

This document includes some recent decisions of the EPO in 2023 with regards to software related inventions and shows relevant extracts from the respective decisions.

T 1532/21 (Substantial procedural violation) 12-07-2023

European Case Law Identifier ECLI:EP:BA:2023:T153221.20230712

SYSTEMS AND METHODS FOR DETERMINING AN AMOUNT OF BLOOD IN A BLOOD CULTURE

sufficiently reasoned (no)

Appealed decision - substantial procedural violation (yes)

Remittal - fundamental deficiency in first-instance proceedings (yes)

Application number 08725772.1

IPC class G06F 19/00

Applicant name Becton, Dickinson and Company

Board 3.5.05

<https://www.epo.org/boards-of-appeal/decisions/pdf/t211532eu1.pdf>

IV. The wording of the claims of the requests is not relevant for this decision.

1. Rule 111(2) EPC requires that decisions which are open to appeal be reasoned. According to the established case law of the boards of appeal, in order to fulfil the requirements of Rule 111(2) EPC, a decision should contain arguments justifying its finding in a logical sequence. This is to enable the applicant and - in the event of an appeal - the board of appeal to examine whether or not the decision could be considered justified. As also submitted by the appellant, **the applicant and/or the board should not be forced to speculate as to the possible reasons for a negative decision.**

2. In the case in hand, the **board agrees with the appellant** that the **examining division did not provide any reasoning for its assertion in the contested decision that the technical effect of the distinguishing features was not achieved over the whole scope of claim 1 of the requests on file. Nor does the contested decision indicate the part of the scope of the claims over which the technical effect is not achieved. Under these circumstances, the appellant is forced to speculate how the claims have to be limited so as to ensure that the technical effect is achieved over their whole scope.**

As to the statement that "the skilled person [is left] unable to deduce the causal relationship between the [...] distinguishing features and the technical effect", this would normally mean

that the technical effect is not achieved at all, which is different from the objection that the technical effect is not achieved over the whole scope.

Irrespective of which one of these objections was meant by the examining division, **it remains a mere unsubstantiated assertion**. Instead of providing a logical sequence of arguments justifying this assertion, the examining division raises a number of questions. The board agrees with the appellant that they sound rather like clarity objections or objections to sufficiency of disclosure and have nothing to do either with the objection that the technical effect is not achieved over the whole scope or with the objection that the technical effect is not achieved at all.

The **board will not speculate**, as the appellant had to do, on the relevance of the enigmatic statement "as an orientation, see T 784/06 and T 2050/07 for examples of claims which are insufficiently respectively sufficiently defined in this respect [sic]". **The examining division merely gives the numbers of two decisions without explaining their relevance and, as the appellant noted, these decisions are not related to the technical effect not being achieved over the whole scope of the claims.**

3. Such **reasoning does not meet the requirements of Rule 111(2) EPC, which gives parties to EPO proceedings a fundamental procedural right to be provided with the reasons for a decision**. A breach of Rule 111(2) EPC is a fundamental deficiency constituting special reasons for remittal within the meaning of Article 11 RPBA (see Case Law of the Boards of Appeal of the European Patent Office, 10th Edition, July 2022, V.A.9.4.4(b)).

4. Therefore, the decision under appeal must be set aside and the case remitted to the examining division for further prosecution (Article 11 RPBA).

5. In view of the substantial procedural violation (see Case Law of the Boards of Appeal of the European Patent Office, 10th Edition, July 2022, V.A.9.4.3) in the examination proceedings, reimbursement of the appeal fee in full is equitable (Rule 103(1)(a) EPC).

T 2751/18 (Building sustainability score/USGBC) 26-05-2023

European Case Law Identifier ECLI:EP:BA:2023:T275118.20230526

Systems, devices, components and methods for dynamically displaying performance scores associated with the performance of a building or structure

Inventive step - providing a sustainability score for a building based on water and energy consumption (no - not technical)

Application number 14160379.5

IPC class G06Q 10/04

Applicant name United States Green Building Council (USGBC)

Cited decisions T 0362/90, T 0641/00, T 1670/07

Board 3.5.01

<https://www.epo.org/boards-of-appeal/decisions/pdf/t182751eu1.pdf>

IV. Claim 1 of the main request reads:

"A system comprising a remote central web server (CWS) and a plurality of devices connected to the server, each device being configured to display at least one of building or structure (1) performance data and building or structure performance scores associated therewith, the data and scores corresponding to a predetermined building or structure (1) within which the device is mounted, with which the device is associated, or to which the device is operably connected, comprising:

at least one processor (112);

first storage means for storing the building or structure performance data and the building or structure performance scores, the first storage means being operably connected to or included in the processor (112);

second storage means for storing display programming code or instructions corresponding to at least one of the building or structure performance data and the building or structure performance scores, the second storage means being operably connected to or included in the processor (112), and

a display (27) operably connected to the processor (112);

wherein the device is connected to at least three of:

- a water meter,
- an energy meter,
- a waste meter or waste data inputs entered by a user,
- a human experience meter or human experience data inputs entered by a user,
- a transportation meter or transportation data inputs entered by a user,

each meter being located in the predetermined building or structure

wherein the CWS is programmed to perform a benchmark analysis based on the performance data of similar buildings or structures, and to calculate in accordance therewith a performance score of the predetermined building or structure,

wherein the device, including the processor (112), the first storage means, the second storage means, and the display (27), is configured to visually show on the display (27) to a building or structure user (28, 37) or manager (30) the performance scores and the benchmark data."

V. Claim 1 of the first auxiliary request adds the following two features at the end of claim 1:

"the system being further programmed to:

- periodically upload the performance data of the similar buildings or structure to the CWS, performing benchmark analysis and sending the benchmark analysis to the dynamic plaque or dashboard of the predetermined building or structure,

- if the building performance score falls below a predetermined threshold or expected level, the system notifies an owner or manager of the predetermined building or structure of the recommended corrective action(s) to be taken."

VI. In the communication accompanying the summons to oral proceedings, the Board set out its preliminary opinion that the main and auxiliary request lacked an inventive step over D2.

VII. The oral proceedings took place per videoconference on 26 May 2023. They were held jointly with oral proceedings for related case T 1439/20.

VIII. The appellant argued that claim 1 of the main request and the auxiliary request involved an inventive step. Their relevant arguments are discussed below.

1. The invention

1.1 The claimed invention concerns evaluating whether a building complies with sustainability criteria (published application, paragraphs [3] and [4]).

1.2 Claim 1 of both requests concerns a system performing such evaluation. Looking at Figure 3, a processor-based device 22 in a building ("device" in claim 1) collects data which relates to at least three of the following five categories: the use of water, the use of energy, the amount of waste produced, commuting methods used by occupants ("transportation data") and the occupants' experience, see [17], [24] and [25]. The data on water and energy use is obtained from meters 38. The other three data categories can be either provided by meters or input by the building's occupants into digital surveys 36, see [22], [25] and [31].

1.3 The device periodically uploads building performance data to a central web server (CWS). While not clearly claimed, but disclosed in the application, the building performance data being uploaded is the collected data, see [26] and [32], last sentence. The CWS performs benchmark analyses based on corresponding data received from multiple similar buildings and determines a building's performance score. **The claim does not give any details about the benchmark analysis performed and the score computation.** From the application, the Board understands that the benchmarks and score are **intended to reflect the building's sustainability**, see [3] and [57].

1.4 The application **provides no details regarding the benchmarking process, and says that the performance score is the sum of points assigned to the above five data categories, see [58] to [66], without discussing the criteria used.**

1.5 The CWS transmits the generated benchmark data and the score back to the building for display to the building's manager or user ([27], and [42]).

1.6 Claim 1 of the auxiliary request adds that the uploading of performance data occurs periodically, and the display is in the form of a dashboard (penultimate claim feature), see [47]. It also adds that, if the performance score falls below a predefined threshold, the system recommends corrective actions to be taken (last feature), see [84]. The application does not provide any examples of such recommendations.

2. Auxiliary request, Article 56 EPC

2.1 The Board finds it convenient to **analyse the more specific auxiliary request first.**

2.1.1 The examining division found that the subject-matter of claim 1 lacked an inventive step starting from a notoriously known networked information system.

2.1.2 However, the Board judges that D2 is closer to the invention and a more appropriate starting point.

2.1.3 As mentioned in the decision, D2 discloses a remote building management system analysing sensor measurements (decision, points 2.2.17, 2.2.18 and 3.3.9). The Board starts from the embodiment in D2 which relates to Figure 2. In this embodiment, building controllers 28 and 40 located in different buildings (paragraphs [27] and [28]) collect data from sensors and regularly upload it to a central building control processor 44. The central building control processor analyses the received data ([52] and [53]) and shows results on a workstation 50 ([35], first sentence, [39] and [41]).

2.1.4 It is common ground that the subject-matter of **claim 1 differs from D2** in that:

A) The central building control processor is implemented as a central web server (CWS).

B) The device is connected to at least three of: a water meter, an energy meter, a waste meter or waste data inputs entered by a user, a human experience meter or human experience data inputs entered by a user, a transportation meter or transportation data inputs entered by a user, each meter being located in the predetermined building or structure.

C) The central web server performs a benchmark analysis based on the performance data of similar buildings or structures and calculates in accordance therewith a performance score of the predetermined building.

D) The device is configured to visually show the performance scores and the benchmark data on a dashboard to a building user or manager.

E) If the building performance score falls below a predetermined threshold or expected level, the system notifies a manager of the predetermined building or structure of the recommended corrective action(s) to be taken.

