

disclosed processes and methods are said to allow forecasting with reduced data storage capacities and thus increased processing speeds.

6 Embodiments of the disclosure utilise historical sales data for several products to forecast a quantity of a particular product to be supplied to a customer such as a grocery chain during a future period. The disclosed data management technique forecasts the quantity of a Product A that is to be supplied to a store during a fiscal period. A further Product B is indexed with Product A as they are previously categorised as similar items. Store A (context parameter) and Store B (an indexed context parameter) both sell Product A and/or Product B and were previously associated with one another (partnered as context parameter and index context parameter). The specific forecasting method described uses sales history and seasonality of product A and/or B at store A and/or Store B depending on how long the products have been sold and in which stores as illustrated in the flow diagram of figure 1:

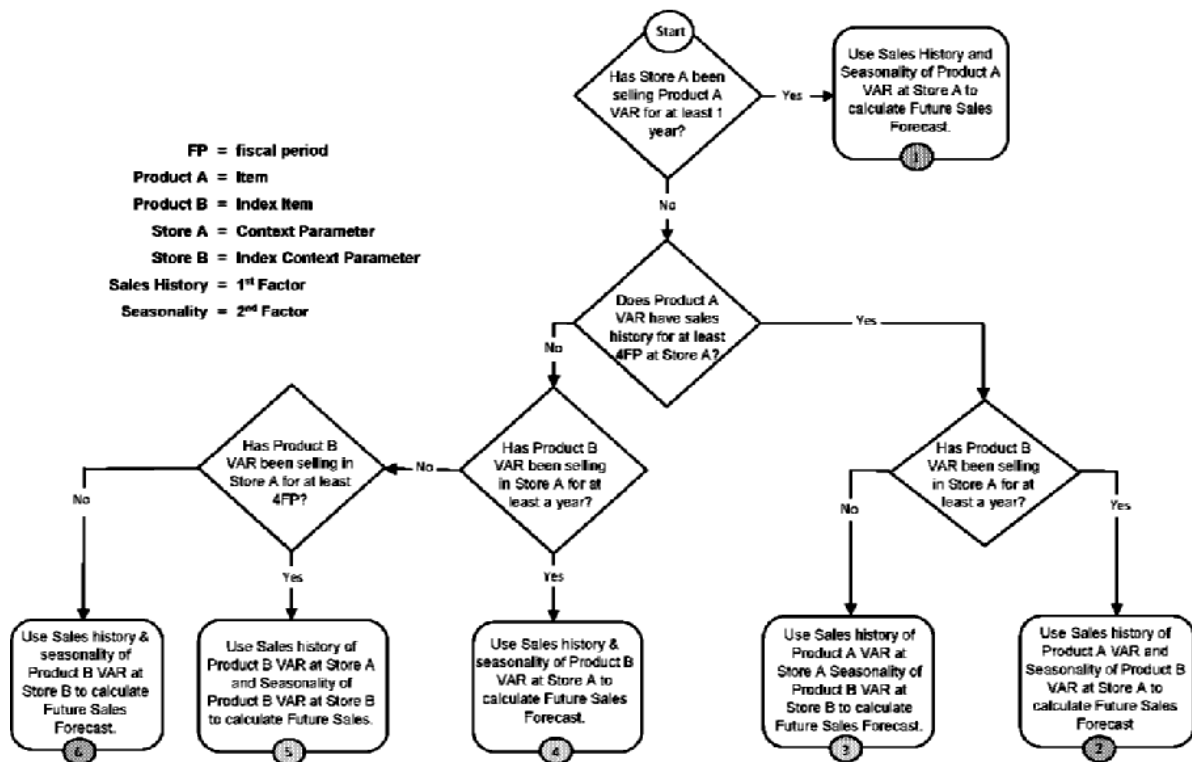


FIG. 1

7 There are references to other potential applications such as food eaten, natural gas consumed, the number of hurricanes at a particular geographic location, and automobiles in a crash.

