This document includes some recent decisions of the EPO in 2022 with regards to software related inventions and shows relevant extracts from the respective decisions.

T 1779/17 () of 22.2.2022

European Case Law Identifier: ECLI:EP:BA:2022:T177917.20220222

DRUG DELIVERY MANAGEMENT SYSTEMS AND METHODS

Inventive step (no) (yes)

Application number: 10746603.9
IPC class: A61M 5/00, A61M 5/24, A61M 5/31, A61M 5/315, G06F 19/00, G01D 5/165
Applicant name: LifeScan, Inc.
Opponent name: Vetter Pharma-Fertigung GmbH & Co. KG
Cited decisions: G 0009/91; G 0001/12

Board: 3.2.02

https://www.epo.org/law-practice/case-law-appeals/pdf/t171779eu1.pdf

Claims 1 of the main request readS as follows:

1. "A drug delivery pen (100; 200; 400; 500) comprising:

a pen housing that extends from a first end (112) to a second end (113) along a longitudinal axis (L1), the housing being coupled to a drug cartridge (150; 250; 450) disposed proximate one of the first and second ends (112, 113), the drug cartridge (150; 250; 450) including a volume of one or more drugs (153) disposed therein;

a microprocessor (290; 590) disposed in the housing and operatively connected to a power source and memory (168); and characterized by

an inertial sensor (176; 276; 476; 576) connected to the housing and in electronic communication with the microprocessor (290; 590) so that the microprocessor (290; 590) is able to determine from output signals of the inertial sensor (176; 276; 476; 576) as to whether the housing has been shaken back and forth a predetermined number of times along the longitudinal axis (L1) to mix the one or more drugs disposed in the cartridge (150; 250; 450)."

VI. Compared to claim 1 of the main request, claim 1 of auxiliary request 1 further includes the following feature added to the end of the claim:

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"wherein the microprocessor (290; 590) is configured to determine from output signals of the inertial sensor (176; 276; 476; 576) whether the pen housing including the cartridge (150; 250; 450) is oriented topmost and generally vertically with respect to the ground in a priming position."

3. Main request - patent as granted

3.1 Article 100(b) EPC

In the third-party observations it was submitted that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC).

No ground for opposition according to Article 100(b) EPC had previously been raised. The proprietor did not agree with the introduction of this new ground for opposition. Pursuant to G 9/91, Reasons 18, this ground cannot be introduced into the appeal proceedings.

3.2 Novelty

The objection of lack of novelty of the subject-matter of claim 1 as granted over GG6, submitted by the third party, is admitted into the appeal proceedings because it relates to an issue decided upon by the opposition division and substantiates why the opposition division allegedly erred in its decision.

Paragraph [0093] of GG6 discloses "means for detecting shaking movements", without further specifying the means. Contrary to the third party's view, it is conceivable for means other than an inertial sensor to be used for this purpose, e.g. an image sensor detecting shaking movements by image analysis. Moreover, the meaning of "inertial sensor" in claim 1 is not affected by whether the preferred inertial sensor indicated in the patent specification is able to carry out the function defined in claim 1. Hence, GG6 does not disclose an "inertial sensor" as required by claim 1 and therefore the subject-matter of claim 1 is novel over GG6 for this reason alone.

3.3 Inventive step

3.3.1 The background of the invention as described in paragraph [0001] of the patent specification indicates that insulin pens for insulin users are convenient and easy to use. When a user manually shakes an insulin pen, the actual motion of the pen will not be exclusively along the longitudinal axis but will include some rotational or lateral components. The interpretation submitted by the proprietor that the detection in claims 1 and 7 was restricted to a purely linear motion along the longitudinal axis would result in practice in virtually no shaking movement "along the longitudinal axis" being detected. This argument therefore cannot be accepted because it is not technically sensible and it does not take the disclosure of the patent into account.

3.3.2 The proprietor contested the opposition division's finding that the subject-matter of claim 1 was not inventive over GG6 in view of common general knowledge.

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3.3.3 Document GG6 discloses a modular medication delivery device such as a pen injector ([0010]-[0011]). Among the replaceable modules which can be part of the medication delivery device, GG6 describes in each of paragraphs [0041] and [0093] a replaceable module containing "means for detecting shaking movements of the medication delivery device and means for providing an alarm signal indicating that a certain amount of shaking movements has been performed to **ensure a proper mixing of the constituents** of the medication cartridge". Document GG6 likewise discloses processing means (paragraph [0024]) disposed in the housing and operatively connected to a power source and memory (paragraph [0024], see also Figures 3-4 and paragraphs [0076]-[0078]).