2.1.5 In its preliminary opinion, the Board considered that feature A was an obvious design option, especially considering that D2 discloses in a further embodiment a building management system which comprises a web server (D2, paragraph [106]). The appellant did not take issue with this.

2.1.6 The **appellant's arguments and discussion at the oral proceedings concentrated on features B to E.**

2.1.7 The appellant argued on the use of the water and energy meters' measurements for benchmarking and the calculation of the building performance score. However, the Board notes that the claim does not specify that data provided to the CWS includes any measurements. Moreover, the **expression "at least three of", used in distinguishing feature B, covers the case in which the device is not connected to any meters, but only receives data input by the user.**

However, for the sake of efficiency, given that this issue could be overcome by a straightforward amendment, the **Board construed the claim as meaning that the CWS used the received meters' measurements**, together with the other three data categories, to perform benchmark analysis and to compute the performance score. Clearly, if this more narrow subject-matter is found to lack an inventive step, so does any broader subject-matter.

2.1.8 The **Board agrees with the decision** (see points 2.2.3 to 2.2.7, 3.2.3 and 3.2.4) that the **distinguishing features implement a non-technical method combining administrative steps with presentation of information** (Article 52(2)(c) and (d) EPC). The Board judges that this method comprises following steps:

- **A building's performance is benchmarked** based on data describing energy consumption, water consumption, the amount of waste generated, commuting methods used by the occupants and their overall experience, wherein the data is collected from the building concerned and other anonymous similar buildings.
- **A performance score is calculated** for the building in accordance with the benchmark data.
- **The benchmark data and the building performance score are presented** to a building manager on a dashboard.
- **Corrective actions are recommended** to the building manager when the building performance score falls below a predetermined threshold.

2.1.9 The appellant disputed this finding in the decision and argued that the above method provided a **technical contribution for the following reasons.**

2.1.10 Firstly, the **benchmark analysis and building performance score were based on measurements carried out by meters located in the building. The meters were technical entities and obtaining data from them was a technical process.**

However, the **Board is not persuaded** and agrees with the decision (see point 2.2.7) that **collecting and analysing water and energy consumption in a building is a non-technical business operation performed as part of building management.**

The Board **agrees with the appellant to the extent that the use of meters to acquire data about water and energy consumption is a technical feature, but a business step does not become technical by virtue of its technical implementation** (see T 1670/07 - Shopping with mobile device/NOKIA, reasons, point 9).

2.1.11 Secondly, the **building was a technical system and the benchmark data and performance score indicated its internal states.** This was all the more so considering that the benchmark data and the score were based on data obtained from the meters. As set out in decision T 362/90 and decisions following it, **visualising internal states of a technical system had technical character.** Furthermore, the indication that the building performance score fell below a predetermined threshold indicated a technical malfunction. It was comparable to an alarm indicating overheating of an engine. Providing such an alarm had technical character, even in the absence of an indication of the action to be taken by the user.

The Board **does not dispute that giving visual indications about internal states of a technical system is in principle a technical effect. However, the Board disagrees that the information output by the claimed system indicates such states.**

Beginning with **the building performance score, the disclosed example expresses it as a natural number of arbitrarily assigned points** (see point 1.4 above). Even assuming that **some technical information about the building was used to obtain this score, such information is subsequently removed from the score due to its nature as a natural number.**

Like the decision (see point 3.3.5), the **Board cannot see that informing the user that the performance score fell below some arbitrary threshold is comparable to an indication that an engine was overheated or to the case underlying T 362/90 in which a vehicle indicated to the driver the engaged and optimal gears. The fundamental difference between those cases and the claimed invention is that while the gear in use and engine overheating are clearly technical conditions and the optimal gear is precise and credible technical guidance, the building performance score conveys no technical information.**

The "benchmark data" and the **"recommended corrective action(s)" do not convey technical information either.** As was set out at point 3.2.4 of the contested decision, at the general level at which they are claimed and disclosed, these terms cover non-technical notifications, for example "Your building seems to perform worse than other buildings. Hire someone to improve this".

2.1.12 Thirdly, the crucial idea of the invention was its community aspect, namely that the basis for **assessing the building's performance was a comparison with other similar buildings**. In view of the complexity of a building, it would have been too limiting to claim a specific benchmarking algorithm or a specific way of calculating the performance score. Nevertheless, even at the general level claimed, the distinguishing features enabled the building manager to recognise how his building performed compared to the other buildings and to improve its performance, for instance by saving water and energy. This was a technical effect.

The Board is not convinced and notes that the system of D2 already collects data on multiple buildings and analyses it. The actual distinction is the nature of analysis performed and its input. It might well be that the appellant had good reasons for not disclosing those aspects in more detail. However, as set out above, **in the absence of further details, the method, set out in point 2.1.8 above, lacks technical character**.

The Board is not convinced by the argument attempting to prove that this method derives technical character from (unclaimed) actions of the building manager. **In addition to being speculative, this argument is a typical example of the "broken technical chain fallacy" in the sense of T 1670/07 supra, reasons, point 11.**

2.1.13 Applying the COMVIK approach (decision T 641/00 - Two identities/COMVIK), this method is provided to the technically skilled person as a requirement specification to be implemented.

2.1.14 Starting from D2 and facing the problem of implementing this requirement, **it would have been obvious to connect the building controllers to water and energy meters and provide a user interface enabling the user to input waste, transport and experience data**.

Furthermore, it would have been self-evident to upload the collected building performance data to the building control processor and to adapt it to calculate benchmark data and the building performance score. It would have been equally obvious to configure the building control processor to generate the indication that the building performance score fell below a predetermined threshold, to recommend unspecific corrective actions and to provide the generated information to the workstation for display.

2.1.15 Incidentally, while not claimed, the application discloses that the display might be physically located in the building (published application, [9] and [45]). Interpreted in the light of this disclosure, the claim is still obvious over the combination of the Figure 2 embodiment in D2, which serves as the starting point, and an embodiment relating to Figure 1 which uses a workstation located in the building (D2, [25]).

2.1.16 Hence, claim 1 lacks an inventive step (Article 56 EPC).

T 1468/17 (Determining an earthquake damage index/SWISS RE) 04-07-2023

European Case Law Identifier ECLI:EP:BA:2023:T146817.20230704

COMPUTER SYSTEM AND METHOD FOR DETERMINING AN EARTHQUAKE DAMAGE INDEX

Inventive step - determining earthquake damage using attenuation function (no Inventive step - not technical)

Application number 05746866.2
IPC class G06Q 40/00
Applicant name Swiss Reinsurance Company Ltd.
Cited decisions T 2079/10

Board 3.5.01

<https://www.epo.org/boards-of-appeal/decisions/pdf/t171468eu1.pdf>

1. Background of the invention

1.1 The invention concerns determining a damage index indicative of the damage caused by an earthquake to a portfolio of objects, such as building, bridges, highways, power lines, etc., which are located in a defined geographical area, page 1, lines 5 to 10. The **damage indexes can be used for urban planning and for setting up earthquake insurance funds for insuring a portfolio of objects**, see page 14, lines 3 to 4 and 13 to 15.

1.2 The background to the invention on pages 1 and 2 sets out that conventionally, a damage index is defined on a measured magnitude of the earthquake. This damage index is said to **correlate poorly with the true damage** caused to the objects of the portfolio and the geographical distribution of objects. Physical parameters other than the magnitude can be used, such as "earthquake shaking intensity", which is a measure of ground acceleration or velocity. However, this **requires a dense net of seismograph stations which is not available in the majority of countries**.

1.3 The objective of the invention is to **determine a damage index which corresponds better to the true damage caused to a portfolio of objects associated within a geographical area without the need for a dense network of seismological measurement stations**.

1.4 Looking at Figure 4 and claim 1, the invention **achieves this objective essentially by using a seismological attenuation function to calculate a "local shaking intensity" of the earthquake at grid coordinates 7** of a selected geographical region 3, based on the distance of the grid coordinate from the earthquake 2, the earthquake's magnitude as well as attenuation parameters, see equation on page 12, line 22. A "local damage index" is then

determined for each grid coordinate based on its "local shaking intensity" and "local portfolio replacement values" 5 assigned to it. These are abstract or monetary values of portfolio objects which are located within a defined geographical segment of a grid coordinate, see page 9, lines 1 to 26. The "local damage indexes" are aggregated to form the overall "damage index".

2. Main request - Article 56 EPC

2.1 Claims 1 to 10 correspond in essence to the claims of the refused auxiliary request.

2.2 The **examining division** considered that the assessment of earthquake risks and damage was **essentially based on scientific or mathematical methods, which were non-technical, and the association of monetary or economic values to objects was merely a commercial activity**. No technical problem could be derived other than the automation of the non-technical mathematical and business method on a general purpose networked computer system, and this was not inventive (Article 56 EPC).

2.3 The **appellant** contested the isolated identification of the technical features of claim 1 and argued that the claim was **more than a mere automation of a known mathematical method** on a computer. The measurement of a technically reproducible, detectable measured variable (here: damage index measure) had technical character and should be taken into account in the inventive step analysis.

The technical problem of the invention was derived from the observation that a dense distributed network of measuring stations was not available in the majority of countries. The technical problem of the invention could be formulated as "providing technical means for measuring a damage index without being able to use its dense distributed network of seismological measuring stations".

Known business methods of risk transfer usually determined a probability of occurrence for an earthquake with a certain strength on the basis of historical data and events. The mathematical procedures for earthquake wave propagation were complex, computationally intensive and time-consuming. The **invention went in a different direction** which was neither mathematical nor business-oriented, but was based on technical considerations for an efficient automation within a digital environment.