8 The current claim set, as amended 8 November 2021, comprises two independent claims: claim 1 to a method and claim 5 to a system which are linked by the same inventive concept. They will stand or fall together. Claim 1 reads:

1. A method for improving an existing computer comprising:
 collecting historical data for a plurality of items;

*categorizing each of the plurality of items;
assigning at least one of the plurality of items as an index item for at least another of the plurality of items;
collecting data for a plurality of context parameters related to at least one of the plurality of items; and
forecasting a value for one of the plurality of items needed over a future period of time, wherein the method reduces a data storage capacity requirement for the computer and increases said computer's processing speed by using the data generated by the method as the historical data each time the method is repeated.*

The Law

- 9 The examiner objected that the invention is excluded from being patented as a program for a computer and a method for doing business. The relevant section of the Act is s.1(2), the most relevant provisions of which are shown below with my emphasis added:

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) ...;
(b) ...;
*(c) a... **method for... doing business, or a program for a computer;***
(d) ...;
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.

- 10 The Court of Appeal has said that the issue of whether an invention relates to subject matter excluded by Section 1(2) must be decided by answering the question of whether the invention reveals a technical contribution to the state of the art. The Court of Appeal in *Aerotel/Macrossan*¹ set out the following four-step approach to help decide the issue:

(1) Properly construe the claim;
(2) Identify the actual 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 operation of the approach is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is an exercise in judgment involving the problem said to be solved, how the invention works and what its advantages are; essentially, what it is the inventor has really added to human knowledge, looking at substance, not form. Paragraph 47 adds that a contribution which consists solely of excluded matter will not count as a technical contribution.
- 12 In *Symbian*² the Court of Appeal reaffirmed the *Aerotel* approach while considering a question of “technical contribution” as it related to computer programs emphasising the need to look at the practical reality of what the program achieved, and to ask whether there was something more than just a “better program”.

¹ *Aerotel Ltd v Telco Holdings Ltd & Ors* Rev 1 [2007] RPC 7

² *Symbian Ltd's Application* [2009] RPC 1

13 The case law on computer implemented inventions was further elaborated in AT&T/CVON³ which provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In HTC v Apple⁴, Lewison LJ reconsidered the fourth of these signposts and felt that it expressed too restrictively. 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.*

14 The examiner also refers to the decisions in Kapur v Comptroller-General of Patents⁵, Cappellini & Bloomberg⁶, Merrill Lynch's Application⁷, Halliburton Energy Services Inc⁸, Autonomy Corporation Ltd v Comptroller General of Patents⁹, the Hearing Officer's decisions in Touch Clarity Ltd's Application¹⁰, Q Software Global Ltd's Application¹¹ and JDA Software Group Inc's Application¹² and the EPO Guidelines for Examination.

Assessment

(1) Properly construe the claim

- 15 The examiner's analysis considers the phrases "...reducing the data storage capacity requirement for the computer..." and "...increases said computer's processing speed..." in claim 1 to be unclear despite amendment to specify that this is achieved by using the data generated by the method as the historical data each time the method is repeated. They conclude any reduction or increase is down to the forecasting method using less storage or putting less load on the processor.
- 16 In their agent's letter of 8 November 2021, the applicant says that these terms define that the processing speed of the processors is increased as opposed to the load on the processor being reduced. The examiner disagrees saying the application does not contain any features which would lead to the processor having an increased

³ AT&T Knowledge Ventures/Cvon Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat)

⁴ HTC v Apple [2013] EWCA Civ 451

⁵ Kapur v Comptroller-General of Patents [2008] EWHC 649 (Pat)

⁶ Cappellini & Bloomberg, Re [2007] EWHC 476 (Pat)

⁷ Merrill Lynch's Application [1989] RPC 561

⁸ Halliburton Energy Services Inc [2011] EWHC 2508 (Pat)

⁹ Autonomy Corporation Ltd v The Comptroller General of Patents, Trade Marks & Designs [2008] EWHC 146 (Pat), [2008] RPC 16

¹⁰ BL O/198/06

¹¹ BL O/120/11

¹² BL O/386/12

clock speed, instead concluding that any increase in processing speed is due to an increased efficiency of the program being run.

