An abbreviated examination report under section 18(3) was issued on 26th May 2021, in which the examiner asserted that the invention defined by the claims was excluded from patentability under section 1(2) of the Act as relating to a program for a computer and a method of doing business as such.

3 The applicant filed amended claims on 14th December 2022 and a further examination report was issued on 20th February 2023 in which the examiner maintained their view that the invention defined by the claims was excluded from patentability. At this time, the examiner offered the applicant the opportunity to be heard in person by a Hearing Officer.

4 Following receipt of a request by the applicant to be heard in person, the examiner issued a pre-hearing report on 14th June 2023. The applicant subsequently decided to request that a decision be made based on the papers on file.

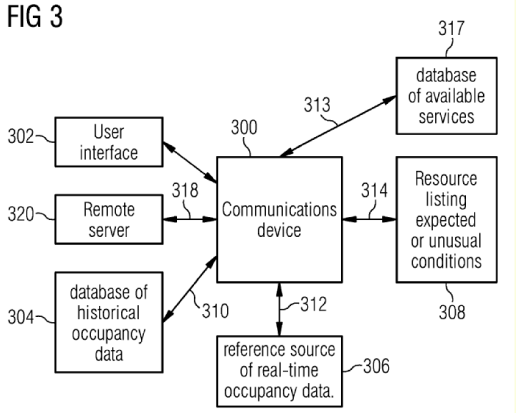
The Invention

5 The invention relates to a tool for enabling passengers to avoid travelling on excessively crowded transport services. The tool enables a passenger to select in advance which service to use based on predicted occupancy levels of a number of suitable services. Whilst the tool is described in relation to train services, it may also be applicable to other transport services, such as coach, ferry or air travel.

6 The application describes how known systems provide travellers with information on planned departure and arrival times of services running between their starting point and required destination, information on any disruption to the normal running of these services, and information on which service will reach their required destination most quickly when there are a number of available services taking different routes. The invention seeks to improve on these known systems by additionally providing an estimate of how busy a service currently is or how busy it is predicted to become.

7 In a described embodiment represented in figure 3 (reproduced below), a user defines parameters, which may include their departure station, arrival station and departure and/or arrival time. In addition, the location of a portable communications device carried by the user is determined to provide information on their current position. The user defines a range of acceptable levels of occupancy, which may be different for individual train services depending, for example, on whether or not the service will arrive at the user's required destination by a target time. This information is used to determine a list of services of interest and, for each of these, the tool retrieves data from databases indicating current and historical occupancy levels. The tool may also retrieve information on unusual conditions that are likely to affect occupancy levels. The data is analysed to provide predicted future occupancy levels and the user is alerted, via their portable communications device, to services of interest that meet their acceptable occupancy range.

FIG 3



8 Claim 1 of the amended claims reads as follows:

> *A computer-implemented method of providing alerts, to a user carrying a portable communications device, signalling predicted occupancy levels of selected train services, comprising the steps of:*
>
> *identifying a set of user criteria for utilising a train service, the user criteria including a range of acceptable train occupancy levels, a user location determined from the location of the portable communications device and a user-defined range of departure and/or arrival times;*

retrieving, from a remote database over a communications channel, data indicating real-time and historical train service occupancy levels for train services corresponding to the user location and user-defined range of departure and/or arrival times;

analysing the retrieved data to determine a predicted occupancy level for each train service for which data was retrieved; and

alerting the user to indicate train services having a predicted occupancy level falling within the user criteria.

The Law

9 The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates to a category of excluded matter. The relevant provisions of this section of the Act are shown with added emphasis below:

> *1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the Act, that is to say, anything which consists of…*
>
> > ***(c) …a scheme, rule or method for…doing business, or a program for a computer;***
>
> *but the foregoing provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.*

10 As explained in the notice published by the IPO on the 8th December 2008[1], the starting point for determining whether an invention falls within the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*[2].

11 The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian*[3]. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel* the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions, particularly *Merrill Lynch*[4] which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case.

12 Subject to the clarification provided by *Symbian*, it is therefore appropriate to proceed on the basis of the four-step approach explained at paragraphs 40–48 of *Aerotel* namely:

> *(1) Properly construe the claim.*

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[1] http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm
[2] *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7
[3] *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1
[4] *Merrill Lynch's Appn. [1989] RPC 561*

(2) Identify the actual contribution (although at the application stage this might have to be the alleged contribution).
(3) Ask whether it falls solely within the excluded matter.
(4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.

Applying the Aerotel test

Step 1 – Properly construe the claim

13 The applicant and examiner are in agreement that there are no difficulties in construing the claim, as the meaning is clear. I also agree.

