Intellectual Property Office

BL O/397/19
12 July 2019

PATENTS ACT 1977

APPLICANT	Adobe Inc.
ISSUE	Whether patent application GB1513414.1 is excluded under section 1(2)
HEARING OFFICER	H Jones

DECISION

Introduction

1 The application to which this decision relates and several others from the same applicant are all broadly concerned with the marketing activities in a digital environment. In each case the examiner is of the view that the applications relate to subject-matter excluded from patentability by virtue of section 1(2) of the Patents Act 1977 ("the Act"), more specifically as methods for doing business and programs for a computer as such. I have already issued a decision refusing three of the other applications on this basis (BL O/360/19).

2 The invention seeks to predict the effectiveness of online advertising by correlating click data and conversion data over time and generating various prediction values. The examiner reported that a search would serve no useful purpose under section 17(5)(b) and, following several rounds of correspondence and some amendments to the specification, it falls to me to reach a decision based on the papers on file as to whether the application complies with section 1(2).

3 I have dealt with the applicant's points in relation to the law in my earlier decision (paragraphs 5-10) and do not propose to repeat them here.

The invention

4 Published as GB2532829, GB1513414.1 describes methods of selecting online advertising instances based at least in part on predictions of the level of effectiveness of such instances. As amended there are independent method and system claims to the same inventive concept. Claim 1 reads as follows:

> 1. In a digital medium environment for selecting online advertising instances based on prediction of subsequent user behavior that addresses changing user interests and purchase behaviors over time, a method comprising:
>
> identifying a temporal relationship between click data and conversion data associated with a previous online advertising instance;
>
> identifying a time window based on the identified temporal relationship;

using the identified time window to determine a subset of the click data and the conversion data;

performing dynamic collective matrix factorization using the determined subset of the click data and the conversion data such that the click data and the conversion data are jointly processed to generate a first prediction of a level of effectiveness of a subsequent online advertising instance for presentation;

wherein user purchase behavior data, the user purchase behavior data using another time window, is utilized in performing dynamic collective matrix factorization for a second prediction of a level of effectiveness of a subsequent online advertising instance for presentation; and

selecting a subsequent online advertising instance for presentation based at least in part on a comparison of the first and second predictions performed by the dynamic collective matrix factorization.

5 The first step to take is to construe the claims. The examiner and the attorney say that the claims are sufficiently clear such that they see no need to elaborate this step further and for the most part I agree with them. My only concern is with the phrase "subsequent online advertising instance for presentation". The method generates a first prediction of a level of effectiveness of "**a** subsequent online advertising instance for presentation" [emphasis added] and then generates a second prediction of a level of effectiveness of "**the** subsequent online advertising instance for presentation" [emphasis added]. I take it the two predictions relate to the same subsequent online advertising instance. The method ends with selecting "**a** subsequent online advertising instance for presentation" and I am not entirely clear if this is the same online advertising instance referred to earlier or whether this is a separate online advertising instance presumably selected from a number of instances. However, I do not think that this makes any difference to the issue of patentability.

6 The next step is to identify the actual contribution. The attorney and the examiner do not agree regarding the contribution. For the attorney it can be viewed as:

> a new method for autonomously comparing a plurality of predictions from a dynamic collective matrix factorization model in order to validate the model's results, using different subsets of data (different data types / time windows) jointly processed as part of the model and reduce the computational cost associated with making a selection based on predictions.

7 The examiner, following the approach in *Aerotel*, concludes that:

> the invention addresses the problem that predicting potential revenue of future advertisements is challenging because users' interests change over time (as set out at paragraph 15 of the description and the first phrase of claim 1). The invention works by using dynamic collective matrix factorisation on click and conversion data using a first time window and user purchase behaviour data using a second time window to provide two predictions for comparison, a subsequent online advertising instance being selected based at least in part on this comparison. This has the advantage that a user's previous purchase history can be taken into account when predicting how successful a future advertisement will be.

8 There is some disagreement between the attorney and examiner over whether any validation is performed. The examiner can find no evidence that validation is performed whereas the attorney argues:

> As such, it is apparent that the present invention not only reduces the computational cost associated with generating a prediction, as the Examiner appears to agree, but **also increases the accuracy** with which subsequent online advertising instance based on predictions, thus validating the predictions made.