3.3.4 Claim 1 is novel over GG6 in that GG6 does not disclose that:

1) the sensor is an inertial sensor and the microprocessor is able to perform the determination from output signals of the inertial sensor; and

2) a predetermined number of shaking movements back and forth along the longitudinal axis can be determined by the microprocessor.

3.3.5 The **first distinguishing feature** has the effect of providing a specific technical implementation of the means for detecting the shaking movements in GG6. The **second distinguishing feature** has the technical effect of restricting the counting to the shaking movements along the direction which contributes most to the mixing of the drugs.

3.3.6 The proprietor argued that it was the **relationship between the microprocessor and the inertial sensor which enabled the technical effects** and which addressed the problem of how to improve the reliability of the mixing of the medicament to ensure a more effective drug delivery.

The **board has a different view**. The determination by the microprocessor from output signals of a sensor as defined in claim 1 could likewise occur with signals of a sensor other than an inertial sensor, e.g. with an image sensor as referred to within the novelty analysis. Thus, the **distinguishing features have no synergistic effect** and it has to be established which problem is solved by each feature and whether each feature is separately obvious in the light of the prior art, using so-called "**partial problems**".

The **first problem** can be regarded as how to implement the means for detecting the shaking movements of GG6. The **second problem** can be regarded as how to determine whether the constituents of the medication cartridge in the drug delivery pen have been properly mixed.

3.3.7 The person skilled in the art starting from GG6 and faced with the **first problem** needs to choose a specific technical implementation of the "means for detecting shaking movements" disclosed in paragraph [0093], an issue which necessarily arises when carrying out the teaching of GG6.

It is well known that electronic inertial sensors can be used to detect movements such as shaking movements, allowing the subsequent counting thereof before the triggering of an alarm as described in paragraph [0093] of GG6. Moreover, if the use of other types of sensors

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is conceivable, an electronic inertial sensor would **represent an obvious choice** for the implementation, which would be used in GG6 by the person skilled in the art without inventive effort. In this regard, reference is made by way of example to GG9 (page 3, lines 29-30; page 4, lines 11-14; and page 6, lines 7-10).

3.3.8 As regards the **second problem**, the drug delivery pen of GG6 has a longitudinal housing and a longitudinal, cylindrical medication cartridge (see cartridge 12 in Figure 2 and [0074]); their respective longitudinal axes are parallel to each other.

It is part of common general knowledge that mixing the constituents of an elongated component such as the medication cartridge of the pen of GG6 is mainly achieved by back and forth shaking movements along its longitudinal axis. In turn, shaking movements in a transverse direction provide only a minor contribution to the mixing.

In order to improve the determination as to whether the constituents of the medication cartridge in the drug delivery pen of GG6 have been properly mixed, **the person skilled in the art using their common general knowledge would thus implement the determination of the number of shaking movements of GG6, focusing on those shaking movements which substantially contribute to the mixing, i.e. those along the longitudinal axis** of the medication cartridge and thus also of the housing, since they are parallel to each other.

3.3.9 In summary, the person skilled in the art starting from GG6 and faced with the problems above would arrive, using their common general knowledge, at a drug delivery pen anticipating the subject-matter of claim 1 without using inventive skill.

3.4 It follows that the **main request is not allowable for lack of inventive step** of the subject-matter of claim 1 (Article 56 EPC).

4. Auxiliary request 1

4.1 Inventive step over GG7 and common general knowledge

In the third-party observations, an objection of lack of inventive step of the subject-matter of claim 1 in view of GG7 and common general knowledge was raised.

Auxiliary request 1 corresponds to the version maintained by the opposition division which was filed on 16 November 2016, i.e. one month prior to the oral proceedings before the opposition division. This inventive-step objection defines a new line of attack not raised during the opposition proceedings and not addressed in the impugned decision. The board has decided not to admit this objection into the proceedings under Article 12(4) RPBA 2007.

4.2 Inventive step over GG6 and GG4

4.2.1 The opponent submitted that claims 1 and 7 did not require the same inertial sensor to be used to determine whether the housing had been shaken back and forth a predetermined number of times along the longitudinal axis and to determine whether the housing was oriented topmost and generally vertically with respect to the ground in a priming position. The opponent also **alleged that a German court in infringement proceedings would most**

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likely regard a pen device with two different inertial sensors carrying out the different functions as falling under the scope of protection of claims 1 and 7.