The invention in summary **splits the geographical area in a grid with assignable measurement parameters (index measure), defined a discontinuous attenuation function, which had measurable support points in the individual grid cells of the grid, and calibrated the grid or grid cells using grid-based correction factors**. All these steps were based on technical considerations and could be derived neither from the mathematical method nor from the business method of risk transfer based on historical data.

2.4 The **Board** cannot see the need for any technical considerations for the **insurance expert, who is considered to be the relevant (notional) business person**, when he wants to determine the damage to a portfolio of objects which are located in a defined geographical area according to the present invention. This expert knows not only the seismological data and

parameters, but also that the extent of the earthquake shaking intensity varies over a geographical region according to mathematical functions from academic research on seismology.

The **mathematical expertise of the insurance expert indicates that local damage values can be determined from location, depth and magnitude data of an earth-quake based on, among others, the distance of an object from the location of the earthquake, and the given seismological models (local seismological attenuation parameters, correction parameters, a vulnerability function). Typical attenuation functions, known by seismologists**, see page 12 of the application, employ the distance between an object and an earthquake which is calculated from the latitude and longitude of the earthquake and the object in question, in other words from two grid positions.

2.5 The invention relies on the **determination of a damage index from physical seismological data using seismological models**, which the Board **interprets as mathematical models**, and does not reside in the improvement of the measurement technique itself, as in T 2079/10 (Steuerung von zellulär aufgebauten Alarmsystemen/SWISSRE), reasons 4.2 and 4.3, or in a different measurement of data, as argued by the appellant. The invention represents a possibly new, but mathematical modelling concept with the purpose of determining a damage index for a non-technical purpose, for example, for the definition of an insurance portfolio of insured objects, see page 14, lines 1 to 28, of the application. **However, the use of seismological data does not imply technical considerations when a new mathematical model is developed.**

2.6 When designing this approach the **insurance expert does not require an interaction with the (technically) skilled person in the art**, only an awareness of the different models employed for the modelling of earthquakes. **Apart from being non-technical, these were also known in the art, for example, D1**, page 353, right column, last paragraph, to page 355, left column, second paragraph, and Section 2, and D2 disclose the idea of predicting damage indices. The **Board sees no need for the (notional) business person to have any technical knowledge for this part of the design.**

2.7 Moreover, the Board **cannot see any difficulties for the person skilled in the art of data processing to implement the mathematical concept** of the present invention on a conventional networked computer system. The mathematical modelling concept leads the skilled person to seek the appropriate provider of seismological data and use the appropriate seismological models.

2.8 The **appellant** argued that the **use of a "grid"** for splitting up a certain geographical region was **based on technical considerations** in order to automate the system. This step would not result from the abstract, mathematical modelling. It allowed a discretisation of the seismologic waves and was a technically new and efficient way to predict local damage indices with a computer.

2.9 The **Board does not agree**. The **purpose of a "grid" is to aggregate portfolio replacement values of different objects**, see page 9, lines 1 to 24, of the application, based on the proximity of the objects to a grid coordinate. The portfolio replacement values **define an abstract or monetary value** of a portfolio object.

2.10 The Board understands, e.g. from Figure 3, a "grid" to serve merely as a grouping of portfolio objects 6 with associated replacement values 5. The grid coordinate 7 represents the position of that group for the purpose of calculating the impact of the earthquake on that group of objects. In the Board's view, grouping portfolio objects together and assigning them a single position would arise during the non-technical mathematically modelling phase of the invention. Furthermore, the "discretisation" is not introduced by a "grid", but by fact that the seismological model, see page 12, line 15, to page 13, line 3, of the application, relies on discrete coordinate values to determine the impact of an earthquake based on the distance of the earthquake to an object.

2.11 Even if the "grid" were not part of the underlying mathematical model, but part of the implementation, the Board considers the use of appropriate coordinates in grids, based on latitude and longitude values, as obvious matters of routine design when implementing such models.

2.12 The subject-matter of claim 1 does therefore not involve an inventive step over a notorious (networked) computer system (Article 56 EPC).

T 0663/20 (Authentication method using mobile device/MONEY AND DATA PROTECTION LIZENZ) 14-02-2023

European Case Law Identifier ECLI:EP:BA:2023:T066320.20230214

AUTHENTICATION METHOD

Technical effect - improved safety (no - technical, but not verifiable)

Inventive step - reversing communication flow between a user and an authentication entity (yes Inventive step - non-obvious alternative solution)

Application number 12779068.1
IPC class G06Q 20/32, G06Q 20/40, G06F 21/00, G07F 7/10, H04W 88/06
Applicant name Money and Data Protection Lizenz GmbH & Co. KG
Cited decisions T 2359/08, T 0520/13, T 1636/18, T 2153/18

Board 3.5.01

<https://www.epo.org/boards-of-appeal/decisions/pdf/t200663eu1.pdf>

Claim 1 of the main request reads:

"A method of authenticating a user to a transaction at a terminal (10), the method comprising the following steps:

Examples of recent 2023 Board of Appeals decisions related to Software Innovations

- a user identification is transmitted from the terminal (10) to a transaction partner (12) via a first communication channel (14),
- the transaction partner (12) forwards the user identification to an authentication device (18),
- using a second communication channel (20), which involves a mobile communications network, in conjunction with a mobile device (16) of the user for checking an authentication function, which is normally inactive and is activated by the user only preliminarily for the transaction,
- as a criterion for deciding whether the authentication to the transaction shall be granted or denied, the authentication device (18) checks whether a predetermined time relation exists between the transmission of the user identification and an active state of the authentication function, and,
- if said criterion for granting the authentication is fulfilled, the authentication device (18) sends an authentication signal to the transaction partner,

characterized

in that the authentication function is implemented in the mobile device (16) of the user and permits the authentication device to detect, via the second communication channel (20), whether or not the authentication function is active, and in that, based on the user identification, the authentication device (18) directly contacts the mobile device to check the active state of the authentication function and, if the authentication function is active, the authentication device (18) receives a response from the mobile device via the second communication channel, said response including the information that the authentication function is active, and,

- wherein the authentication function is automatically deactivated after a predetermined time interval after its activation and/or when its active state has been checked."

The invention

1. The invention relates to a method for authenticating a user, such as when making a payment at a supermarket's point-of-sale (POS) terminal. Methods that allow users to authenticate themselves using their mobile phones are known in the art such as D1.

The purpose of the invention is to provide an easy authentication method that uses a mobile device with low complexity, while at the same time ensuring a high level of security - see page 2, lines 11 and 12, and page 3, lines 12 to 14 of the published application.

2. As shown in Figure 1, the POS terminal 10 sends the user's ID to a bank 12 during the payment process (first step of the preamble in claim 1). The bank then forwards the ID to a trusted third party 18 (second step).

Based on this information, the trusted third party checks if the user has activated an authentication function on his mobile device 16. If the user has activated this function, the trusted third party informs the bank accordingly, allowing the transaction to be approved (third and fourth steps).

3. The **main concept is that the trusted third party obtains the status of the authentication function by querying the mobile device** (first feature of the characterising part).

Novelty and clarity

...

The Board observed that the claim did not indicate when and under what conditions the authentication function was deactivated (as shown in page 8, lines 15 to 26).

Moreover, it was unclear how this related to the "predetermined time relation" requirement, which the Board believed could only mean verifying whether the authentication function was active.

8. In response to these objections, the appellant submitted a new main request. The Board, exercising its discretion under Rule 13(2) RPBA, admitted the request since it was submitted in response to new objections.

The **amendments adequately address the issues mentioned by the Board. In particular, they clarify the distinguishing feature by specifying that the authentication device "directly contacts the mobile device" and "receives a response from the mobile device via the second communication channel"** (emphasis added by the Board).

The Board judges that amended claim 1 is clear (Article 84 EPC) and avoids the examining division's interpretation that the authentication device does not initiate communication with the mobile device, but with the HLR, and is thus novel over D1 (Article 54 EPC).

9. **Fundamentally, claim 1 differs from D1 in terms of a reversed communication flow** which is conveyed through the following feature:

"the authentication device (18) directly contacts the mobile device to check the active state of the authentication function and, if the authentication function is active, the authentication device (18) receives a response from the mobile device via the second communication channel".

In other words, the **trusted third party follows the principle of "don't call us, we'll call you"**.

Inventive step

10. As mentioned earlier (see point 1), the invention aims to **provide authentication with a high level of security**.

Accordingly, the appellant formulated the technical problem as **further improving the safety of the authentication process**.

11. The appellant argued that, unlike in D1, the authentication process in the invention was simpler and more convenient for the user. The user only had to activate the authentication function, for example, by pressing the ON-switch 48 on a mobile device 16 as shown in Figure 7. This was especially beneficial in stressful situations such as paying at a POS terminal.

Moreover, the invention required a device of low complexity because there was no need for elaborate input means to enter the user's identification or card information, which was necessary in D1.

12. The appellant also contended that the invention was not vulnerable to SMS-spoofing attacks, unlike D1.

Since no message containing sensitive information was transmitted from the mobile device to the authentication device, it was impossible for a fraudster to intercept the message, replicate the user's phone number, and successfully authenticate.

Additionally, if one were to start with D1, an obvious solution would have been to incorporate encryption or filters to identify spoofing attempts.

13. The appellant argued that there was another distinguishing feature, which was that the activation function status was stored in the mobile device, not in the authentication device.

The appellant believed that starting from D1, storing the enablement status of the user's cards on the phone would not have made sense. According to the teaching of D1, this would have increased the number of message exchanges between the phone and the Application Server. This was considered a technical prejudice for the skilled person and could only have been overcome in a non-obvious manner.

