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Datasheet for the decision of 6 April 2020

Case Number: T 1159/15 - 3.4.03

Application Number: 10007106.7

Publication Number: 2273431

IPC: G06Q10/00

Language of the proceedings: EN

Title of invention:
Model determination system

Applicant:
Accenture Global Services Limited

Headword:

Relevant legal provisions:
EPC Art. 52(2)(c), 52(3), 56, 111(1)
RPBA 2020 Art. 11, 12(2)

Keyword:
Mixture of technical and non-technical features
Features - technical (yes) - notorious (no)
Prior art search should have been carried out
Remittal to the department of first instance - special reasons for remitting the case (yes)

Decisions cited:
T 0425/03, T 1194/97

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

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 1159/15 - 3.4.03

D E C I S I O N
of Technical Board of Appeal 3.4.03
of 6 April 2020

Appellant: (Applicant)	Accenture Global Services Limited 3 Grand Canal Plaza Grand Canal Street Upper Dublin 4 (IE)
Representative:	Müller-Boré & Partner Patentanwälte PartG mbB Friedenheimer Brücke 21 80639 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 31 March 2015 refusing European patent application No. 10007106.7 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	T. Häusser
Members:	M. Papastefanou
	C. Heath

Summary of Facts and Submissions

I. The appeal concerns the decision of the examining division refusing the European patent application No. 10 007 106.7 on the ground that claim 1 of the sole request before it did non involve an inventive step within the meaning of Article 56 EPC.

II. The appellant (applicant) requested that the decision under appeal be set aside and that a patent be granted based on claims 1-10, which were filed with the statement of the grounds of appeal.

III. In its preliminary opinion issued subsequently to the summons to oral proceedings, the board indicated its intention to remit the case to the examining division for further prosecution. Thereafter, the appellant withdrew its request for oral proceedings, which were therefore cancelled.

IV. Claim 1 of the sole request on file is worded as follows:

A system configured to determine a final model operable to be used to forecast information for an objective, the system comprising:
a variable determination module (201) determining at least one variable operable to be used for the final model and determining a modification to the at least one variable;
an assumption determination module (202) determining an assumption operable to be used for the final model, wherein the assumption includes a transformation for the at least one variable describing how the at least one variable impacts the objective or how the at least

one variable impacts another variable operable to be used in the final model, and the assumption module determines a modification to the assumption;
a model generator (203) generating a candidate model using the at least one variable and the assumption, and generating a new candidate model using at least one of the modified assumption, the new variable and the modification to the at least one variable; and
a model evaluation module (204), executable by a computer, and determining a statistical measure and an indication of relevance for the at least one variable in each of the candidate model and the new candidate model, wherein one of the candidate model and the new candidate model is operable to be selected as the final model based on at least one of the statistical measure and the indication of relevance for the at least one variable in each of the candidate model and the new candidate model;
wherein the at least one variable comprises a multidimensional variable, and each dimension includes a plurality of levels, and the variable determination module identifies the dimension and a level of the plurality of levels for the at least one variable, and wherein each dimension is organized in a hierarchy; the system further comprising:
a multidimensional data storage system storing information for models generated by the model generator, including the candidate model, the new candidate model and the final model, wherein the multidimensional storage system uses a meta data layer (401) and a data layer (402) to store the information, the meta data layer (401) storing a relationship between the at least one variable and the objective, an indication of the at least one variable, the dimension and the level for the at least one variable, and the assumptions for each of the candidate model, the new

candidate model and the final model; and
the data layer (402) including data for the at least one variable in each of the candidate model, the new candidate model and the final model;
wherein the meta data layer (401) stores aggregation rules for the at least one variable, and the storage system is configured to perform multidimensional queries using the aggregation rules stored in the meta data layer (401); and
wherein the data layer (402) includes data that is at the lowest level of each dimension, wherein the aggregation rules determine how to aggregate up from a lower level in a hierarchical dimension to higher levels in the dimension and what transformations to apply for each level.

V. Independent claim 6 has the following wording:

A method of determining a final model operable to be used to forecast information for an objective, the method comprising:
determining (502) at least one variable operable to be used for the final model;
determining (503) an assumption operable to be used for the final model, wherein the assumption includes a transformation for the at least one variable describing how the at least one variable impacts the objective or how the at least one variable impacts another variable operable to be used in the final model;
determining a modification to at least one of the at least one variable and the assumption;
generating a candidate model using the at least one variable and the assumption;
generating a new candidate model using the modification; and
determining, by a computer, a statistical measure and

an indication of relevance for the at least one variable in each of the candidate model and the new candidate model, wherein one of the candidate model and the new candidate model is operable to be selected as the final model based on at least one of the statistical measure and the indication of relevance for the at least one variable in each of the candidate model and the new candidate model;
wherein the variable comprises a multidimensional variable, each dimension includes a plurality of levels, and wherein each dimension is organized in a hierarchy, the method further comprising:
for the at least one variable in each of the candidate model, the new candidate model and the final model, storing a relationship between the at least one variable and the objective, an indication of the at least one variable, the dimension and the level for the at least one variable, and the assumption for each of the candidate model, the new candidate model and the final model in a meta data layer (401) of a data model;