9 It may be the intention behind the invention that the predictions are more accurate than previous predictions, although the description also talks of reducing computational costs compared to previous methods. If the predications are indeed more accurate than previous predictions then that could implicitly validate the predictions of the method. However, I do not find that the specification supports this implication.

10 I characterise the contribution as a method of selecting a subsequent online advertising instance based at least in part on a comparison between two predictions of the level of effectiveness of a subsequent online advertising instance, the predictions employing dynamic collective matrix factorisation using a subset of click data and conversion data associated with a previous online advertising instance and also utilizing user purchase behaviour.

11 My next step is to consider whether the contribution I have identified falls solely within excluded subject-matter, either as a method for doing business as such or a program for a computer as such.

12 The attorney is of the view that the claimed invention solves “a technical problem of how to provide a technical means capable of reducing the data used in performing predictions whilst improving predictive quality”. They draw a distinction between the high level aims of an invention that may often be a business aim and the implementation of that invention, which may be technical. Their view is that in the present case a technical contribution is provided.

13 For the examiner neither the problem nor the solution are technical in this case, while agreeing that an invention having a business aim might not be excluded from patentability if the contribution is technical. As the examiner points out this was discussed by HHJ Birss QC in *Halliburton Energy Services Inc.*[1], where he said:

> *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. That means that some apparently technical effects do not always count. So a computer programmed to be a better computer is patentable (Symbian) but as Fox LJ pointed out in relation to the business method exclusion in Merrill Lynch, the fact that the method of doing business may be an improvement on previous methods is immaterial because the business method exclusion is generic.*

[1] Halliburton Energy Services Inc., [2011] EWHC 2508 (Pat)

14 I agree with the examiner that neither the problem nor the solution are technical and nor is the contribution. Ultimately the contribution lies in the selection of an online advertising instance and this is a method of doing business. That the method involves predictions and data processed in a system of processors, memory, etc. does nothing to change the situation. To be clear, if the contribution lay in the arrangement of the system then that might, possibly, be a different matter, but in this case the contribution does not lie in a system, not least since the invention is claimed, in part, as a method.

15 Having decided that the invention is excluded as a business method I need not necessarily go on to consider whether it is also excluded as a program for a computer. However, having considered the *AT&T* signposts I agree with the examiner that there is no technical effect from the claimed invention. The attorney has had little to say about the signposts save to say that the contribution falls under at least the fifth signpost.

16 The first signpost asks whether the claimed technical effect has a technical effect on a process which is carried on outside the computer. In this case I believe that the method is performed entirely within a computing system and that there is no technical effect.

17 The second signpost asks 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. This is not the case with this application - the data is specified as click data, conversion data and user purchase behaviour data.

18 For the third signpost I must consider whether the claimed technical effect results in the computer being made to operate in a new way. Here again I agree with the examiner that it does not. The computing device used for the claimed method and found in the system of the agreed contribution does not operate in a new way beyond performing the required steps. In effect, the computer runs a program or application but is otherwise unchanged by that programme or application.

19 In a similar fashion, for the fourth signpost the contribution does not make the computer a better computer in the sense of running more efficiently and effectively as a computer.

20 The attorney states that the claimed invention falls under the fifth signpost as it “solves a technical problem”. The fifth signpost asks whether the perceived problem would be overcome by the claimed invention as opposed to merely being circumvented. I have already said that I believe neither the problem nor the solution are technical in this case. Technical means may be used in the method, but there is not a technical effect from the claimed invention.

21 The final *Aerotel* step is to check whether the contribution is actually technical in nature and I think it is clear that I do not believe this to be the case. I think it should be clear by now that I do not feel that the applicant has raised substantial doubt regarding what is claimed in the current application. Consequently, it is my view that the subject-matter claimed is not patentable as it is both a method for doing business and a computer program as such.

Conclusion

22 Patent application GB1513414.1 does not comply with section 1(2) as it relates to a method for doing business and a program for a computer, these being areas of subject-matter excluded from patentability. I therefore refuse the applications under section 18(3).

Appeal

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

H JONES
Deputy Director, acting for the Comptroller