14. To sum up, the appellant argued that D1 **did not suggest reversing the communication flow, nor was this an obvious solution in 2011**, the priority date of the application. Furthermore, the simple and secure solution of claim 1 was a strong indication of an inventive step.

15. **The Board does not consider that inventive step can be based on the effect of improved safety, as it is not convinced that this effect is actually achieved.**

Firstly, D1 discloses data transmission methods that are impervious to (SMS-)spoofing attacks, such as a secure IP channel (page 3, lines 27 to 34) or a web application (fourth embodiment on page 21, line 30 et seq.). If these embodiments of D1 are chosen as starting

points, the **forementioned effect cannot be attained**. Furthermore, the invention provides limited and potentially conflicting details concerning the data transmission process. Page 10, lines 21 to 29, mentions an applet that either responds to a request from the authentication device **or sends a request, with the second option appearing to conflict** with claim 1.

Secondly, the Board considers that **if the aforementioned effect were actually achieved, it would directly result from the communication flow, which involves the trusted third party requesting authentication from the user**. This also implies where the authentication status data is stored - clearly, if the user is asked whether he wants to authenticate the transaction, he must possess this information.

16. A **key question is whether the reversal of the communication flow is motivated by non-technical considerations**. If so, according to the COMVIK approach, it can be included in the problem formulation. In this case, the skilled person would have arrived at the invention in an obvious way. Essentially, he would only need to reverse the "Change Status Request" step in D1, as shown in Figure 3.

In its preliminary opinion, the Board had tended to consider that the reversal of the communication flow was motivated by non-technical considerations, such as user convenience.

17. During the oral proceedings, **however, it became apparent that there was no reason for the user to request a reversal of the communication flow**.

Both in D1 and in the invention, when waiting at the POS, the user only needs to press a button and perhaps input some data to initiate payment authentication. What occurs next, such as sending an authentication message or activating an authentication function, no longer concerns the user. Thus, these aspects cannot be considered to be part of a non-technical requirement, such as a user preference, under the COMVIK approach. Rather, it is part of the technical implementation that is handled by a technically skilled person.

18. Therefore, and given that there is **no obvious advantage of the invention starting from D1, the objective technical problem that the reversal of the communication flow solves can be formulated as providing an alternative method of authentication to the one known from D1**.

19. While the **choice of where to perform the authentication may appear straightforward, the Board is disinclined to simply assert that the invention is obvious**.

Firstly, there is **no indication, hint, or necessity in D1 to reverse the communication flow**. Doing so could result in certain drawbacks, such as the user becoming unreachable if he moves to an area with no network connection, or the authentication process taking longer. Furthermore, the **fact that in D1 the trusted third party manages the status of card data (see e.g. page 11, lines 24 to 35) rather teaches away from the invention**. There is **no need for the trusted third party to ask the user upon receiving a transaction request, as it would suffice to check the status database**.

Secondly, while a solution may be considered obvious if it is an equally well known alternative, the **Board finds no example in the prior art of its use for authenticating a user transaction at a terminal, let alone any evidence to show that the skilled person would have applied this principle to the method in D1**. While this **may be conceivable in hindsight, there is no obvious inspiration for the skilled person to do so**.

Occasionally, obvious solutions can be derived from the skilled person's appreciation of an expected trade-off of some aspect of the system's performance. Some previous examples in cases from this Board show the idea:

Case |Alternatives |Trade-off |

T 2359/08|returning pages after clicking on the embedded links /already with the retrieved document|amount of data transmitted / speed required to access the data pages of the embedded links|

T 520/13 |process data locally / centrally |latency / storage space and processing capabilities |

T 1636/18|implement functionality on the client device / server |network bandwidth /available computational resources |

T 2153/18|providing data to the client on request / pre-fetching potentially relevant information |bandwidth and computational requirements / query response time |

However what **these cases appear to have in common is that the trade-off is what could be termed "one-dimensional" in that the location or timing of some part of the functionality changes, but the system functions in essentially the same way.**

For example, in T 1636/18 - Estimating departure time/QUALCOMM, the functionality of various features was specified as being performed in either the client or the server, but nothing else was changed. In T 520/13 - Advertisement selection / MICROSOFT, part of the process of selecting an advertisement was shifted to the client, but the selection process was otherwise unchanged.

In the Board's view, the **solution in the present case differs from these examples in that it has an additional "dimension"**. Not only is the **authentication performed on a different device**, but the **communication flow is different** and the **user no longer needs to send a message to the server**. Although it could be argued that these are obvious corresponding modifications, the Board considers that **juggling this extra dimension takes the present case out of the realm of a straightforward trade-off, somewhat like choosing from two lists does for novelty**. In such a situation it is not immediately apparent what is being traded off and how. Thus, again, the Board considers that some further motivation would be required.

Accordingly, the Board judges that the subject-matter of claim 1 involves an inventive step (Article 56 EPC).

T 0935/20 (Chemical ingredient palette/SC JOHNSON) 27-06-2023

European Case Law Identifier ECLI:EP:BA:2023:T093520.20230627

CHEMICAL ADDITIVE INGREDIENT PALETTE

Inventive step - providing information about the chemical components of products without disclosing which component is in which product (no Inventive step - not technical)

Application number 11730793.4
IPC class G06Q 10/00
Applicant name S.C. Johnson & Son, Inc./Vedula, Usha
Cited decisions T 1976/18, T 0641/00

Board 3.5.01

<https://www.epo.org/boards-of-appeal/decisions/pdf/t200935eu1.pdf>

Claim 7 of the main request reads:

An automated computer system storing and updating a written or electronic list of pre-approved chemicals, the system comprising:

- (a) a first computer database listing at least ten selected products marketed by a company;
- (b) a second computer database listing chemical components of at least ten different multi-component materials used in one or more of those products; and
- (c) a third computer database listing chemicals present in the selected products, by product, except that multi-component materials present in at least some of the products are identified in the third database without disclosing at least some of their chemical components in the third database;
- (d) wherein the second and third databases are publically accessible by telecommunication so that someone accessing these databases can review the chemical content of a product, except that chemical contents of a multi-component material in that product will be identified by being present in the second database, without the second or third database disclosing which of the components in the second database are in which third database multi-component material or in which third database product.

1. The invention

1.1 The invention deals with the problem of disclosing the chemical composition of products, such as household products, without violating confidentiality agreements protecting the composition of proprietary materials (e.g. fragrances) used in these products (paragraph [0003] of the published application).

1.2 The claimed solution involves three computer databases (claim 7, [0022]). The first database stores a list of products marketed by a company (feature (a)). The second database stores a list of chemical components present in proprietary materials, such as fragrances ("multi-component materials"), used in these products (feature (b)). The third database stores the chemical composition of each of the products in the first database, except for the proprietary materials, which are only identified (feature (c)).

1.3 The second and third databases are publically accessible. Hence, a customer can view the chemical make-up of a product, except for the chemicals of the proprietary materials used in that product. Confidentiality agreements are not breached because the second database only stores a list of chemicals without specifying which chemicals are in which materials. However, the customer can still obtain some information from the second database, such as which chemicals are not in the product (feature (d), [0023],[0032]).

...

4. Main request - inventive step

4.1 The examining division started their inventive step assessment from a general-purpose networked computing system. They held that claim 7 did not involve an inventive step because it defined an obvious implementation of a non-technical administrative scheme on such a system.

4.2 The **Board agrees with this assessment**. In particular, the Board finds that claim 7 comprises the following **non-technical features**:

(a) a first data collection listing at least ten selected products marketed by a company;

(b) a second data collection listing chemical components of at least ten different multi-component materials used in one or more of those products; and

(c) a third data collection listing chemicals present in the selected products, by product, except that multi-component materials present in at least some of the products are identified in the third data collection without disclosing at least some of their chemical components in the third data collection;

(d) wherein the second and third data collections are publically accessible so that someone accessing these data collections can review the chemical content of a product, except that chemical contents of a multi-component material in that product will be identified by being present in the second data collection, without the second or third data collections disclosing which of the components in the second data collection are in which multi-component material or in which product in the third data collection.

4.3 The **three data collections are merely catalogues with product information**. They are designed to balance two conflicting non-technical requirements. On the one hand, there is a business need to inform customers about the chemical composition of the company's products. On the other hand, there is a legal obligation to protect the content of proprietary

materials, such as fragrances included in the products, which are covered by confidentiality agreements. The task of **creating product catalogues satisfying these requirements falls under the competence of marketing and/or legal experts**. It does not require technical knowledge or skills.

4.4 Requirements that can be formulated by a non-technical person are part of the non-technical framework and can be given to the technically skilled person (a computer specialist) for implementation (T 0641/00 - Two identities/COMVIK). Therefore, the technical problem solved can be defined as how to implement features (a) to (d) on a general-purpose networked computer system.

4.5 The claimed solution involves storing the data collections in three computer databases and accessing these databases "by telecommunication". This is a **straightforward automation of the non-technical features**, which would be obvious to the skilled person.

4.6 The appellants argued that the three computer databases, their content and their interactions allowed customers to determine if a product, and in particular a fragrance in the product, contained an allergen. This effect was **inherently technical**. It was achieved by checking the content of the second computer database, which comprised the chemical components of all fragrances of all marketed products. Moreover, since the second database comprised the chemical components of at least ten fragrances and did not specify which fragrance contained which chemical components, the compositions of fragrances could not be inferred. In this way, confidentiality agreements were not violated.

4.7 The **Board is not convinced** that the effect identified by the appellants is technical. While customers may find information about the presence or absence of a specific allergen in a product useful and this information may influence their purchasing decisions, these are **cognitive effects rather than technical ones**.

