



## PATENTS ACT 1977

APPLICANT	Imosphere Ltd
ISSUE	Whether GB1807232.2 is excluded under Section 1(2)(c) of the Patents Act 1977
HEARING OFFICER	Peter Mason

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### DECISION

#### Introduction

- 1 Patent application GB1807232.2 was filed on 2<sup>nd</sup> May 2018 and published on 13<sup>th</sup> November 2019 as GB2573512. The application is entitled “Database and associated method”, this decision concerns whether the invention, as defined in the claims, is excluded from patentability under Section 1(2)(c) of the Patents Act 1977 (“the Act”).
- 2 A search has not been performed under Section 17(5)(b). The examiner instead issued an examination opinion objecting to the claims as relating to subject-matter excluded from patentability under Section 1(2)(c) of the Act, specifically, to a program for a computer as such. Despite a reasoned argument from the applicant, the examiner maintained the objection under Section 1(2)(c) in the subsequent examination report, dated 13<sup>th</sup> July 2022.
- 3 In that examination report, the examiner offered a hearing and set out that if a hearing was not subsequently requested the application would instead be passed to a Hearing Officer for decision on the papers on file. The applicant responded on the 29<sup>th</sup> September 2022 with amendments to the claims and supporting arguments. The examiner was not persuaded by this response and, as no request for a hearing was made, the application has come before me to make a decision based on the papers available on file.

#### The invention

- 4 The application relates to a computer-implemented method of operating a database system. It seeks to solve the problem of managing data from multiple database systems, where the databases are organised according to different data models. A data model sets out how the data is structured within the database and also defines operations, such as queries, that can be performed on the data. Organizations will typically select a data model that best fit their needs and a lack of standardisation means that it is generally not possible to manage databases built around different

models using a single database management system. Furthermore, each data model will require specific expertise to maintain and interrogate the stored data.

- 5 Two problems are identified in the description as a result of the use of multiple data models. The first relates to the actual examination of the data typically requiring expertise in computing analysis as well as tools and knowledge specific to the database type. This causes a problem when aggregating data when used, for example, for big data analytics with data from multiple source databases with differing structures.
- 6 The second problem relates to the known approaches to collating data from multiple source databases which force mapping judgements (i.e. whether two data elements from different sources should be treated as identical) early in the process, before proper analysis of the data can be undertaken.
- 7 The aim of the application is to overcome these problems by providing a single user interface to interact with multiple databases. This is achieved with the use of a staging database populated from selected data from the multiple source databases which is then used to generate a multicharacter expression database filled with unique multi-character expressions having predetermined hierarchical structures.
- 8 The invention is defined in the claims which consist of an independent method claim, with all subsequent claims dependent upon it. Claim 1, as amended, reads:

1. A computer-implemented method of operating a database system, the method comprising:

- providing access to a plurality of data sources, each data source having a structure based on a respective data model and storing a plurality of data entities having attributes and occurrences within the respective structure, wherein the plurality of data sources comprise a plurality of respective source databases, in which at least two of the plurality of source databases differ in their database management systems, each database management system defining a set of programs that enable a user to store, modify, and extract information from the respective source databases;

- receiving selected data associated with the plurality of data sources;

- generating a staging database based on the selected data;

- generating an output database corresponding to the contents of the staging database, wherein the output database is a multicharacter expression database populated with a plurality of unique, multi-character expressions, each multi-character expression having a predetermined hierarchical structure which defines a relationship between each entity, attribute and entity occurrence with every other entity, attribute and entity occurrence in the multicharacter expression database; and

- using the output database to allow a user to access data stored in the plurality of data sources without using the database management systems specific to the plurality of databases.

## The law

- 9 The examiner has raised an objection that the invention is not patentable because it relates to one or more of the categories of subject-matter which are not considered to be inventions under the Act. This 'excluded matter' is set out in Section 1(2) of the Act:

*1(2). It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of –*

*(a) a discovery, scientific theory or mathematical method;*

*(b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;*

***(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;***

*(d) the presentation of information;*

*but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such. [my emphasis]*

- 10 The Court of Appeal's judgement in Symbian<sup>1</sup> tells us that in order to determine whether an invention falls solely within the any of the exclusions listed in section 1(2), the four-step test set out in its earlier judgement in Aerotel<sup>2</sup> must be used. The four steps are:

*(1) properly construe the claim(s);*

*(2) identify the actual (or alleged) contribution;*

*(3) ask whether it falls solely within the excluded subject-matter;*

*(4) check whether the actual or alleged contribution is actually technical in nature.*

- 11 The fourth step of the test is to check whether the contribution is technical in nature. In paragraph 46 of Aerotel it is stated that applying this fourth step may not be necessary because the third step should have covered the question. I shall consider whether the contribution is excluded alongside the question of whether the contribution is technical in nature, meaning I will consider the third and fourth steps of Aerotel together.

