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**Datasheet for the decision
of 15 December 2022**

Case Number: T 1148/18 - 3.5.01

Application Number: 11854755.3

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Language of the proceedings: EN

Title of invention:

TRAVEL PROCESS PREDICTION SYSTEM AND COMPUTER PROGRAM

Applicant:

The Aqua Enterprise Company

Headword:

Travel process prediction/THE AQUA ENTERPRISE COMPANY

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - predicting travel time of transportation (no
- not technical)

Decisions cited:

T 0983/11, T 0977/17, T 0154/04, T 0641/00, T 1173/97,
T 1954/08, T 1670/07



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1148/18 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 15 December 2022

Appellant: The Aqua Enterprise Company
(Applicant) 4 Urikura
Kisarazu-shi, Chiba 292-0007 (JP)

Representative: Patentship
Patentanwaltsgesellschaft mbH
Elsenheimerstraße 65
80687 München (DE)

Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 12 December
2017 refusing European patent application No.
11854755.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman W. Chandler
Members: R. Moser
C. Schmidt

Summary of Facts and Submissions

I. This is an appeal against the examining division's decision to refuse European patent application No. 11854755.3 on the grounds that the subject-matter claimed in the main and first auxiliary request lacked an inventive step (Article 56 EPC).

The claimed "means" were deemed not to have technical character "beyond that of a notoriously known computer along with input and output devices" (point 15.2 of the decision).

II. In the statement setting out the grounds of appeal, the appellant requested that the appealed decision be set aside and a patent be granted on the basis of the refused main or auxiliary request.

III. In a communication under Rule 100(2) EPC, the Board set out its preliminary opinion that none of the requests involved an inventive step.

In essence, it considered that predicting travel time/ providing travel advice were not technical activities. Their claimed implementation on a known computer system was obvious.

IV. In a reply, the appellant *inter alia* argued that the claimed system was different from a conventional computer as it provided more accurate/reliable prediction results.

V. The Board issued a summons to oral proceedings. In the communication accompanying the summons under Article 15(1) RPBA, the Board upheld its provisional opinion

that none of the requests was inventive.

- VI. In a further reply, the appellant submitted arguments in favour of inventive step. These were *inter alia* that the application had been granted in key patent offices, that the technical problem was to create an improved computer system and that the claimed means, apart from being implemented on a computer, provided a further technical effect.

Additionally, the appellant requested the opportunity to amend the claims "from scratch" or to remit the case to the first instance as the examining division had only provided "abstract opinions" not enabling the claims to be limited appropriately.

- VII. Oral proceedings were held as a videoconference on 15 December 2022. The appellant's final requests were that the appealed decision be set aside and a patent be granted on the basis of the refused main or auxiliary request. At the end of the oral proceedings the Chairman announced the Board's decision.

- VIII. Claim 1 of the main request reads:

"A travel process prediction system predicting a travel process of a travel object traveling with transportation repeatedly operated at specific time, characterized by comprising:

a means (2) for specifying passage time at which a travel object actually passes through each of a plurality of passage points at a departure/arrival facility of transportation;

a means (2) for acquiring transportation specifying

information which specifies transportation used by the travel object; and

a travel process prediction apparatus (1) predicting a travel process of a travel object under a specific condition,

wherein the travel process prediction apparatus (1) includes:

a storage means (14) for storing explanatory data comprising an explanatory text, where the explanatory text which explains a calculation result of a statistical calculation by a means (11) is associated in advance with a feature of information used in the statistical calculation and a result of the statistical calculation, and for storing passage time specified at each passage point and the acquired transportation specifying information in an associated manner for each of a plurality of travel objects;

a means (16) for accepting a plurality of pieces of transportation specifying information which specifies a plurality of pieces of transportation which is candidates to be used by an arbitrary travel object;

a means (16) for accepting a request for comparing passage time at which the travel object passes through a specific passage point when the travel object uses each of the plurality of pieces of transportation;

a means (11) for extracting, from the storage means (14), for each of the plurality of pieces of transportation specifying information, a plurality of pieces of passage time concerning the specific passage point, associated with transportation specifying

information having a same content as the accepted transportation specifying information;

a means (11) for calculating, for each of the plurality of pieces of transportation specifying information, a mean or variance of the extracted passage time;

a means (11) for statistically testing a difference in the mean or variance of the passage time calculated for each of the plurality of pieces of transportation specifying information;

a means (11) for extracting the explanatory text from the explanatory data in accordance with the feature of information used in the statistical calculation and the result of the statistical calculation; and

a means (16) for outputting a test result and the explanatory text."

IX. In claim 1 of the first auxiliary request the features relating to the explanatory data/text, namely the first clause of the storage means feature and the entire penultimate feature, have been deleted, and the following features have been added:

"a means (11) for determining whether the extracted plurality of pieces of the passage time is an upper limit number or more or not, where the upper limit number is sufficient for the number of pieces of passage time to be assumed as a size of population;

a means (11) for extracting the upper-limit number of pieces of passage time with later-obtained information from the extracted number of pieces of passage time if the extracted number of pieces of passage time is the

upper limit number or more".