The **board** notes that claims 1 and 7 respectively introduce "an inertial sensor" and subsequently refer to it by using a definite article before the term "inertial sensor" (e.g. "from output signals of the inertial sensor"). Hence, each of the independent claims 1 and 7 defines a single inertial sensor which serves two different purposes. The board additionally notes that this conclusion is also supported by the description of the patent specification: the first few words of paragraph [0046], namely "The inertial sensor is also utilized to ..." (underlining added by the board), make it clear that **the same inertial sensor is used for both functions**.

The submission by the opponent about how a German court in infringement proceedings would interpret the claim **relates to an issue which is not at stake in the present case**. **Infringement proceedings are different from opposition appeal proceedings before the EPO** concerned with the patentability of the subject-matter of a claim in view of the prior art.

The opponent submitted that the wording used in the independent claims did not require a microprocessor configured to determine "whether the housing has been shaken ...", but rather merely a processor which could be programmed to carry out such a determination, i.e. any programmable microprocessor.

The fact that the **microprocessor in claim 1 "is able to determine ..."** defines a functional **feature of the microprocessor**. In **the context of a data processing function** carried out by **an entity such as a microprocessor,** this functional feature is construed as the **microprocessor not just being able to carry out the function but being adapted to carry it out as is,** in agreement with established EPO practice when assessing means-plus-**function feature**s (see T 410/96, Reasons 5-10, and T 96/12, Reasons 4; see also Guidelines for Examination in the EPO, F-IV, 4.13.2, 3rd paragraph, as well as F-IV, 3.9.1). For the same reasons, claim 7 is likewise construed as requiring the necessary configuration to carry out the determination described.

4.2.2 It is common ground that the feature added to claims 1 and 7 of auxiliary request 1, i.e. the microprocessor being configured to determine from output signals of the inertial sensor whether the pen housing including the cartridge is oriented topmost and generally vertically with respect to the ground in a priming position, is not disclosed in document GG6 and thus constitutes an **additional distinguishing feature**.

4.2.3 It was submitted both by the opponent and by the third party that the features distinguishing the subject-matter of claims 1 and 7 from GG6 each solved the partial problems of proper mixing and proper priming position detection and that GG4 taught in column 3, lines 13-17, a priming detection facility using an accelerometer (i.e. an inertial sensor), and therefore the feature added to claims 1 and 7 could not lead to an inventive step either. The **board has reached a different conclusion**, for the reasons presented below.

4.2.4 GG6 uses a modular design. The idea in GG6 is that key components, such as injection mechanics, processor, memory, battery, etc., are provided in a basis module in order to avoid duplication of key components (see paragraphs [0016]-[0018], [0050]-[0051], [0057] and [0074]-[0078]). The basis module is then combined with one or more replaceable modules

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from a collection of replaceable modules in order to provide an individual pen tailored to the functions needed by a user (see e.g. paragraphs [0009], [0012]

and [0053]-[0054]). Each replaceable module in the collection of replaceable modules is adapted to cooperate with the basis module to provide a specific function (see paragraphs [0010] and [0052] of GG6).

4.2.5 The teaching in paragraph [0016] of GG6 that the device is to be customised while avoiding the duplication of key components refers to the provision of a basis module containing common resources, as indicated above. It does not imply that an identical sub-component - such as an inertial sensor - cannot be present in two different replaceable modules. This is confirmed by the list of replaceable modules disclosed in GG6, in which different modules include, e.g., a loudspeaker (see paragraphs [0035]-[0036]) or means for providing an alarm (see paragraphs [0040]-[0041]).

4.2.6 The arguments that a module combining proper mixing detection and priming detection would also be considered and that the replaceable modules disclosed in paragraphs [0037]-[0042] of GG6 show different functionalities being provided in the same replaceable module are not convincing.

GG6 explicitly describes in paragraphs [0010] and [0052] **each module being adapted to provide a specific function**. Each of the replaceable modules disclosed in paragraphs [0029]-[0047] deals with a specific function which is presented in the corresponding paragraphs [0081]-[0099]. For example, "monitoring and controlling the temperature of the medication cartridge and its contents" refers to a single function, namely "ascertaining that the currently loaded medication is usable, irrespective of the temperature that the device experiences" (see paragraph [0090]). The modules of paragraphs [0040]-[0041] also serve only to ensure a proper mixing of the constituents of the medication cartridge, even if sub-components for counting the number of shaking movements and for providing an alarm signal are needed for this function.