## Argument and analysis

*Step 1 - properly construe the claim(s)*

- 12 There are no difficulties in construing the claim in light of the description.

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<sup>1</sup> Symbian Ltd. v Comptroller-General of Patents [2008] EWCA Civ 1066

<sup>2</sup> Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application [2006] EWCA Civ 1371

*Step 2 – identify the actual (or alleged) contribution*

- 13 In paragraph 43 of Aerotel/Macrossan, Jacob LJ addresses this step as:

*“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 judgement 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.”*

- 14 Jaco 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”.*

- 15 The examiner in their pre-hearing report of 1 November 2022 addresses the above questions in the discussion of the contribution in paragraphs 7-10 and finds the contribution to be:

*[The actual contribution lies] in the production of the intermediate database based on the data model, of the data sources such as the attributes and occurrences in the structure. The intermediate database then used to generate an output database.*

- 16 The applicant has not challenged, or suggested an alternative to, the contribution put forward by the examiner. However, I think it is fair to say that a key problem addressed by the invention, as reflected in the amended claims, is that the intermediate database is able to interact with a plurality of data sources operating according to different data models, and that this should be reflected in the contribution as follows:

*The production of an intermediate database based on the data model of the data sources, such as the attributes and occurrences in the structure, from multiple databases having differing data models. The intermediate database is then used to generate an output database providing a single interface to a user*

*Steps 3 & 4 – ask whether it falls solely within the excluded subject matter and check whether it is actually technical*

- 17 The application as filed includes no technical details of the hardware that the database system runs on, and so it is clear to me that the contribution is put into effect by one or more computer program(s) running on conventional data processing hardware.

18 To assist in determining whether the contribution relates solely to a program for a computer, we use the signposts to technical contribution set out in AT&T/CVON<sup>3</sup> and by the Court of Appeal in HTC v Apple<sup>4</sup>. These 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.

19 These signposts are useful guidelines only, providing a list of some of the factors that can assist in determining whether a contribution may be technical.

20 In relation to signpost (i), the effect outside the computer is perhaps best summed up in the attorney's letter dated 29<sup>th</sup> September 2022 which states "*This make the content of the source databases more accessible via interactions that are more user-friendly*". Clearly, a more user-friendly interface cannot be considered to provide the required technical effect. Therefore, signpost (i) does not assist in identifying a technical contribution.

21 It's clear to me that the invention works at the application level, being concerned with the operation of a database and therefore can not be said to operate at the level of the architecture of the computer. Therefore, signpost (ii) does not assist in identifying a technical contribution.

22 The applicant has not provided any specific arguments on file in relation to signposts (i) and (ii) and therefore I see no reason to consider them further.

23 In the attorney's letter dated 24<sup>th</sup> June 2022 particular reference is made to signposts (iii)-(v), arguing that the identified features and advantages of the invention meet these signposts and therefore point to a technical contribution as summarised in the paragraph below:

*In view of the above. We submit that the present claimed invention is motivated by technical problems, involves technical considerations in relation to database throughout and consistency, and realises technical advantages such as computer resource optimisation. The present claimed invention therefore provides a technical contribution.*

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<sup>3</sup> AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat)

<sup>4</sup> HTC Europe Co Ltd v Apple Inc [2013] EWCA Civ 451

- 24 What is required by signpost (iii) is for the computer itself to operate in a new way. It is not enough for a general purpose computer to run a new application in the conventional manner. The examiner has argued at paragraph 15 of the pre-hearing report that *“Regardless of whether the program itself is new, the operation of the computer itself remains unchanged as a consequence of the identified contribution. Thus, there is therefore no technical effect due to the host computer system/network running in a fundamentally new way”*. This is consistent with what Lewison J stated in paragraph 31 of AT&T that this signpost *“points towards some generally applicable method of operating a computer rather than a way of handling particular types of information”*. In the present application the contribution is concerned with just that – the handling of particular types of information between databases.
- 25 None of the features or advantages identified in the attorney’s letter (or indeed, throughout the description) show the underlying computer system operating in a new way. Therefore, signpost (iii) has not been met.
- 26 For signpost (iv) it is argued in the attorney’s letter that the problems identified within the description (and as referred to above) are *“inherently technical problems since they relate to the efficient exploitation of computer system”*. The applicant has referred to paragraphs 150-151 of HTC v Apple (emphasis added):