- X. During oral proceedings the appellant essentially argued as follows:

The claimed system comprised - as shown in Figure 1 - several servers, a database, check machines and a communication network. This system enabled a complex statistical processing (see Figure 16). It provided an accurate prediction to the user (see explanatory text in Figure 19), reduced the travel time and was not known from D1 (US 2007/0222595 A1).

The inventive system not only made a prediction, but was a self-learning/improving system. The explanatory data was stored in a database and re-used for future predictions, thus, providing a feedback loop. At the priority date of the application it was not usual to store this data and apply statistics to predict a future passage/elapsed time (see paragraphs [0030], [0031], [0061] and Figure 10 of the published application).

The claimed data collection and statistical processing improved the whole system (including the hardware). This could not be considered an administrative scheme.

In the auxiliary request, the number of variables was reduced to those useful for prediction, thus, enabling statistical analysis with less processing power. Also, by using more recent information, depending on the kind of data, a better prediction could be achieved.

Reasons for the Decision

The invention

1. The invention concerns a system for predicting travel time ("travel process") of a passenger or baggage ("travel object") using e.g. scheduled flights ("transportation repeatedly operated at specific time") (see preamble of claim 1 and paragraphs [0004] and [0005] of the published application).

More particularly, the claims concern a comparative prediction of the passage time ("a request for comparing passage time at which the travel object passes through a specific passage point when the travel object uses each of the plurality of pieces of transportation" - means for accepting feature in claim 1). As shown in Figure 15, a user provides information about flight A and flight B in order to compare them.

According to paragraph [0062] the comparison is based on the statistical analysis of previous travellers' data associated with the two different flights. This data includes the points in time on which travellers pass through various checkpoints at the airport ("passage time" - first means feature of the claim) and corresponding flight information ("transportation specifying information" - second means feature) - see Figure 8.

The system calculates a mean/variance of a passage time (calculating feature), e.g. the exit time at the arrival airport, and performs a statistical test (testing feature). Based on the test result the user receives an advice ("explanatory data" - storage means and extracting features), for example "Make travel plan

with sufficient time to spare" (see Figure 19, "ADVICE T").

Main request, inventive step (Article 56 EPC)

2. The wording of claim 1 is very general and, thus, admits a broad interpretation.

For example, in the first feature, "specifying a passage time" could mean that an operator inputs this data manually (see paragraph [0030]), which is probably the ordinary meaning of "specifying", whereas the appellant considers it to be automatic "measuring" using a check machine. Similarly, the term "acquiring" in the second feature covers manually and automatically inputting flight data.

Furthermore, it is meaningless to compare the mean of the "passage times", which are absolute time points for different flights, for example an exit time at the arrival airport. However, for the sake of argument, the Board accepts the appellant's interpretation that it means comparing an elapsed (relative) time between passage points, for example the time between leaving the airplane and exiting the airport.

3. The Board judges that, regardless of the above, claim 1, in technical terms, defines a general purpose computer system which runs a software for implementing a non-technical concept, namely predicting a travel process or, more specifically, a travel time such as a duration of stay in an airport.

In light of the description the travel time depends on a number of (possibly interrelated) factors, for example airline schedules, passenger volume, weather

conditions, entry formalities or customs/security handling. These factors are either of an administrative nature or a matter of logistics planning. They are, however, not based on technical considerations, for example regarding the operation of a technical system in the airport.

To identify the relevant factors and come up with a statistical prediction model might involve a great deal of ingenuity and be far from trivial. This, however, pertains to the field of statistics applied to logistics planning which is not a field of technology as required by Article 52(1) EPC.

In the Board's view predicting a travel time based on historical data is conceptually similar to predicting arrival dates for delivery of mail based on previous delivery times (see T 0983/11 - *Coordinated marketing/PITNEY BOWES*, reasons, point 2.4) or predicting future purchases based on previous ones (see T 0977/17 - *Storing electronic receipts/OTTO GROUP SOLUTION PROVIDER*, reasons, point 2.2).

These are all activities excluded *per se* from patentability under Article 52(2) (a) and/or (c) and (3) EPC (cf. also T 154/04 - *Estimating sales activity/DUNS LICENSING ASSOCIATES*, reasons, points 19 and 20).

4. Claim 1 differs from a general purpose computer system merely in the functions provided by the claimed means.

These functions essentially define the various aspects of statistics involved in predicting the travel time, i.e. data collection, organisation/storage, analysis, interpretation and presentation.

Specifically, they include:

- collecting ("specifying", "acquiring") and "storing" logistics (passage time, transportation specifying information) and statistical data (explanatory data comprising an explanatory text);
- receiving ("accepting") user input (i.e. flight information and a specific passage point) to perform a comparative analysis;
- retrieving ("extracting") historical data for the given user input and performing statistical calculations ("calculating", "statistically testing");
- providing ("extracting", "outputting") the results of the calculations and an explanation of the statistics.