Step 2 – Identify the actual contribution

14 Jacob LJ addressed this step in *Aerotel/Macrossan* where he noted:

> "*43. The second step — identify the contribution — is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable — it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise."*

15 Jacob LJ goes on to say that in the end:

> *"the test must be what contribution has actually been made, not what the inventor says he has made".*

16 According to the application, the problem to be solved is how to reduce the stress and dissatisfaction experienced by regular train travellers who find themselves frequently travelling on overcrowded trains, thus also reducing the resulting negative publicity for train operators. The invention solves this problem by determining a set of user criteria comprising their location, as determined from the location of their portable communication device, and their defined range of departure and/or arrival times. These criteria are used to identify suitable train services and a predicted occupancy level for each suitable service is produced by analysing data indicating real-time and historical train service occupancy levels. An alert is provided to the user's device when a suitable service has a predicted occupancy level within a range that they have pre-defined as being acceptable.

17 Although the application has not been searched, in their assessment of the contribution the examiner considered the acknowledged prior art document GB 2585028 A, which was filed on 25th June 2019 as GB1909098.4 and published on 30th December 2020. Document GB 2585028 A would therefore be relevant to the assessment of the novelty of the application here under section 2(3) of the Act and, following the judgment of the Patents Court in *Nokia*[5], may be taken into account when assessing the contribution. The decision in *Nokia,* although reached "tentatively" by Meade J. is nevertheless binding on me and therefore I must accept that the acknowledged prior art which does indeed fall in the 2(3) field can be considered in the assessment of the contribution.

[5] *Nokia v Oppo [2023] EHWC 23 (Pat)*

18 I would add that the prior art in question here was referred to specifically in the application in issue which was not the case in *Nokia*. It is also by the same applicant, Siemens, as the applicant in issue here and names the same inventors. The description here at page 3 notes as follows:

> UK patent application GB1909098.4 "Mechanism to determine train passenger density", G Brend & G Kyd, describes a method for forecasting how busy a train will be at a future moment in time, based on passenger numbers at the present time, and a predicted number of passengers joining the train at later stations, based on the presence of devices such as mobile phones, or based on bookings placed over internet train booking sites.
>
> The present invention relates to predicting occupancy levels on multiple selected train services, and may use the method of GB1909098.4 or any other appropriate method.

19 Hence it is clear that the inventors here at least were aware of the method of GB1909098.4.

20 The examiner in their pre-hearing report draws on specific disclosures in GB 2585028 A noting that it *"discloses that the number of passengers on a train can be calculated for future points in time (i.e. predicted), allowing for a good estimate of the future passenger number and indirectly of the available capacity on the train"*. The examiner goes on to point out that this calculation is *"based on 'real time' levels (e.g. utilising mobile devices and booking information) and historical data and/or statistical models"*.

21 The examiner considers therefore that *"the contribution does not lie in the production of real time transport service occupancy levels or the prediction of occupancy levels for a transport service itself"*, but instead *"lies in a computer implemented method which retrieves this information from a database such that users are alerted to predicted transportation service occupancy within their particular criteria"*.

22 The applicant specifies in their letter dated 13th December 2022 that the contribution resides in:

> *"Considering the problem to be solved, this is can therefore be seen as the reduction of train overcrowding, since this involves both the ability of the traveller to travel in comfort and the infrastructure to be sufficient. The invention works practically by requiring a traveller to define certain criteria, and then based on data obtained from a communications device regarding the criteria and location, consults a database containing details of historical train occupancy and real-time occupancy data. This is used to determine predicted data, which, when compared to the user criteria, enables an alert to be given to the user on the communications device, regarding whether or not there are acceptable trains available. Finally, the advantages of the invention are therefore that the problem of overcrowding is resolved on the basis of traveller preference, therefore aiding the infrastructure to cope."*

23 In response to this assertion, the examiner points out in their examination report of 20th February 2023 that *"the invention does not necessarily solve the problem of train overcrowding – as the invention merely alerts a user as to the predicted occupancy level for train services falling within their criteria"*. The examiner considers that, for

example, the user might still decide to get on an overcrowded train if they are in a rush.

24 I agree with the examiner's assertion that how real time transport occupancy levels and how future occupancy levels are predicted does not form part of the actual contribution of the claimed invention. This is because firstly those are already known in the art (as defined by *Nokia*), and secondly because the claim itself is not directed to the specifics of either of these steps. Rather the claim is directed to how that information is used.

25 I also agree with the examiner that the problem being solved by the invention is not that of train overcrowding. Although reduced overcrowding on certain train services could be a secondary effect depending on the choices made by users of the invention, I do not consider that it forms part of the contribution.