The Board is also **not convinced that the effect identified by the appellants is achieved**. The second database comprises the chemical components of all fragrances, without specifying which components belong to which fragrance. This means that if a particular allergen is listed in the second database, a customer can only infer that this allergen is present in at least one of the company's marketed products. The customer would not be able to determine if the allergen is contained in a product they are interested in.

4.8 In view of the above, the Board judges that claim 7 of the main request does not involve an inventive step (Article 56 EPC).

T 0335/21 (Therapy change recommendation/ROCHE) 26-04-2023

European Case Law Identifier ECLI:EP:BA:2023:T033521.20230426

METHODS AND SYSTEMS FOR PROVIDING THERAPEUTIC GUIDELINES TO A PERSON HAVING DIABETES

Inventive step - (no)

Application number 11714655.5
IPC class G06F 19/00
Applicant name Roche Diabetes Care GmbH, F. Hoffmann-La Roche AG
Cited decisions T 1814/07, T 0690/11, T 0823/11, T 0450/14, T 0634/18

Board 3.5.05

<https://www.epo.org/boards-of-appeal/decisions/pdf/t210335eu1.pdf>

1. Main request

1.1 Claim 1 of the main request claims a method having the following steps:

- a) detecting a pattern of an abnormality in blood glucose data collected from an individual with a computing device;
- b) generating a change in therapy recommendation for the individual with the computing device based on said detection of a pattern;
- c) outputting a customised testing protocol customised to detect whether the change in therapy successfully addressed the abnormality with the computing device.

1.2 The appellants argued that steps b) and c) were novel over D4 and had the technical effect of facilitating automated therapy recommendations and effective control of the efficacy of such recommendations. They therefore formulated the objective technical problem to be solved by claim 1 as being to provide improved technologies for automated guidance in diabetes care. However, **recommending a therapy and customising a testing protocol are not technical tasks**. Rather, **they are intellectual activities devoid of technical character**. Accordingly, **a therapy recommendation is not a technical effect** and, moreover, it **does not acquire technical character merely by being generated by a computing device**. The same is true of customising a testing protocol to test whether the changed therapy has been successful.

1.3 At the oral proceedings, the appellants argued that the method of claim 1 was performed in a medical context and should therefore be treated differently. In support of their argument, they referred to T 1814/07, point 3 of the reasons, in which the board had regarded the

examining division's approach in that case as being inappropriate for medical systems. According thereto, in a system for providing medical health care services, the assessment as to patentability could be influenced by the nature of the (method) steps. The solution of a medical problem, e.g. how to determine a new diagnosis or treatment, could not therefore be equated with, for example, the solution of a business problem. In the case at hand, a **therapy recommendation was generated which was only a recommendation, unrelated to the physician's intellectual decision on a therapy to be followed.** Thus, it had to be recognised that there was a technical effect. The appellants argued that the same principle was followed in other decisions and referred, in particular, to T 823/11, T 450/14 and T 634/18.

Contrary to what the appellants seem to believe, T 1814/07 does not give carte blanche for attributing technical character to any method performed in a medical context. Instead, as cited by the appellants, T 1814/07 teaches that the technical contribution of the distinguishing features depends on the nature of the steps performed in medical methods, which often involve a combination of steps of a technical and non-technical nature. In the last paragraph of point 3 of the reasons, the board indeed re-emphasised that it cannot be concluded that all of the features of a claim directed to a medical device for medical diagnosis or treatment are necessarily to be considered when assessing inventive step. It was conceivable, for example, that **in a particular case the only difference compared with the prior art could be the intellectual method used to arrive at a diagnosis strictu sensu, and this had no technical effect.** The case at hand is such a case; the only differences lie in intellectual methods of recommending a therapy and customising a testing protocol. The other decisions cited by the appellants have no relevance to this matter except for being related to inventions in the medical field.

1.4 The appellants argued that the abnormality detected by the computing device in step a) of the method of claim 1 was an internal state of that computing device and the change in therapy recommendation was a technical effect ensuring the proper functioning of the device. They referred to T 690/11, page 13, in support of their argument. However, **a changed therapy recommendation has nothing to do with the proper functioning of the computing device which generates it.** Finally, the appellants argued that the distinguishing features have the technical effect of saving test strips. However, again, there is no causal link between the distinguishing features and the alleged effect.

1.5 For these reasons, the subject-matter of claim 1 of the **main request does not involve an inventive step** (Article 56 EPC).

T 0399/21 (Unified location of personal data/FUJITSU) 14-06-2023
European Case Law Identifier ECLI:EP:BA:2023:T039921.20230614
INFORMATION PROCESSING DEVICE AND PROGRAM

Inventive step - (yes)

Application number 10860419.0

Examples of recent 2023 Board of Appeals decisions related to Software Innovations

IPC class G06F 12/00, G06F 17/30

Applicant name Fujitsu Limited

Board 3.5.05

<https://www.epo.org/boards-of-appeal/decisions/pdf/t210399eu1.pdf>

Claim 1 of the amended fourth auxiliary request reads as follows:

"An information processing apparatus comprising: location information obtaining means (1b) for obtaining first location information (5) indicating an identifier of a data storage device that the user specifies as a unified location of personal data of the user, the first location information (5) further indicating a location of a user-specified directory within the data storage device;

location information producing means (1c) for sending the data storage device a location information request including an identifier of an application and receiving second location information (6) indicating a location of a directory that is placed below the user-specified directory and uniquely assigned to the application as a response from the data storage device;

storage means (1d) for storing the second location information (6);

data processing means (1a) for executing the application, determining if there is a need to access the personal data of the user and producing, when it is determined there is the need to access the personal data of the user, first access target information (4) that is subordinated to the second location information (6) in the storage means (1d) and indicates a relative path and name of a target data file including the personal data of the user;

second access target information producing means (1e) for producing, based on the first access target information (4) and the second location information (6) in the storage means (1d), second access target information (7) indicating a storage location and name of the target data file; and

access means (1f) for making access to the target data file in the data storage device, based on the second access target information (7)."

....

2. The location information obtaining means of the information processing apparatus according to claim 1 obtains first location information that the user specifies as a "unified location of personal data of the user".

In the closest prior art cited in the contested decision, D2, a proxy server provides access to each user to their personal instance or copy of a single application. The examining division stated that a user's copy of the application in D2 can be seen as their user-specific personal data. The URL at which this copy is located could thus be regarded as their user-

specific directory. Accordingly, one of the distinguishing features of claim 1 as identified by the examining division (feature a)) is that the user specifies their user-specific directory.

The examining division **dismissed the inventive step** involved in this distinguishing feature **as being the result of an administrative decision of the user on the administrative organisation of their directories and files.**

In the **board's view**, this analysis suffers from several errors. To start with, it is **doubtful** whether a user's personal **copy of an application can reasonably be considered personal data within the meaning of claim 1**. From the whole of claim 1, it is clear that what is meant by **personal data is data which is stored and accessed later when needed**. **A running copy of an application does not fit this definition**. Even if a copy of an application were to be considered such personal data, it is **far-fetched to argue that the location where a copy of an application is stored or executed is an administrative decision**. **To the contrary, these are technical decisions the user would not even be aware of.** Indeed, D2, [0036], last sentence states that the proxy server provides an illusion that the user is the only one working on the application. **When the term "personal data" in claim 1 is interpreted properly as data generated and processed by the applications which is stored and accessed later when needed, D2 does not disclose how and where such data is stored.**

Therefore, distinguishing feature a) goes beyond what was identified by the examining division. D2 indeed does not disclose location information obtaining means obtaining first location information indicating an identifier of a data storage device that the user specifies as a unified location of personal data of the user, the first location information further indicating a location of a user-specified directory within the data storage device.

Distinguishing feature b) identified by the examining division should also be revised accordingly. Namely, D2 does not disclose a location information producing means sending the data storage device a location information request including an identifier of an application and receiving second location information indicating a location of a directory that is placed below the user-specified directory and uniquely assigned to the application as a response from the data storage device.

3. The **board agrees with the appellant that these distinguishing features, namely having a user-specified directory as a unified location of personal data of a user with application-specific directories placed below this directory and uniquely assigned to applications, are not mere administrative decisions**. When an application offers a user the possibility to decide on where to save data such as a file, the ensuing decision is administrative. However, a user is normally not aware of what data is stored by applications or where or how, **these involving technical considerations**.

Thus, these **distinguishing features have a technical effect and solve the objective technical problem** of **centralising a user's personal data at a single location while avoiding problems of interference between different applications**. The examining division noted in the contested decision that it was not derivable from the wording of claim 1 that different applications were involved. However, this is implicit in the wording "application-specific directory".

The solution suggested in claim 1 is not obvious in view of D2 since, as noted above, D2 is silent on how and where a user's personal data is stored.

4. For these reasons, claim 1 of amended fourth auxiliary request **involves an inventive step** over the cited prior art D2.

T 2367/22 (Travel process prediction/THE AQUA ENTERPRISE COMPANY) 12-09-2023

European Case Law Identifier ECLI:EP:BA:2023:T236722.20230912

TRAVEL PROCESS PREDICTION SYSTEM AND COMPUTER PROGRAM

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

Application number 18156229.9
IPC class G06Q 50/30, G06Q 10/04, B61L 25/02, B61L 27/00, G06Q 30/02, G06Q 30/04, G06Q 50/26, G08G 1/005, G06N 5/02, G08B 19/00
Applicant name The Aqua Enterprise Company
Cited decisions T 1148/18, T 1670/07, T 1798/13

Board 3.5.01

<https://legacy.epo.org/boards-of-appeal/decisions/pdf/t222367eu1.pdf>

Claim 1 of the main requests 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 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 for acquiring transportation specifying information specifying transportation used by the travel object;

a means for acquiring situation information indicating a situation in which the travel object uses the transportation;

a means for storing passage time at each passage point, transportation specifying information and situation information, in an associated manner for each of a plurality of travel objects;

a means for extracting, from the means, a plurality of combinations of passage time concerning a specific passage point and other information associated with the passage time; and

a means for calculating, based on the extracted plurality of combinations, an estimate value of passage time at which a travel object passes through a specific passage point under a specific condition by conducting a regression analysis for obtaining a relationship between the passage time and said other information, or a calculation of a mean or variance of the passage time.