- 17 The applicant proposes in their agent's letter of 28 February 2022 that the "collecting" step must only be performed once but the examiner says that this is inconsistent with the final step of claim 1 which they say implies that each time the method is run further data is collected. The claim contains two collecting steps; it seems the applicant is referring to collection of historical data with subsequent iterations of the method using a previous forecast in place of this collecting step.
- 18 I agree with the examiner that the reduction of data storage required, and increased processing speed features are statements of desirable results made with reference to an unknown alternative. They are vague, relative and would leave the reader in considerable doubt as to the exact scope of the claim. If I find the application not to be excluded these features will need to be removed.
- 19 In general, I observe that the claims are unclear. For example, there are two steps for collecting data but none that use that data. At least some of the steps of categorising the items, assigning at least one of the items as an index and forecasting a value for one of the items would be based on the collected data. Likewise, the categorisation, assigned index and context parameters are not used as part of the forecasting in the claim. Lastly, the claim is missing essential details as it does not define how the method makes a forecast. If the application proceeds amendment will be needed to clarify how the data, categorisation, index and context parameters are related and used as part of the method.
- 20 I construe the claim as a method of forecasting a value of an item needed over a future period of time comprising: collecting historical data or previously forecast data for a plurality of items; categorising each of the plurality of items; assigning at least one of the plurality of items as an index item for at least another of the plurality of items; collecting data for a plurality of context parameters related to at least one of the plurality of items; and forecasting a value for one of the items based on the context parameter data, historical data and/or previously forecast data.

(2) Identify the contribution

- 21 The examination report of 28 May 2021 identifies the alleged contribution as:

A computer implemented method of forecasting a value for one of a plurality of items needed over a future period of time based on collected historical data and the length of the period of time over which the historical data has been collected; wherein data generated by the method is used as the historical data each time the method is repeated, resulting in a reduced data storage capacity requirement for the computer.

- 22 The applicant asserts in their agent's letter of 8 November 2021, that the alleged contribution includes the increased processing speed of the processors, but the examiner disagrees. I agree with the examiner, there is nothing in the application to suggest that processing speed of the processors is changed; it is the forecasting speed that may be increased relative to other forecasting methods.

- 23 The application identifies alleged problems with the amount of data required to be stored to make forecasts by traditional statistical forecast methods and says it discloses an intelligent and efficient filter or algorithm that maximizes the use of available data to mitigate this. However, the disclosure does not detail this filter/algorithm and it is not at all clear, as a matter of substance, how the methodology reduces a data storage requirement or by how much. It is entirely conceivable that the disclosed method uses more data than some other forecast methods and I do not regard this desirable result as part of the contribution.
- 24 The claim is cast broadly as to encompass any application of the forecasting method, but the detailed example given in this application relates to forecasting sales of products (items) in future fiscal periods based on historical sales data in stores (context parameters). Whilst there are references to other potential applications, no details of those are given to enable the invention to be performed to the full extent of the monopoly claimed. Essentially, what the inventor has really added to human knowledge, looking at substance, not form, and considering what is disclosed completely enough for the invention to be performed, is a method of forecasting the quantity of products to supply to a customer in future fiscal periods based on historical sales of products in the same category in the customer's stores or previous sales forecasts. To my mind the contribution is a computer implemented method of forecasting the quantity of a product to be supplied in a future period by collecting historical sales data or previous forecast sales data of several products, categorizing the products; assigning a product as an index for at least one other product, collecting context data related to sales of the products in particular stores and making the forecast based on the data.

(3) Ask whether it falls solely within the excluded subject matter and (4) Check whether the actual or alleged contribution is actually technical in nature

- 25 I will consider steps (3) and (4) together.
- 26 The examiner asserts that the alleged contribution falls within the scope of both a method for doing business and a program for a computer as such. The applicant disagrees.

Business method

- 27 The examiner objects that the contribution relates to a business method as predicting the value of an item is a purely business consideration and does not make any fundamental technical improvement to the underlying computer system. They say that while this may well represent a better business method, compared to previous business methods, this is immaterial. The examiner also notes that the use of a computer to implement a business method doesn't confer patentability. They draw upon the decision in Kapur to propose that if there are embodiments of a claim that fall within excluded subject matter, the fact that the claim is wide enough to encompass embodiments that are not excluded under Section 1(2) will not be sufficient to save it.
- 28 The applicant disagrees in their agent's letter of 28 February 2022, proposing that claims do not recite a business method and asserting that they are allowable,

analogous with the claims in *Symbian* and drawing upon the comments regarding better computer cases in *Halliburton Energy Services*. They also disagree with the comment about *Kapur* and from that also conclude that the contribution is not a business method.