26 I consider that the contribution therefore lies in a computer-implemented method for alerting travellers to train services meeting their self-defined ranges of acceptable occupancy level and departure and/or arrival time, thus enabling the traveller to make an informed choice on which train service to take. In my view, the contribution includes determining the location of a portable communications device carried by the traveller and analysing data retrieved from a database to identify which services to alert the traveller to. I consider that the contribution can extend to increased levels of customer satisfaction.

Steps 3 and 4 – Ask whether it falls solely within the excluded matter and check whether the actual or alleged contribution is actually technical.

27 I will consider steps 3 and 4 together.

A method for doing business

28 It is perhaps useful first to consider whether the system itself on which the method is performed is new, as this could indicate that the invention does not fall solely within excluded subject matter. In *Aerotel*, Jacob LJ. considered that the invention did not fall foul of the business method exclusion, stating in paragraph 53 that:

> *"The important point to note is that the system as a whole is new. And it is new in itself, not merely because it is to be used for the business of selling phone calls. So, moving on to step two, the contribution is a new system. It is true that it could be implemented using conventional computers, but the key to it is a new physical combination of hardware. It seems to us clear that there is here more than just a method of doing business as such. That answers the third step."*

29 I consider that the system on which the method is performed includes the user's portable communications device, a remote database, and computing means for analysing data retrieved from the database and sending an alert to the portable communications device. However, these components are completely standard, and I do not believe that their combination is new.

30 Hence it is my view that a method which takes information from and about a user, along with data retrieved from a database, and processes this in order to provide the user with information to aid them in making a consumer choice falls solely within a method for doing business. The fact that the method would seem to lead to increased customer satisfaction, and possibly also less negative publicity for the train operator, further indicates to me that the invention relates to a business method.

31 Although the contribution is arguably a better method of doing business, the use of a computer to implement an improved business method does not confer patentability, as noted in the Patents Court judgment in *Halliburton Energy Services*[6] at paragraph 35:

> *"The business method cases can be tricky to analyse by just asking whether the invention has a technical effect or makes a technical contribution. The reason is that computers are self evidently technical in nature. Thus when a business method is implemented on a computer, the patentee has a rich vein of arguments to deploy in seeking to contend that his invention gives rise to a technical effect or makes a technical contribution. For example the computer is said to be a faster, more efficient computerized book keeper than before and surely, says the patentee, that is a technical effect or technical advance. And so it is, in a way, but the law has resolutely sought to hold the line at excluding such things from patents."*

A program for a computer

32 Lewison J. (as he then was) set out in *AT&T/CVON*[7] five signposts that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC*[8] the signposts were reformulated. The signposts are:

> i. Whether the claimed technical effect has a technical effect on a process which is carried on outside the computer.
>
> ii. Whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run.
>
> iii. Whether the claimed technical effect results in the computer being made to operate in a new way.
>
> iv. Whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer.
>
> v. Whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

33 It is important to stress that these signposts are just that. They are not barriers or hurdles that need to be individually or collectively overcome by the applicant. They

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[6] *Haliburton Energy Services Inc's Applications [2012] RPC 129*
[7] *AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat); [2009] FSR 19*
[8] *HTC v Apple [2013] EWCA Civ 451*

are rather a non-exhaustive list of some of the factors that can indicate in some cases whether a particular contribution may be technical.

34 Considering the first signpost, I cannot identify any effect on a process carried on outside the computer that is technical. The choice of transport service made by the traveller based on the information received does not constitute a technical effect.

35 It is also clear to me that the second, third and fourth signposts are not satisfied, as there is no effect at the level of architecture of the computing means performing the data analysis or at the level of architecture of the user's portable communications device. The computing means and portable communications device are not made to operate in a new way or to run more efficiently or effectively, either individually or in combination. I would add for completeness that I do not find anything in how the specific data on actual or predicted occupancy levels are determined presents anything new that might suggest that the system overall runs more efficiently or effectively. Indeed I found those aspects to be outside of the contribution in any event.

36 Turning to the fifth signpost, the perceived problem, namely that of how to enable travellers to make an informed choice when selecting a transport service to reduce the stress caused by overcrowding, may have been overcome. However, as this cannot be said to be a technical problem, I do not consider that the fifth signpost has been met.

37 Finally taking a step back and looking at the invention as a whole, I am satisfied that the contribution as I have identified it, does not provide a technical contribution.

Conclusion

38 Having carefully considered the arguments, I am of the view that the contribution falls solely within matter excluded under section 1(2) as a method for doing business and as a program for a computer as such. I can see nothing in the specification that could be reasonably be expected to form the basis of a valid claim. I therefore refuse this application under section 18(3).

Appeal

39 Any appeal must be lodged within 28 days after the date of this decision.

PHIL THORPE

Deputy Director, acting for the Comptroller