The invention

1. The invention concerns a system for more accurately predicting a travel time ("travel process"), by including predictions of the time spent waiting at various points during the trip, such as in the departure or arrival hall at an airport (see paragraphs [0004], [0005] and [0026] of the A1-publication).

2. The prediction relies on historical data, specifically the "passage time", which denotes instances when travelers pass through different checkpoints at the airport, along with corresponding "transportation specifying" (e.g. flight) and "situation" (e.g. weather) information - see Figure 8. It employs regression analysis along with statistical tests for means and variances.

3. The prediction results are, for example, an estimated time for a traveller to reach an arrival gate at the airport ("estimate value of passage time"), the time elapsed between passage points or an estimated duration between the completion of boarding and passage at a specific passage point.

Moreover, based on the outcome of statistical tests, the user is provided with advice ("explanatory text" in claim 1 of auxiliary request 9), such as "Make travel plan with sufficient time to spare" (see Figure 19, "ADVICE T").

Main request, claim interpretation

4. The wording of claim 1 is very general and, thus, admits a broad interpretation. It defines a system for predicting a travel process of a travel object comprising various means for "specifying passage time", "acquiring transportation specifying information", "acquiring situation information" or "calculating ... an estimate value of passage time". The means are claimed in functional terms, lacking specific technical details.

5. The appellant argued that, considering Figures 1, 2 and 6 along with paragraphs [0032] to [0035], [0037], [0041] and [0055] of the application, it was apparent that the claim specified a particular hardware configuration/architecture and implementation that could not be equated with a general-purpose networked computer system.

6. The Board interprets claim 1 in its broadest possible way, namely as a system comprising means for (even manually) inputting ("specifying", "acquiring") data, for storing and

extracting data from storage and calculating a mean value using the extracted data. A general-purpose networked computer possesses all these means and, thus, meets the criteria for the system or hardware defined in claim 1.

Furthermore, since it is the claims that define the matter for which protection is sought (Article 84 EPC), relying on features not present in the claims is not permissible when evaluating their compliance with the EPC.

Main request, inventive step (Article 56 EPC)

7. The appellant essentially argued that claim 1 defined a plurality of technical features and, thus, was not excluded from patentability under Article 52(2) and (3) EPC. Furthermore, the mathematical algorithm for predicting a travel time, including regression analysis and probability density functions (see e.g. paragraph [0107]), contributed to the technical character of the invention and, therefore, had to be taken into account for assessing inventive step (see Guidelines for Examination, section G-II, 3.3).

As explained in paragraph [0057], the claimed system was able to collect detailed information, including weather data, and harnessed an extensive multivariate data set for the regression analysis (paragraph [0077]) to yield a reliable and accurate prediction outcome. Neither D1 (US 2007/0222595 A1) nor D6 provided any indication to amass such comprehensive data. Furthermore, the method for gathering this substantial volume of data was neither obvious, nor feasibly executable on a general-purpose computer.

The appellant further argued that the predicted outcome could be used to control parts of the travel process system, such as expediting a baggage conveyor belt or averting congestion at check machines. By feeding back the prediction result into the system, e.g. through the activation or deactivation of certain check machines, transportation efficiency could be enhanced and energy consumption reduced.

8. Following the reasoning of T 1148/18 - Travel process prediction/THE AQUA ENTERPRISE COMPANY (see reasons, points 3 to 5), which concerns the parent application, the **Board** judges that **predicting the arrival or passage time of a traveler or baggage at a specific location based on historical data does not constitute a technical activity.**

This **task is performed by a person skilled in applying statistics to logistics and travel planning, rather than a technically skilled person.** It encompasses tasks like parameter selection, choosing the prediction algorithm such as regression analysis or deciding on the applicable statistical tests. The latter also involves determining significance levels based on statistical distribution tables such as the chi-square distribution (see paragraph [0101]).

Notably, in the present case, the **selection of parameters is not driven by technical considerations,** such as their measurement or any technical effects resulting from the selection. Even if this were disclosed in the description, this aspect is not reflected in the claim, which, in the broadest interpretation, merely specifies the (manual) input of passage time and other non-technical data like flight and weather information.

The **claimed means essentially outline the objective of the statistical analysis** - namely collecting and storing data and using this data to perform a statistical calculation which could be as simple as calculating the mean value of a set of numbers like the passage time.

Moreover, the **claim does not define any feedback mechanism using the prediction to control the transportation system**. This is, for example, different from D6 where, based on the actual location of baggage, the prediction is used to indicate an actual state of the baggage such as being late or on time (see point 25 below).

As outlined in T 1148/18, supra, reasons, point 5, in line with established jurisprudence the **skilled person is given the task of implementing the statistical calculation**. The claim defines that this is accomplished through means for inputting, storing, retrieving and calculating data. These means are inherent in any general-purpose networked computer system and, since no technical specifics are provided, the **Board concludes that the computer implementation of the claimed prediction method is obvious**.

9. The Board sees no contradiction with the passages of the Guidelines for Examination cited by the appellant. Section G-II, 3.3, which addresses mathematical methods, specifies that these methods make a technical contribution only if "in the context of the invention, [they] produce[s] a technical effect serving a technical purpose". This can occur, for instance, when they control an X-ray apparatus, are used for deriving indirect measurements, or are "adapted to a specific technical implementation" such as assigning the execution of certain method steps to a GPU or implementing a fast Fourier transform in a non-obvious manner.

Neither of these scenarios applies to claim 1. It essentially covers the concept of predicting a mean time for a travel object, like a person passing through a designated point, such as an exit gate at an airport. The Board judges that, in the case at hand, a travel time prediction does not yield any technical effect serving a technical purpose, and the implementation merely involves programming the statistical method on a general-purpose computer.

Therefore, **in line with established jurisprudence, factors like algorithmic efficiency, reliability or accuracy of the mathematical method in comparison to other prior-art mathematical methods are immaterial and, thus, not suitable to establish a technical effect**.

10. In the latest response, the appellant argued that "the Board does not seem to fully understand the principle of the computerized statistical prediction technology".

Consequently, it was imperative to refer to the description and accompanying Figures, which elucidated the technical meaning of the claims in defining "unique configurations and implementation in a computer". The description, for instance, highlighted the verification of a travel object's actual passage through a checkpoint, a detail not found in D6.

11. The Board judges that, as previously mentioned, the **claim covers simply computing the mean value of data**. Even if the statistical calculations were delineated in intricate detail, potentially being complex and challenging to comprehend, this would not alter the Board's

conclusion that these calculations, in the present context, do not make a technical contribution to the invention.

Furthermore, the **system for gathering and processing data does indeed incorporate check machines for ID reading and, in case of failure, executing error-handling procedures like recording error data or blocking passage** (see paragraphs [0042] to [0045]). This system undoubtedly transcends the capabilities of a general-purpose computer. However, these features are absent from the independent claims of the main request and, as such, are immaterial to the evaluation of inventive step.

12. For these reasons, the Board judges that the invention in claim 1 of the main request lacks an inventive step (Article 56 EPC).

T 1806/20 (Rain-sensitive parcels/IVECO) 17-11-2023

European Case Law Identifier ECLI:EP:BA:2023:T180620.20231117

SYSTEM FOR MANAGING A VEHICULAR MISSION OF A GOODS DELIVERY VEHICLE

Application number 15741333.7
IPC class G06Q 10/04, G06Q 10/08
Applicant name Iveco S.p.A.
Cited decisions T 1194/97, T 0641/00, T 0424/03, T 0154/04, T 2035/11

Inventive step - delaying the delivery of rain-sensitive parcels until it stops raining (no Inventive step - not technical)

Board.5.01

Catchword

Decision T 1194/97 established at point 3.3 of the reasons that data was functional if its loss impaired the technical operation of a system in which it was used.

...It is self-evident that if a piece, either technical or non-technical, of any invention is taken out, it would not work as designed. In the Board's view, what T 1194/97 is saying is rather that the loss of functional data would make the system inoperable at the technical level. In contrast, if cognitive data is lost, the system would still work but possibly produce results that would be unintended for non-technical reasons.

<https://legacy.epo.org/boards-of-appeal/decisions/pdf/t201806eu1.pdf>

claim 1 of the main request reads:

"A system for managing a vehicular mission of a goods delivery vehicle, said goods being defined by a plurality of parcels to be delivered, the system comprising:

- a cartographic satellite navigation system adapted to drive said vehicle along a route comprising a plurality of stops corresponding to the delivery places of one or more of said parcels,
- means for calculating an interval of time needed to cover the distance between each of said stops,
- means for acquiring weather forecasts of geographical areas containing each one of said stops at least for an interval of time when the vehicle is expected to be travelling through said geographical areas,

and characterized in that it comprises:

- a respective RFID associated to each of said parcels parcel, for storing a feature of sensitivity to water and a destination place of each respective parcel;
- means for sending a warning message when rain is expected at the delivery place of a parcel sensitive to water during the time interval when the delivery of said parcel sensitive to water is expected;
- processing means at a remote server programmed to, when said rain is expected at the delivery place of the parcel sensitive to water, recalculate the vehicular route inclusive of individual stops by entering the delivery of such a parcel sensitive to water in the current mission of the same vehicle or if there is a sufficient interval of time for the following day in which rain is not expected in the delivery place."

