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Datasheet for the decision of 16 May 2025

Case Number: T 1717/22 - 3.5.01

Application Number: 17871031.5

Publication Number: 3542325

IPC: G06Q50/02, G06Q10/06

Language of the proceedings: EN

Title of invention:
IDENTIFYING MANAGEMENT ZONES IN AGRICULTURAL FIELDS AND GENERATING PLANTING PLANS FOR THE ZONES

Applicant:
Climate LLC

Headword:
Management zones in agricultural fields/CLIMATE LLC

Relevant legal provisions:
EPC Art. 56, 123(2)
RPBA 2020 Art. 13(2)

Keyword:
Inventive step - determining management zone delineation options and planting plans for an agricultural field (no - not technical)
Amendment after summons - taken into account (no)

Decisions cited:
G 0001/19, T 0154/04, T 0677/09, T 0550/14, T 2626/18

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Case Number: T 1717/22 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 16 May 2025

Appellant: (Applicant)	Climate LLC 4 City Place, Suite 100 St. Louis, Missouri 63141 (US)
Representative:	BIP Patents c/o Bayer Intellectual Property GmbH Alfred-Nobel-Straße 50 40789 Monheim am Rhein (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 24 February 2022 refusing European patent application No. 17871031.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	M. Höhn
Members:	I. Kürten
	L. Basterreix

Summary of Facts and Submissions

I. The appeal is against the decision of the examining division to refuse European patent application No. 17871031.5 for lack of inventive step (Article 56 EPC) over, *inter alia*, D1 (US 6058351 A).

II. In the statement setting out the grounds of appeal, the appellant requested that the decision to refuse the application be set aside and a patent be granted or the case be remitted to the examining division on the basis of the refused request, namely, claims 1 to 20 filed under cover of a letter dated 31 January 2022.

III. In a communication accompanying the summons to oral proceedings, the Board tended to agree with the examining division that claim 1 lacked an inventive step. The Board cited the following document as evidence of the skilled person's common general knowledge of clustering algorithms at the application's priority date:

D7: Wikipedia, "Category: Data clustering algorithms", snapshot from 12 September 2016.

IV. By letter dated 8 May 2025, the appellant filed a new set of claims along with accompanying arguments and informed the Board that it would not attend the oral proceedings.

V. In a communication dated 9 May 2025, the Board requested that the appellant clarify the status of the newly filed claims. It also indicated that, in the absence of a response, the refused set of claims would

be treated as the appellant's main request, and the set of claims filed on 8 May 2025 as an auxiliary request.

VI. The appellant did not reply to the Board's communication.

VII. The oral proceedings took place as scheduled on 16 May 2025 in the appellant's absence. At the end of the oral proceedings, the chairman announced the Board's decision.

VIII. Claim 1 of the main request reads as follows:

A method comprising:

using instructions programmed in a computer system comprising one or more processors and computer memory:

receiving yield data representing yields of crops that have been harvested from an agricultural field, and field characteristics data representing one or more characteristics of the agricultural field;

using the instructions programmed in the computer system, determining a plurality of management zone delineation options, wherein each option, of the plurality of management zone delineation options, comprises zone layout digital data for an option, wherein the plurality of management delineation options is determined by: determining a plurality of count values for a management class count; for each count value, of the plurality of count values, generating a management delineation option by clustering, using a count value of the plurality of count values, the yield data and the field characteristics data, assigning zones to clusters, and including the management zone

delineation option in the plurality of management delineation options;

using the instructions programmed in the computer system, receiving one or more selection criteria; and based on, at least in part, the one or more selection criteria, selecting one or more options from the plurality of management zone delineation options, and determining one or more planting plans for each of the one or more options;

using a presentation layer of the computer system, generating and causing displaying on a computing device a graphical representation of the one or more options of the plurality of management zone delineation options and a graphical representation of the one or more planting plans associated with the one or more options;

using one or more options of the plurality of management zone delineation options and one or more planting plans to control agricultural equipment to be directed to follow the recommended planting plans in terms of seeding, irrigating, applying fertilizers, and/or harvesting.

IX. Claim 1 of the auxiliary request replaces the last feature of claim 1 of the main request with the following:

"using an application controller programmed or configured to receive a script based on the plurality of management zone delineation options and planting plans control an operating parameter of a vehicle to be directed to follow the recommended planting plans in terms of seeding, irrigating, applying fertilizers, and/or harvesting,

wherein an optimal number of management zones is created in a management zone delineation process performed on different values of the management class count by in a first step determining a first count value for a management class count of a plurality of management classes, in a second step generating the first set of management zones by a K-means clustering or hierarchical region-based segmentation for the region merging approach, in a third step performing a test to determine whether a count of management classes is to be changed, in a fourth step determining whether a small zone is next to a large zone, and in a fifth step merging the small zone with the large zone, and in a sixth step storing the resulting set of management zones."