Medication mixing and pen priming are two different functions relating to two different preparatory steps of the drug delivery pen, and therefore providing both in the same replaceable module would go against the teaching of GG6 of having each module adapted to provide a specific function.

4.2.7 Hence, the person skilled in the art starting from the modular pen injector of GG6, even if faced with the partial problems mentioned above and a desire to implement a priming detection facility following the teaching of GG4, **would have provided separate replaceable modules for proper mixing detection and for priming detection.** That is, the two functionalities **would not have been provided in the modular pen injector of GG6 in the same replaceable module using the same inertial sensor,** and therefore the person skilled in the art would not have arrived at a device anticipating the subject-matter of claims 1 or 7.

4.2.8 Document E1 was filed to support the ground of opposition of insufficient disclosure and was referred to in the third-party arguments against inventive step. More specifically, it was argued that an accelerometer such as the one shown in E1 would be an inertial sensor. Such a sensor could be used for sensing proper priming. However, this argument does not

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address the issue of why the person skilled in the art should use the same module for both functionalities.

4.2.9 It follows that the objection of lack of inventive step (Article 56 EPC) over GG6 and GG4 does not prejudice the maintenance of the patent on the basis of auxiliary request 1.

4.3 There were no further objections against auxiliary request 1. Since auxiliary request 1 corresponds to the request found to meet the requirements of the EPC by the opposition division in the appealed decision, there is no reason to set aside that decision.

T 1743/19 (Possible next actions/CAREFUSION303) of 4.3.2022

European Case Law Identifier:　　ECLI:EP:BA:2022:T174319.20220304

ADAPTABLE MEDICAL WORKFLOW SYSTEM

Patentable invention - presentation of information
Inventive step - (no)
Late-filed request - submitted with the statement of grounds of appeal
Late-filed request - admitted (no)

Application number:　10843499.4
IPC class:　　　　　G06F 19/00
Applicant name:　　CareFusion 303, Inc.
Cited decisions:　　G 0009/91, G 0010/91, G 0010/93, T 1091/17, T 0995/18

Board: 3.5.05

https://www.epo.org/law-practice/case-law-appeals/pdf/t191743eu1.pdf

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

"A method of adapting a medical workflow implemented at a processor coupled to a hospital network, comprising:

receiving a message comprising medical information data;

predicting a healthcare worker's workflow using, at least in part, the medical information data; and

communicating to an interface, based on the predicting, a menu comprising one or more medical action options;

the method being characterized in that:

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said predicting comprises using information related to past actions by the healthcare worker for predicting the healthcare worker's workflow, and associating probabilities with actions possible by the healthcare worker; and

prioritizing display of possible next actions in the menu using the probability values associated with said actions."

Claim 1 of auxiliary request 5 reads as follows:

"A method of adapting a medical workflow implemented at a processor coupled to a hospital network, comprising:

receiving a message comprising medical information data;

predicting a healthcare worker's medical workflow using, at least in part, the medical information data; and

communicating to an interface, based on the predicting, a menu comprising one or more medical action options;

the method being characterized in that:

said predicting comprises training, using information related to past medical actions by the healthcare worker, and associating probabilities with medical actions; and

displaying next medical actions of higher probability at the top in the menu."

1. Main request - Inventive step (Article 56 EPC)

1.1 The appellant considers all the features in the characterising part of claim 1 of the main request to be distinguishing features over D2, which reads as follows:

"predicting comprises using information related to past actions by the healthcare worker for predicting the healthcare worker's workflow, and associating probabilities with actions possible by the healthcare worker; and

prioritizing display of possible next actions in the menu using the probability values associated with said actions"

1.2 Whereas D2 predicts the next possible actions in a healthcare worker's workflow based on known ordered activities or tasks (see D2, [0081] and [0082]), the claimed method predicts the **next possible actions using the healthcare worker's past actions**, which the appellant emphasises in its submissions are **"medical" past actions**, and **displays** these actions in a menu **prioritised according to their associated probabilities**.

1.3 The **distinguishing features thus result in the generation and display of a different menu than the method of D2**. The board judges this to be a **presentation of information which does not contribute to the technical character of the invention**. The appellant

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argued that the <u>distinguishing features had a number of technical effects</u>, none of which convinced the board since the alleged effects are either not technical or not derivable from the distinguishing features.