The appellant argued as follows:

The features distinguishing the invention from the closest prior art D3 had technical character.

Firstly, the prevention of damage to physical objects was a fundamental technical problem that was addressed throughout various areas of technology. Recognising that a parcel could be damaged by rain and avoiding such damage was a specific example of addressing this problem. To deny that this solution was technical in nature would be similar to arguing that protecting electrical circuits from overload damage was not technical - a clearly unsound conclusion.

Secondly, as was set out in T 2035/11 - Navigation system/BEACON NAVIGATION at points 5.2.1 and 7.4 of the reasons, the calculation of a route, along which a vehicle was guided in real-time, based on real-world conditions, in that case congestion information, was a technical task. Since water-sensitivity features of parcels and rain forecast were real-world conditions comparable to congestion information, recalculating a delivery route based thereon had technical character.

Thirdly, using a distinction made in decisions T 1194/97 - Data structure product/PHILIPS and T 424/03 - Clipboard formats I/MICROSOFT, the water-sensitivity features and rain forecast were functional data having an inherent technical character, rather than non-technical cognitive data. The former decision established at point 3.3 of the reasons that data was functional if its loss impaired the technical operation of a system in which it was used. The water-sensitivity and the rain forecast met this criterion, since their loss would make it impossible for the navigation system to recalculate the route.

Fourthly, the parcels' water-sensitivity features were of a technical nature because the server received them from RFID tags attached to the parcels.

2. The invention

2.1 The invention claimed in the main request concerns a parcel delivery system that seeks to prevent damage to water-sensitive parcels by avoiding delivery to rainy destinations, see the published application, page 1, line 24 to page 2, line 9.

2.2 A delivery vehicle is equipped with a satellite navigation system, for example within a tablet (not claimed), that is connected to a remote server, see page 6, lines 18 to 24. The system calculates a route for the delivery destinations of the parcels on board and acquires weather forecasts for the areas at these destinations at the estimated arrival times (second and third claim features), see page 3, lines 16 to 20. Although not explicitly claimed, the application discloses that these steps are performed by the remote server, which provides the calculated route, the weather forecasts and each parcel's water sensitivity feature to the satellite navigation system, see page 6, line 18 to page 7, line 7.

2.3 Each parcel has an RFID tag that stores its delivery destination and a water-sensitivity feature, see page 7, lines 18 to 19 and page 8, lines 6 to 9. Although the appellant argued that the water-sensitivity features in the RFID tags were uploaded to the server (see section XIII above), this is neither claimed nor disclosed. Instead, the Board understands, in light of the application (page 7, lines 6 and 7), that the remote server stores the parcels' water-sensitivity features independently of the RFID tags and performs all processing using the internally-stored features.

2.4 The navigation system guides the driver along the received route, see page 3, lines 8 to 11. If rain is expected at a delivery destination for a water-sensitive parcel, the navigation system provides a warning message to the driver, see page 7, lines 8 to 14. Furthermore, in such a case, the remote server reschedules the delivery of the parcel to another time during the same day or to the following day, provided that no rain is expected for that time or day, see page 2, lines 19 to 25 and page 8, lines 10 to 13.

3. Main request, Article 56 EPC

3.1 The examining division assessed inventive step starting from a general purpose networked computer system (decision, points 2.11 and 2.14). However, since claim 1 defines a vehicle navigation system presenting rain forecasts along a route traveled by the vehicle, the Board prefers to start from D3 which discloses these features and is much closer to the invention.

3.2 D3 discloses an on-board terminal for guiding a vehicle from a present position, detected using a GPS, to a destination, see paragraphs [29] and [73]. This terminal corresponds to the cartographic navigation system in claim 1. The destination might be a post office at which a parcel is to be sent ([50], last sentence) and, therefore, the vehicle of D3 is used, like the one in claim 1, for goods delivery.

The terminal is connected to a remote server which calculates a route to the destination ([43]), estimates the arrival time ([41]) and provides the route and a weather forecast for the area around the destination to the terminal for display ([102], [103], and [106]). It is implicitly disclosed that the weather forecast includes rain, and, therefore, presenting it corresponds to "sending a warning message when rain is expected at the delivery place of a parcel", as defined in claim 1. Furthermore, the server uses rain forecast data for route recalculation ([96]) rendering the appellant's arguments concerning the inventive step of this feature moot.

3.3 Hence, the **subject-matter of claim 1 differs from D3** (lettering added by the Board):

A) In that the vehicle delivers a plurality of parcels, whereas in D3 the vehicle delivers only one parcel.

B) In that the route includes multiple destinations and the weather forecasts and time intervals are provided for each of these destinations, whereas in D3 the weather forecast and the time interval are provided for one destination.

C) By an RFID tag associated with each parcel that stores the water-sensitivity feature of the parcel and its destination.

D) By means for sending a warning message when rain is expected at the destination of a water-sensitive parcel at its expected delivery time.

E) In that the remote server recalculates in such a case the route by postponing the parcel's delivery in the current mission of the same vehicle or to the following day, provided that no rain is expected for that time or day.

3.4 The **Board agrees with the examining division (see decision, points 2.6 and 2.7) that the distinguishing features implement a non-technical logistics scheme**, wherein:

- Multiple parcels are delivered.
- One or more of these parcels are labelled as water-sensitive and the deliverer is notified if there is rain at the destinations of these parcels.
- In such a case, the delivery rescheduling according to feature E takes place.
- Each parcel bears information about its water sensitivity and destination.

3.5 The appellant did not dispute that delivering multiple parcels at different destinations and planing such delivery constituted a non-technical logistics scheme. **The point of dispute was whether the rescheduling of the delivery based on the parcels' sensitivity to water and the rain forecast also formed part of this scheme.**

3.6 Contrary to the appellant's view, the **Board judges that the requirement to ensure that parcels do not get damaged forms part of the logistics scheme.** Considering that logistics is about the delivery of intact goods, there are evident business reasons for this requirement.

The **labelling of certain parcels as rain-sensitive and not delivering such parcels in the rain is a common-sense measure to meet this requirement.** The Board judges that this kind of interacting with and exploiting knowledge about the physical world falls under a business activity, cf. T 154/04 - Estimating sales activity/DUNS LICENSING ASSOCIATES, reasons, point 20.

Applying this common sense measure does not require technical considerations, for example appreciation of why rain can damage some things while being harmless to others. This distinguishes the present case from the appellant's example, where protective measures against overload damage to an electric circuit could only be taken after certain technical aspects had been understood.

3.7 The **Board is also not convinced by the argument that the technical effects in the present case are similar to those in case T 2035/11, supra.**

Firstly, in that case, technical character was found to result from the dynamic recalculation of a route along which a vehicle was guided. In contrast, **in the present case there is no recalculation, but merely a rescheduling which** covers following the same route, but not dropping some parcels off. Thus, for this reason alone, the conclusions drawn in T 2035/11 are not applicable to the present case.

Secondly, even assuming that rescheduling parcel delivery involves some route modification, this still does not help the appellant's case. T 2035/11 states that a route recalculation has technical character only insofar as it is based on technical considerations (reasons, point 5.2.3). However, **the route recalculation in the present case would be based on the avoidance of rain damage to parcels, which, as discussed above, is not a technical consideration.**

3.8 Furthermore, the **Board is not convinced by the argument that information about a parcel's water-sensitivity is functional technical data** in the sense of decisions T 1194/97, supra, and T 424/03, supra, because its loss would impair the technical operation of the system (cf. T 1194/97, reasons, point 3.3).

It is self-evident that if a piece, either technical or non-technical, of any invention is taken out, it would not work as designed. In the Board's view, what **T 1194/97 is saying is rather that the loss of functional data would make the system inoperable at the technical level.** In contrast, **if cognitive data is lost, the system would still work but possibly produce results that would be unintended for non-technical reasons.** Thus in T 1194/97, the loss of

functional data prevented the system from generating any television picture, whereas the loss of cognitive data only resulted in a meaningless television picture resembling snow.

In the present case, the loss of water-sensitivity information would not cause the system to stop working; the vehicle would still be guided, and parcels would be delivered. However, it would result in leaving water-sensitive parcels standing in the rain - an unintended operation comparable to producing a television picture that resembles snow. The *reasons why these outcomes are unintended are non-technical*. In T 1194/97, it was the cognitive meaningfulness of the television picture to a human viewer; in the present case, it is the prevention of rain damage to a parcel. Hence, **judged by the consequence of its loss, the water-sensitivity data is equivalent to cognitive rather than functional data.**

3.9 Applying the COMVIK approach (decision T 641/00 - Two identities/COMVIK), once the business requirement, set out at point 3.4 above, has been given to the skilled person to implement, enhancing the server of D3 to calculate routes including multiple parcel destinations and acquiring rain forecast for those destinations would have been obvious. It would also have been obvious to store the parcels' water-sensitivity features at the server and to adapt it to reschedule parcel delivery in case of rain. Adapting the terminal of D3 to provide a warning message in such a case directly follows from the requirement specification.

Furthermore, the Board agrees with the decision (points 2.13 and 2.20.6) that the use of RFID tags to store features of parcels would have been obvious in view of D5, in particular pages 1 and 2, which summarise the skilled person's common general knowledge.