First, these steps relate to mental or mathematical activities and are normally part of any statistical data analysis. It is a person skilled in the application of statistical mathematics to logistics planning, not a technically skilled person, that performs this kind of statistical analysis. Mathematical/statistical methods as such do not have technical character (Article 52(2)(a) and 52(3) EPC), and cannot contribute to inventive step.

Second, the output of the analysis is not used for a technical purpose. It merely supports the user in creating a (possibly more accurate) travel schedule - see paragraph [0130] of the application.

5. Under the COMVIK approach (see T 641/00 - *Two identities/COMVIK*) the above functions are, as they are part of the non-technical requirements specification,

given to the skilled person within the framework of the objective technical problem to be solved.

The Board, therefore, considers that the skilled person, a computer programmer, faces the objective technical problem of implementing them in a general purpose computer system.

The computer implementation is obvious because it merely claims "means" for performing the various functions without any technical details.

6. In the written procedure the appellant relied heavily on arguments concerning features not in the claim, for example regarding the operation and (error) processing of check machines.

The Board notes that the claims define the matter for which protection is sought (Article 84 EPC). Hence, they must be examined for compliance with the provisions of the EPC. In particular, technical features not present in the claims cannot support an inventive step argument and, thus, are not relevant for discussing inventive step.

7. The Board, however, agrees with the appellant that Figure 1 indeed shows a hardware architecture going beyond a general purpose computer system, but this is not reflected in the claim.

As mentioned above, the claimed "means" neither refer to specific hardware means (e.g. readers, servers, etc.) nor to a specific hardware/software configuration that could provide a further technical effect (cf. T 1173/97 - *Computer program product/IBM*, Headnote), e.g. by allocating functions to different system

components.

The claim merely provides a functional definition of "means" and, thus, is not limited to any particular technical features. In other words, the means may be realised by simply programming the corresponding functions on a computer.

8. The statistical calculations might, as argued by the appellant, provide accurate/reliable prediction results. This is, however, an inherent property of the calculations themselves and not a result of a particular implementation or the underlying technical system.
9. In the Board's view the prediction of a travel time is not a technical activity - see point 3 above. Hence, a more accurate or faster prediction, in the sense of an enhanced speed of the prediction algorithm, can not be considered technical either (see T 1954/08 - *Marketing simulation/SAP*, reasons, point 6.2).

Also, any results thereof, e.g. a more accurate travel schedule, are not technical as the prediction does not affect a technical system involved in, and thus impacting on, the (physical) travel process.

For the same reason also the appellant's argument that using a large amount of (measurement) data and applying complex statistical calculations were not usual at the priority date of the application fails. These are, as outlined above, non-technical activities and can be included in the problem specification. Thus, for assessing inventive step it is irrelevant whether or not they were known in the prior art.

10. The appellant argued that storing explanatory data/text would provide a feedback or self-learning system enabling more accurate/reliable future predictions.

The Board cannot see that the explanatory data (see Figure 18) is in any way related to a feedback/learning loop for controlling a technical system. The purpose of the explanatory text is to explain to the layperson the results of statistics - see Figure 19. Such explanation neither represents technical data nor supports the user in performing a technical task. Thus, it cannot produce a technical effect (see T 1670/07 - *Shopping with mobile device/NOKIA*, reasons, point 13).

11. For the reasons given, the Board judges that claim 1 of the main request lacks an inventive step over a general purpose computer system (Article 56 EPC).

Auxiliary request, inventive step (Article 56 EPC)

12. The added features concern the determination of whether the amount of passage time data exceeds an "upper limit number" and, if so, to use "later-obtained information" (an upper limit amount of more recent passage time data) for the statistical analysis (see paragraph [0074]).

13. The Board has no doubts that a proper data selection has an impact on and is important for prediction accuracy. For example, data from a previous summer season is likely to predict better a travel time in summer than data from a winter season.

This is, however, neither technical nor surprising. The Board is not convinced that the above feature, as argued by the appellant, reduces the number of input

variables to those "useful" for prediction. Even if it did, the fact that less data requires less processing power would be an inevitable bonus effect resulting from the statistical calculations and, thus, not support an inventive step.

14. Therefore, the Board judges that claim 1 of the auxiliary request does not involve an inventive step (Article 56 EPC).

Final remarks

15. The fact that the application has been granted in other key patent offices does not provide any indication as to whether the requirements of the EPC are met.
16. Also, as noted earlier, the claim is drafted in very broad terms leaving out the technical details. It has not been amended on appeal.

The appellant can, therefore, neither expect the Board to discuss these details nor, at this late stage of the proceedings, to give indications as to which details - if any - might lead to a patentable claim.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



T. Buschek

W. Chandler

Decision electronically authenticated