*“On reflection the fourth of these signposts may have been expressed too restrictively. In Gemstar Mann J said at [42]:*

*“It would be a relevant technical effect if the program made the computer a **better computer in the sense of running more efficiently and effectively as a computer.**”*

*I think that this is a better signpost than an improvement confined to the speed or reliability of the computer. As HHJ Birss QC pointed out in Halliburton Energy Services Inc’s Patent Application [2011] EWHC 2508 (Pat) [2012] RPC 12 at [37]:*

*“The “better computer” cases—of which Symbian is paradigm example—have always been tricky however one approaches this area. The task the program is performing is defined in such a way that everything is going on inside the computer. The task being carried out does not represent something specific and external to the computer and so in a sense there is nothing else going on than the running of a computer program. **But when the program solves a technical problem relating to the running of computers generally, one can see that there is scope for a patent. Making computers work better is not excluded by s 1(2).**”*

- 27 The applicant then refers to specific advantages within the description which can be summarised as relating to the speed of processing when accessing information from the database, simplifying the software and hardware interface, a more efficient method of collating data from multiple source databases, and a better user interface, and that therefore, signpost (iv) is met as the invention provides a better computer.
- 28 I am in agreement that the above paragraphs are relevant to the determination of signpost (iv), and that a better computer is not excluded under the Act. I also agree that the advantages are present as described. However, I do not agree that the advantages are because the computer itself is better. Rather, the advantages are provided by more efficient software. This is addressed by the examiner in paragraphs 16 to 18 of the pre-hearing report. In particular, paragraph 16 notes that:

*“While the application itself may indeed be more efficient or effective than previous database combination methods, there is no effect on how the computer itself operates beyond the normal interaction between an application program and the computer. A better piece of software merely using less of the available hardware resources does not provide a technical contribution”*

- 29 Signpost (iv) was reframed in HTC v Apple, and it reflects the essential reasoning of Symbian, As Lewison J stated in paragraph 34 of AT&T/CVON:

*“In Symbian itself, the invention was patentable because it resulted in a faster and more reliable computer. The increase in speed and reliability was not, as I understand the invention, dependent of the type of data being processed or the particular application being used to do the processing. The invention operated at a much higher level of generality within the computer.”*

- 30 As noted by the examiner, this is also stated by Lewison J in paragraph 29 (viii) of *Autonomy*<sup>5</sup>

*“The mere fact that a computer program reduces the load on the processor or makes economical use of the computer’s memory or makes more efficient use of the computer’s resources does not amount to making a better computer, and this does not take it outside the category of a computer program as such”*

- 31 In addition, several office decisions have followed the reasoning set out above, including Q Software Global Ltd’s Application BL O/120/11, JDA Software Group Inc’s Application BL O/386/12 and Xerox Corporation’s Application BL O/580/17. While these decisions are not binding upon me, I am not persuaded that the present application should be treated any different. All of the advantages listed above (and indeed throughout the application as a whole) are examples of more efficient software, rather than a better computer as such. Therefore, signpost (iv) is not met.

- 32 Signpost (v) is referred to in the attorney’s letter dated 24<sup>th</sup> June 2022 stating that the problem that has been overcome is *“Traditional methods depend upon complex mapping processes that are both time-consuming and force upfront decisions as to the relationships between similar data elements”*. While I agree that the invention does solve this problem, I do not agree that the problem itself is technical. This, as well as the other problems the invention aims to overcome, are entirely associated with the operation of computer programs, which are not considered to be technical under the Patents Act 1977. Therefore, there can be no technical character derived from solving non-technical problems. Signpost (v) is also not met.

- 33 None of the signposts point to a technical contribution. I therefore consider that the invention is excluded as a program for a computer.

- 34 For completeness. I confirm that I have also considered the dependent claims and the rest of the specification as filed. I have been unable to identify anything which would move the contribution beyond a computer program as such.

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<sup>5</sup> *Autonomy Corporation Ltd v The Comptroller General of Patents, Trade Marks & Designs* [2008] EWHC146 (Pat), [2008] RPC 16

## **Conclusion**

- 35 Having considered all of the arguments provided and all correspondence on file, I am of the view that the contribution made by the invention falls solely within the computer program exclusion.
- 36 I therefore find that the invention claimed in GB1807232.2 is excluded by Section 1(2)(c) as a program for a computer as such. I therefore refuse the application under Section 18(3).

## **Appeal**

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

Peter Mason  
Deputy Director, acting for the Comptroller