storing data for the at least one variable in each of the candidate model, the new candidate model and the final model in a data layer (402) in the model;
storing aggregation rules for the at least one variable in the meta data layer (401); and
performing a multidimensional query using the aggregation rules stored in the meta data layer (401);
wherein the data layer (402) includes data that is at the lowest level of each dimension, wherein the aggregation rules determine how to aggregate from a lower level in a hierarchical dimension up to higher levels in the dimension and what transformations to apply for each level.

VI. Independent claim 10 is worded as follows:

A computer readable storage device storing a computer program, when executed by a computer, performs a method according to any one of claims 6 to 9.

VII. The appellant's main argument was that the subject-matter of the claims comprised non-notorious technical features and therefore a prior art search should have been carried out by the examining division.

Reasons for the Decision

1. The claimed invention

The claimed invention relates to a system and a method for determining a model operable to be used to forecast information for an objective.

In essence, the claimed invention relates to creating mathematical models based on stored information, variables and assumptions (conditions). The variables and assumptions are modified and several candidate models are generated and evaluated. Based on these evaluations, one of these candidate models is selected as the final model and is used for forecasting purposes.

As an example, models related to sales of a product are described. Based on various variables (e. g. price, geographical distribution, advertisement cost) and assumptions (e. g. higher prices decrease sales or increased advertisement costs increase sales) models attempting to estimate future sales are generated and

used in order to create a business plan (see paragraphs [0017] to [0027] of the published application).

2. The decision under appeal

2.1 The impugned decision is a so-called "decision according to the state of the file" (see *Guidelines for Examination in the EPO*, November 2019, C-V, 15) issued at the request of the applicant (appellant). In the decision, the examining division made reference to its communication of 10 September 2014, in which objections against all claims on file were raised and the applicant was informed that a refusal of the application was to be expected.

2.2 The examining division considered that claim 1 comprised technical and non-technical features. The only technical feature of the claim was a general purpose computer as implied by the feature *"a model evaluation module (204) executable by a computer..."*. All the remaining features of the claim related to a business method as such. According to the examining division, such a general purpose computer was so well-known before the priority date of the application that it did not require written evidence. There was no apparent technical interaction between the features defining the business method (non-technical features) and the technical features (the general purpose computer) beyond the (implied) normal functions of a computer executing the business method. Hence, the business method would be given to the skilled person as a non-technical aim for implementation. The skilled person would implement this business method in the notoriously known general purpose computer in an obvious manner only using common general knowledge. The subject-matter of claim 1 was therefore not inventive.

The same applied also to claim 6, which defined a method performed by the system of claim 1 and to independent claim 10, which defined a computer readable storage device having stored thereon the method of claim 6 (see points 3.1 to 3.3 of the examining division's communication of 10 September 2014).

2.3 No prior art search was carried out during the first instance procedure.

The European search report included a declaration that "*[t]he only identifiable technical aspects of the claimed invention relate to the use of conventional, general-purpose data processing technology for processing data of an inherently non-technical nature. The information technology employed is considered to have been generally known as it was widely to [sic] available to everyone at the date of filing/priority of the present application. The notoriety of such prior art cannot reasonably be contested. No documentary evidence was therefore considered required*".

No prior art documents were cited during the examination procedure, either.

3. The appellant contested the opinion of the examining division that all the features of claim 1 besides the implied general purpose computer were part of a business method as such, i. e. that they were non-technical features.

3.1 According to the appellant, the following features of claim 1 were at least partially technical:

"a multidimensional data storage system storing

information for models generated by the model generator, including the candidate model, the new candidate model and the final model, wherein the multidimensional storage system uses a meta data layer (401) and a data layer (402) to store the information, ...
wherein the metadata layer (401) stores aggregation rules for the at least one variable, and the storage system is configured to perform multidimensional queries using the aggregation rules stored in the meta data layer (401); and
wherein the data layer (402) includes data that is at the lowest level of each dimension, wherein the aggregation rules determine how to aggregate up from a lower level in a hierarchical dimension to higher levels in the dimension and what transformation to apply for each level".

3.2 The appellant argued that these features defined a particular way of storing data in the data storage of the claimed system which was not the "notorious" way data would be stored in a general purpose computer. Hence, these features were not notorious and, at least for this reason, a prior art search should have been carried out.

3.3 The appellant further argued that these features provided for technical effects which were not obvious to the skilled person starting from a general purpose computer as closest prior art, namely the use of less storage space and a faster response to queries. They rendered thus the subject-matter of claim 1 new and inventive (see point III starting on page 2 of the statement of the grounds of appeal).