Reasons for the Decision

1. *The invention*

1.1 The invention aims at improving agricultural field management through data-driven techniques (see paragraph [0002] of the published application).

The main idea is to divide an agricultural field into contiguous regions with similar characteristics, known as "management zones", and to provide tailored farming recommendations ("planting plans" in claim 1) for each zone (see, e.g. [0004], [0005]).

1.2 Concretely, the computer-implemented method in claim 1 determines multiple "management zone delineation options" that represent different ways of dividing the

field into management zones. Each option is obtained by clustering yield and field characteristic data (e.g. soil and topology characteristics, [0130]) using a "count value" for "a management class count". The claim does not define the count values or their role in the clustering, but the description vaguely suggests that each count value defines the number of clusters ([0192]).

After determining the management zone delineation options, the method proceeds to provide one or more planting plans for selected options (see Figures 13 and 14 and paragraphs [0240] to [0251] for examples). The management zone options and planting plans are presented to the user and are used to control seeding, irrigation, fertilisation or harvesting equipment.

2. *Main request - inventive step (Article 56 EPC)*

2.1 The examining division held that claim 1 comprised both technical and non-technical features. The technical features, related to the software-executing computer system, were known from, among others, document D1. The examining division considered that implementing the non-technical features into this known system was obvious and therefore concluded that claim 1 lacked an inventive step.

2.2 The Board does not share the appellant's view that the decision is not sufficiently reasoned as regards the lack of technicality and technical character.

On page 5, second paragraph, the decision states that the features related to the determination of the management zone delineation options and planting plans and their presentation pertain to an administrative

workflow. In the third paragraph on the same page and under point 1 of the reasons, the decision explains that the feature related to the equipment control appeared to be an abstract desire requiring an operator to evaluate the presented data, rather than a technical process implemented by a technical system. Furthermore, the appellant's arguments on technicality and inventive step are addressed in point 2.4.

In line with T 0550/14 (*Catastrophe relief/SWISS RE*, see points 3.3 and 3.4), the Board is satisfied that this reasoning is sufficient.

2.3 D1, like the current invention, deals with the determination of management zones for precision farming (see the abstract). The number of management zones is given by the user (column 4, lines 35 to 40), and their determination involves applying a self-organising map on yield and field characteristics data (Figures 5 and 6 and column 4 line 55 to column 5, line 7). The determined zones are displayed and used to create "prescription maps" (column 6, lines 4 to 7 and 14 to 18), which can be used to control farming equipment such as tractors, spreaders or planters for seeding and applying fertilisers and herbicides (column 1, line 62 to column 2, line 2).

The Board considers that using a self-organising map to derive management zones is a form of clustering as it groups related data (see, e.g. column 1, lines 58 to 62, column 2, lines 18 to 21, Figures 5 and 6; and D7). Furthermore, the number of management zones in D1 corresponds to a "count value", in the language of claim 1, and the prescription maps correspond to the planting plans (see also [0244] of the application).

2.4 Hence, the method in claim 1 differs in that:

i) the management zone determination is carried out multiple times using different "count values" to obtain a plurality of management zone delineation options, one or more of these options are selected, and planting plans are determined for all selected options

ii) a graphical representation of the planting plans is generated and displayed

2.5 For the reasons discussed below, the Board tends to agree with the examining division that these features are non-technical and do not contribute to the technical character of the invention.

2.6 Re i)

2.6.1 The clustering in claim 1 is defined broadly and is indistinguishable from the clustering in D1. The main distinction is that in claim 1, the clustering process is repeated with different "count values", each specifying a different number of clusters. This results in multiple sets of management zones ("management zone delineation options"), each with corresponding planting plans.

Feature i) thus merely repeats a known process multiple times for the sole purpose of providing the grower with a number of alternative planting options to choose from. While this may enhance the grower's flexibility, it has no technical effect. Instead, the provision of multiple options appears to be driven by administrative or economic considerations (see e.g. [0251] and [0252] of the application).