- 29 I am not persuaded that there is an analogy between the inventions in *Symbian* and *Halliburton Energy Services* and the contribution in this application; there are significant substantial differences between the contributions and merely asserting analogy does not make it so. I agree with the examiner; that the claim is wide enough to encompass methods of forecasting values of items which might conceivably not be excluded is not sufficient to conclude the claim is not excluded.
- 30 The business method exclusion is generic. Even if the contribution can be regarded as producing a new result in the form of an improvement over previous methods of forecasting sales of a product it is still a product sales forecasting method. It is a method for doing a specific part of a business, forecasting sales.
- 31 I find the application to be excluded from being patented under Section 1(2) as a method for doing business as such. Even if I had taken a broader view of the contribution this would still encompass the described business method and the conclusion would be the same.

Computer program

- 32 There is no disagreement that the contribution is a computer program. The disagreement between the examiner and the applicant is whether that computer program makes a relevant technical contribution. The examiner proposes that it doesn't, and the applicant disagrees.
- 33 In the agent's letter of 27 July 2021, the applicant proposes that signposts ii and iii suggest that the computer program makes a relevant technical contribution. In the letter of 8 November 2021, they add that they believe the fourth signpost is also satisfied.

i. whether the claimed technical effect has a technical effect on a process which is carried on outside the computer

- 34 The examiner concludes that there is no technical effect on a process which is carried on outside the computer. This has not been contested by the applicant and I agree the first signpost is not met.

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

- 35 The applicant proposes that the effect of the claimed method is produced irrespective of the data being processed since the claimed method will work on any form of historical data. The examiner disagrees saying that while non-retail applications of the invention may exist, the contribution operates at the application level and does not address a problem at the architecture/hardware level of a

computer. They say that the data used is limited to data about an item to be forecasted and therefore the method is not independent of the data used.

- 36 The applicant's arguments are not persuasive. Any effect is only produced on the data sets used; other data and applications are not affected. The specific sales forecasting method does not operate at the level of the architecture of the computer. The second signpost does not suggest the program makes a relevant technical contribution.

iii. whether the claimed technical effect results in the computer being made to operate in a new way

- 37 The applicant says that the claimed method requires the computer to operate in a new way, as the amount of data processing and storage required each time the method is run will be reduced because the assigned categories, indexes and forecast values generated in earlier runs are used as the input data for the subsequent running of the method. The examiner disagrees saying that a computer executing the method does not operate in a new way other than the running of a new program.
- 38 Whilst this may be a new method of forecasting sales it does not result in the computer being made to operate in a new way; the third signpost does not assist the applicant.

iv. whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer

- 39 In the letter of 8 November, the applicant acknowledges that reducing the load on the processor or making economical use of a computer's memory does not amount to making a better computer but, drawing upon the claims explicit reference to increasing the computer's processing speed, assert that the load on the processor is not being reduced, but rather the processing speed of the processors is being increased. Accordingly, they say, the fourth signpost is satisfied.
- 40 The examiner disagrees proposing that the computer runs as efficiently and effectively as before, and it is only the process of forecasting the value of an item which may be said to be better. I agree, the claimed methodology may provide for a better sales forecasting program, but this is not a better computer. I can see no basis for the statements that the method increases the computer's processing speeds. The fourth signpost is not satisfied.

v. whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented

- 41 The examiner concludes that there is no technical problem that is overcome by the claimed invention as the problem instead concerns forecasting. This has not been contested by the applicant and I agree the fifth signpost is not met.
- 42 Taking a step back, what the program achieves is no more than just a program. It provides a method of making a forecast based on historical data or previous forecasts about a plurality of items, but this does not provide a relevant technical

contribution. The alleged problems are with forecasting methodologies, any effect is limited to the forecast, and it is the forecast method that is new and may be better when compared to earlier forecasting methods.

- 43 Having fully considered the applicant's arguments I am not persuaded. I find the application is also excluded from being patented under Section 1(2) as a program for a computer as such.

Conclusion

- 44 I find the application to be excluded from being patented under Section 1(2) as a method for doing business and a program for a computer as such. I therefore refuse the application under Section 18(3).

Appeal

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

J Pullen

Deputy Director, acting for the Comptroller