4. The cited features of claim 1 define a data storage system (memory), which is part of the claimed system.

4.1 The defined data storage is multidimensional and comprises a meta data layer and a data layer to store the information. Variables are stored in the data layer. These variables have dimensions (attributes) organised in a hierarchy. The hierarchy may include sub-attributes or levels for each dimension. For example, one dimension may be geography and the levels in the hierarchy may be country, region, city and zip code (see paragraph [0015] of the application).

The meta data layer stores, among others, aggregation rules for the stored data. The aggregation rules describe how to aggregate up from a lower level in a hierarchy to a higher level and what transformation to apply for each level (see column 9, lines 14 to 25 of the application as published).

This configuration enables the system to respond to multidimensional queries across different levels in the hierarchies (see paragraph [0039] of the application).

4.2 Moreover, as defined in claim 1, the data storage system stores data at the lowest level of each dimension and uses the aggregation rules to determine how data are to be aggregated up to hierarchically higher levels in the dimension (see also column 9, lines 25 to 33 and paragraph [0058] of the application).

5. In the board's view, the defined data storage contains two types of data. Firstly, data encoding cognitive content, such as information related to variables, assumptions etc. These data are used in the generation

of the models. Secondly, the aggregation rules, which are not related to any cognitive content but are instructions related to the operation of the system when responding to queries. These data could thus be characterised as "functional data" (see also T 1194/97, OJ EPO 2000, 575, Headnote II and Reasons 3.3 to 3.5; T 425/03, Reasons 6.2 and 6.3).

5.1 The features of claim 1 identified above define thus a particular multidimensional data structure with a hierarchy of levels for each dimension, in which data are stored at the lowest level of each dimension. Moreover, the data structure stores instructions on how the stored data are to be aggregated up to higher levels of each dimension (see also paragraphs [0042] and [0043] of the application).

In the board's view, these features provide for a technical effect that goes beyond the "normal interactions" within a computer executing a business method, because they define a particular way in which data are stored, retrieved and processed, which affects the storage space used and the speed of processing.

This would be a "further technical effect" so that these features are to be regarded as technical features and not as part of the non-technical (business) features of the claim.

5.2 The board points out that the assessment of the technical effect(s) obtained by the identified technical features, i. e. whether there is less storage space used or the query processing speed is higher, involves a comparison with the state of art and belongs, hence, to the discussion about inventive step. It is established case law and practice that assessment

of the technical character of the claimed-subject matter is to be carried out without any consideration of the state of the art.

6. It follows from the above that in the assessment of inventive step of the claimed subject-matter, the identified technical features should not be included in the non-technical aim that is given to the skilled person for implementation.

6.1 Moreover, the board is also of the opinion that these technical features define a particular way of storing, retrieving and processing data, which does not fall under the generic definition of a general purpose computer with the corresponding data storage. In the board's view these features cannot be considered as being notoriously well-known technical features for which no documentary prior art evidence is necessary.

6.2 The same is also valid for independent claim 6, which comprises the corresponding features and claim 10, which makes reference to the method of claim 6.

7. Remittal to the examining division

7.1 According to established case law, since the claims comprise at least one feature that is not notoriously well-known, a prior art search should have been carried out before refusing the application for lack of inventive step (see *Case Law of the Boards of Appeal of the EPO*, 9th Edition, July 2019, IV.B.4.1.3 a)).

The board does not see any reason to deviate from this established case law.

7.2 Under Article Article 111(1) EPC, the board may in the present case either carry out a prior art search and proceed to the assessment of the claimed subject-matter with respect to the state of the art, and potentially to the remaining requirements of the EPC, or remit the case to the examining division for further prosecution.

7.3 The present appeal was pending on 1 January 2020 and therefore the revised version of the Rules of Procedure of the Boards of Appeal applies ("RPBA 2020", OJ EPO, 2019, A63), subject to the transitional provisions set out in Article 25 RPBA 2020.

In particular, Article 11 RPBA 2020 is applicable. According to this article, the board shall not remit a case to the department whose decision was appealed for further prosecution unless special reasons present themselves for doing so.

7.4 The board is of the opinion that such special reasons subsist in the present case.

Since a prior art search is deemed necessary and the outcome of such a prior art search cannot be anticipated in advance, the assessment of the claimed subject-matter with respect to inventive step (and the other requirements of the EPC) has to be carried out anew. This constitutes in essence a fresh case going beyond the issues discussed in the decision under appeal.

As stated in Article 12(2) RPBA 2020, the primary object of the appeal proceedings is to review the decision under appeal in a judicial manner. This principle would not be respected if the board were not to remit the case and conduct itself a complete

examination of the application.

7.5 Under these circumstances, the board holds that it is appropriate to remit the case to the examining division for further prosecution, including carrying out a prior art search (Article 111(1) EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution, including carrying out a prior art search.

The Registrar: The Chairman:

S. Sánchez Chiquero T. Häusser

Decision electronically authenticated