2.6.2 The appellant argued that the determination of management zone delineation options and planting plans were technical steps, essentially because they were:

1) based on technical data (yield and field characteristics data)
2) carried out by a computer system
3) used to control agricultural equipment

2.6.3 As set out below, the Board is not convinced.

The steps for determining the management zone delineation options and the planting plans define a data processing algorithm. Algorithms contribute to the technical character of an invention only if they serve a technical purpose (see G 1/19, point 112). However, the Board does not consider the provision of planting plans to be a technical purpose since these plans may be based on non-technical economic considerations, such as maximising the grower's profits (see [0246] and [0251]). Contrary to the appellant's view, the technical purpose of improving crop yield cannot be derived from the broad wording of claim 1.

A method serving no technical purpose cannot become technical merely because it processes technical data or is executed on a computer. This is because non-technical, e.g. business or administrative, methods also exploit information about the physical world and can be automated, yet their fundamental nature remains non-technical (see, e.g. T 154/04 - *Estimating sales activity/DUNS LICENSING*, point 20; T 0677/09 - *Smart manual/CONTINENTAL AUTOMOTIVE SYSTEMS*, point 8; T 2626/18 - *Insurance risk prediction/SWISS RE*, points 4.8 and 4.10.).

Furthermore, while controlling agricultural equipment is a technical process, neither the claim nor the application specifies how the management zone delineation options and planting plans are used to control the equipment. Merely "using" these options and plans for control does not alter their abstract nature. Hence, the general aim of controlling equipment cannot impart a technical character to the determination of the management zone delineation options and planting plans (see also page 5, third paragraph of the decision).

2.6.4 The appellant further argued that the management zones were technical quantities of the agricultural field and their determination was a technical process similar to example 4 in section G-VII 5.4.2.4 of the Guidelines for Examination (2022 version). This example relates to a computer-implemented method that controls an infrared camera to capture an image of the temperature distribution on a building's surface and then calculates the risk of condensation based on the air temperature and relative humidity. The appellant argued that predicting areas of increased risk of condensation was comparable to predicting management zones.

The Board does not consider this example to be relevant because the areas with increased risk of condensation reflect the physical state of the building. In contrast, the management zone delineation options are conceptual subdivisions created for practical management purposes, rather than inherent properties of the agricultural field that reflect its physical state. These zones are based on data-driven analysis and user-defined parameters (e.g. the number of clusters), which may vary depending on the user and their objectives.

2.7 Re ii)

2.7.1 The Board is of the opinion that generating and displaying a graphical representation of the planting plans is not technical as it relates to the presentation of information. It only serves to inform the user about the planting plans, which is a cognitive effect rather than a technical one.

2.7.2 The appellant argued that this feature contributed to the technical character of the invention since it credibly assisted the user in performing a technical task by means of a continued and/or guided human-machine interaction process. In particular, it enabled the user to customise or decide on the planting plans.

The Board is not convinced for the simple reason that claim 1 does not specify any use of the displayed information. Moreover, the Board considers that choosing and customising planting plans are not necessarily technical tasks (see also point 2.6.3 above).

2.8 In summary, the Board considers that features i) and ii) are non-technical and do not contribute to the technical character of the invention either individually or in combination. Hence, under the COMVIK approach, these features are incorporated into the objective technical problem as given requirements that the skilled person must implement. The Board finds that the claimed implementation is obvious as it amounts to a straightforward automation.

2.9 Accordingly, claim 1 does not involve an inventive step (Article 56 EPC). The same applies to the corresponding independent system claim 11.

3. *Auxiliary request - admittance (Article 13(2) RPBA)*

3.1 The auxiliary request was filed after notification of the Board's communication under Rule 15(1) RPBA and only about one week before the scheduled oral proceedings. It thus constitutes a late amendment to the appellant's case. Pursuant to Article 13(2) RPBA, such amendments are, as a rule, not taken into account unless there are exceptional circumstances justified with cogent reasons.

3.2 In this case, the appellant has not provided any reasons for the late filing, and the Board sees no surprising development that amounted to exceptional circumstances. In particular, the Board's communication under Rule 15(1) RPBA did not introduce any new objections but merely elaborated on those made by the examining division. The new request thus cannot be regarded as a justified response to a change in the procedural situation.

3.3 Moreover, the amended claim appears, *prima facie*, to introduce a new issue under Article 123(2) EPC. While the passages cited by the appellant describe an application controller receiving a script and controlling an operating parameter of a vehicle, they do not disclose that the script is "*based on the plurality of management zone delineation options and planting plans*" or that it controls the vehicle "*to follow the recommended planting plans*".

3.4 Accordingly, the Board exercises its discretion under Article 13(2) RPBA and does not admit the auxiliary request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

T. Buschek M. Höhn

Decision electronically authenticated