3.10 Hence, claim 1 of the main request **lacks an inventive step** (Article 56 EPC).

T 0302/19 (Cell characterization/BIO-RAD) 21-12-2023

European Case Law Identifier ECLI:EP:BA:2023:T030219.20231221

CELL CHARACTERIZATION USING MULTIPLE FOCUS PLANES

Inventive step - automation of a known manual practice (no)

Remittal for further prosecution (yes)

Application number 11733297.3
IPC class G06K 9/00
Applicant name Bio-Rad Laboratories, Inc.

Board 3.5.06

Catchword

For an argument that a claimed method is a straightforward automation of a known manual practice of a laboratory assistant, it should be clear what is the alleged manual practice, it should be convincing that it was indeed an existing practice at the relevant date and that it would have been obvious to consider automating it (see point 20 et seq).

of the reasons).

<https://legacy.epo.org/boards-of-appeal/decisions/pdf/t190302eu1.pdf>

The application

1. The application is related to the technical field of cytometry, concerned with counting and characterizing biological cells. More particularly, it relates to an automated image-based method for determining whether particular cells in a sample are live or dead (page 1, lines 12-25, of the published application).

2. The method is based on the trypan blue dye exclusion test. When the sample containing the cells is treated with trypan blue dye, the dye is readily absorbed by dead cells, but live cell membranes tend to prevent absorption of the dye. The live cells should therefore appear to have lighter centers than dead cells. See page 6, lines 23-28, and figure 4.

...

Inventive step

18. The examining division found that the then pending claim 1 lacked an inventive step, Article 56 EPC. The examining division's reasoning, as far as it is under-stood by the board, comprised the following elements.

18.1 The skilled person was a team comprising a person skilled in cytometry and a person skilled in computer-implemented image analysis.

18.2 It was common general knowledge that "finding the best focus between specimen and the microscope objective is essential" in microscope applications and that "many of the specimen's morphological characteristics depend upon contrast and edge transitions, which change with the focus setting", as evidenced by D5.

18.3 The examining division found that "[i]t was [...] known to stain a cell sample with trypan blue [or nigrosin] and to detect visually (by [a] laboratory assistant) viable cell[s] based on the effect that viable cells exclude the dye and hence have a clear/un-stained cytoplasm while non-viable cells include the dye in the cytoplasm which hence appears stained (blue in the case of trypan blue)" and that, as evidenced by D6, it was "furthermore known that non-viable cells and cells which are out-of-focus and viable cannot clearly be distinguished". The examining division called this the "ambiguity problem". All this was considered to be common general knowledge in view of the fact that D6 was a book published 1976 that had been often cited since then.

18.4 The examining division considered that "**the task to automate a trypan blue or nigrosin cell viability assay was an obvious task before the date of priority of the present application**", as it had been known, as evidenced by D1, D2 and D3, to "automate procedures in cytometry that were previously performed by laboratory assistants".

18.5 The **skilled person would also have known "that the cells may change their position in different focus slices"** as they are normally immersed in a liquid when being imaged using a microscope, as evidenced by D8. Solutions to the "ambiguity problem" trying "to assemble the slice images into one focused 2D (or 3D) image" were thus not possible or at least difficult.

18.6 According to the examining division, it **would therefore "have been obvious to a skilled person implementing an automated process to identify a cell that cannot be classified in one slice, due to the ambiguity problem, in a different slice, and try to classify it there"**. This would "anyway directly correspond to what a laboratory assistance (or scientist) used to do when automatic method[s] were not available". A second image would have to be available for analysis whenever it was determined that a cell is ambiguous.

18.7 The claimed method differed from "such processing" merely by the last feature of (then) claim 1 relating to how the cell is located in the second image. This last feature was considered "to cover essentially any kind of tracking (in images)". **Tracking of objects in images was common general knowledge.** D9 disclosed an application of tracking in the context of cytometry.

18.8 In point 3.4 of the contested decision, in response to an argument submitted by the appellant in its letter of 18 November 2016, the examining division noted that **"what has been claimed as steps are [...] results-to-be-achieved where the desired results relate directly to the manual practise"**.

The examining division held that, in its view, "a laboratory assistant trying to resolve the above men-tioned ambiguity problem for a cell at one focus setting would change the focus setting and try to look at the same cell in a (slightly) different focus setting", "[a]fter changing the focus setting he/she would have to identify the same cell which he or she would do to identify the most similar cell in the close vicinity of the cell from the previous focus setting", so that "the laboratory assistant would in fact maximize a similarity score for cells in the vicinity of the previous location while identifying the matching cell".

Claim 1 of the then pending request was thus obvious to a skilled person in view of common general knowledge. The same applied, mutatis mutandis, to claim 7.

19. The appellant argued that the examining division's finding was "no longer applicable in light of the amendments of the independent claims", which "now properly reflect[ed] the **gist of the invention**", namely that (1) **the focus plane that was best for counting cells was not necessarily the best for determining whether a cell is live or dead and that (2) this determination needed not be made at best focus for the individual cell** (this being implicit, for example, from figures 6 and 7).

This was contrary to the conventional knowledge in the art and thus non-obvious. D5 and D6, in particular, would at best suggest that best focus was also best for cell viability determination and would thus not have led the skilled person to the feature of claim 1

according to which the second image, on the basis of which the cell was classified as live, "was not taken at a plane of best focus".

20. The **board does not follow the examining division's reasoning.**

20.1 This reasoning amounts essentially to consider claim 1 as being a straightforward automation of a known manual practice of a laboratory assistant.

For such an argument to succeed, it should be clear what is the alleged manual practice, it should be convincing that it was indeed an existing practice at the relevant date and that it would have been obvious to consider automating it.

20.2 A clear description of the alleged manual practice - in particular of the concrete steps allegedly performed by a laboratory assistant - has, at best, been provided by the examining division in point 3.4 of the decision (see point 18.8 above).

20.3 It appears to be uncontested that the trypan blue dye exclusion test was the basis of a common manual practice for assessing the viability of cells in a sample at the relevant date.

The board is however not convinced, on the basis of the available evidence, that it was part of that practice, to determine the viability of any given cell by first attempting to determine it based on a first focus plane and, if the cell appeared to be dead on the basis of that first focus plane, to try again based on a second focus plane.

20.4 D6 contains only pages 55 and 56 of what is volume XIII of a book series called "Methods in Cell Biology", published in 1976. The passage relied on by the examining division appears in the caption of Figure 16(B). It reads: "A few damaged cells staining darkly with trypan blue can be seen (arrows). Cells that are out of focus may appear dark in the picture, but they have unstained nuclei and are structurally intact". Page 55 refers only to Figure 16(A) and does not add anything of relevance to the matter at issue.

The board notes that the **quoted sentences of D6 do not specify a practice - in terms of steps to be carried out - but an insight in relation to the trypan blue dye exclusion test: viable cells that are out of focus may appear as if they were non-viable.** D6 does not disclose how this insight is or should be taken into account by a laboratory assistant when applying the trypan blue dye exclusion test to assess the viability of cells in a sample. It does in particular not teach that for any given dark cell the focus should be changed to see whether the cell is actually viable. The available excerpt of D6 does not mention any change of focus. Figures 16(A) and 16(B) differ in that they show the "initial cell suspension" and the "final cell suspension".

The board considers therefore that **D6 does not establish the existence before the relevant date of a manual practice** as described by the examining division.

21. The board refers to prior art document D10 for a description of a protocol to manually carry out the trypan blue exclusion test of cell viability, included in the book "Current Protocols in Immunology" (1997).

In step 4, the human operator is told to place the hemacytometer containing the sample comprising the cells mixed with trypan blue dye on the stage of a microscope and to "focus on the cells".

In step 5, the human operator is told to "count the unstained (viable) and stained (nonviable) cells separately in the hemacytometer".

It appears that **"focus on the cells" in step 4 instructs the operator to find a single "best" focus setting in which most if not all cells would be in focus, and not a best focus for each individual cell** (doing so manually would also be prohibitively time-expensive). There is in particular **no disclosure of determining the viability of a given cell initially found non-viable by changing focus and reassessing viability.**

22. Automating the manual practice described in D10 would have been an obvious aim.

It appears that a straightforward solution would have been to implement step 4 by determining the focus plane that is globally best, e.g. by a contrast-based auto-focus procedure. This would have involved taking a series of digital images at various focal planes, computing a contrast metric for each of them and selecting the best focal plane as that for which the contrast metric is highest.

An obvious implementation of step 5 would then have been to identify the cells and to classify them as viable or not viable by an analysis of the digital image taken at that best focal plane.

The skilled person would thereby not have arrived at the invention.

23. The board considers that even consideration of the teaching of D6 in the course of devising an automated version of the manual practice described in D10 would not have led the skilled person to the invention.

The skilled person could have derived from D6 that the viability of each individual cell (to be determined according to step 5) may best be determined if it is ensured beforehand that the cell is in focus. This could have led the skilled person to consider auto-focusing on each individual cell prior to determining its viability. This would however not have led the skilled person to the iterative process of the invention as the classification of a given cell as live or dead would still only have been based on a single image.

24. **The board also agrees with the appellant that no prior art on file suggests that classifying a cell as live or dead does not require the digital image on which the classification is based to have been taken at a focus plane that is "best" for the image as a whole or for the cell in particular.**

The proposed iterative process exploits this insight to provide a more accurate yet computationally efficient approach to classifying a cell as live or dead in that it searches

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beyond the focus plane that is best for the whole image, yet does not require to find the focus plane that is best for the considered cell to be in focus.

This iterative approach may not have been properly reflected in claim 1 that was before the examining division, but now it is in present claim 1.

Remittal for further prosecution