1.3.1 The <u>appellant</u> argued that <u>errors were reduced and efficiency increased on the part of healthcare workers</u> during the time in which <u>healthcare workers became accustomed to upgrades or changes</u> to existing healthcare configurations. Although the board cannot entirely follow how possible actions learned by training from past actions of a healthcare worker may be relevant for their becoming accustomed to changes, **becoming accustomed to something is not a technical but a cognitive effect.**

1.3.2 Referring to paragraph [0022] of the description, the <u>appellant</u> argued that the <u>need for a healthcare worker to follow only a single specific sequence of actions was eliminated.</u> It reiterated at the oral proceedings that the distinguishing features gave the healthcare worker <u>more flexibility</u>. However, improved flexibility cannot be derived from the distinguishing features, which do not concern **which sequence of actions** the healthcare worker is to follow but merely what is presented to the worker. Th**ey are free to follow or not follow the presented possible actions**, both in D2 and the claimed method.

1.3.3 The <u>appellant</u> argued that the <u>worker **may** be relieved from having to **remember a specific sequence** of scanning various medical objects</u>. The board cannot see how a specific order of scanning medical objects may be derived from the distinguishing features. These are not related to any scanning order. Irrespective of this, **relief from having to remember something is also a non-technical cognitive effect**.

1.3.4 At the oral proceedings, the <u>appellant</u> submitted that the menus displayed in a healthcare context could easily include a high number of possible actions, requiring scrolling or other navigation across several pages. Displaying the most probable actions at the top in the menu provided for <u>a more efficient display for the healthcare worker</u>. However, **whether a user finds a menu display more efficient or clearly arranged is a non-technical matter of preference**.

1.3.5 In its letter of reply to the board's preliminary opinion, the <u>appellant</u> argued that the menu according to claim 1 <u>placed the user in a favourable position to carry out the technical task of selecting a next option</u> from the menu guiding the user through a workflow and submitted that in previous decisions of the boards of appeal, a GUI placing the user in a favourable position to carry out a technical task had been regarded as technical. It is evident that the appellant was referring to the established test that a presentation of information might exceptionally contribute to the technical character of an invention if it credibly assists the user in performing a technical task by means of a continued and guided human-machine interaction process (see e.g. T 1091/17, point 1.7 of the Reasons). Nevertheless, **the case at hand fails this test at the very outset since selecting from a menu is not a technical task, contrary to the appellant's argument.**

1.3.6 The appellant further argued that the <u>amount of data to be communicated to the interface of the healthcare worker was drastically reduced</u>, e.g. limited to only the most probable options, thus reducing the load on the hospital network. This effect is also not derivable from the distinguishing features. **Prioritising** the display of possible next actions in a menu, e.g. by

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displaying actions with higher probabilities at the top as described in paragraph [0037] of the description, **does not reduce the amount of communicated data but merely changes the order in which the menu is presented**.

1.3.7 At the oral proceedings, the <u>appellant</u> argued that the distinguishing features also <u>contributed to patient safety</u>. Time is at a premium in healthcare and <u>increasing the efficiency of healthcare workers in any task, such as finding the next action in a menu in the current case, reduced their time stress and therefore improved patient safety in healthcare.</u> However, the **board cannot accept such a broken technical chain. Time and stress management of a worker is not a technical problem. The fact that they work in healthcare and that their work has consequences on patient safety does not change that finding**.

1.4 Since the **distinguishing features of claim 1 do not have any technical effect, they cannot solve any objective technical problem. Therefore, the subject-matter of claim 1 of the main request does not involve any inventive step** (Article 56 EPC).

2. Auxiliary requests 1 to 4 - Admissibility (Article 12(4) RPBA 2007)

2.1 In accordance with Article 12(4) RPBA 2007, the board has discretion not to admit requests which could have been presented in the examination proceedings.

2.2 With the statement setting out the grounds of appeal, the appellant filed new auxiliary requests 1 to 4. Auxiliary requests 1 and 2, although based on auxiliary request 1 and 2 on which the contested decision is based, have in dependent claims 8 and 16 a new feature added from the description. Auxiliary requests 3 and 4 have several features added from the description into claim 1. The addition of new features from the description is contrary to the primary object of appeal proceedings, which is to review the contested decision in a judicial manner (cf. Article 12(2) RPBA 2020). Appeal is not a continuation of the examination proceedings. Such amendments could and should have been made during the examination proceedings.

2.3 The appellant's arguments in favour of the admissibility of these requests failed to convince the board.

2.3.1 First, the appellant found the retrospective application of Article 12(2) RPBA 2020 to the case at hand unfair, although it was aware that Articles 24 and 25 RPBA 2020 explicitly required this. However, **the principle that the primary object of appeal proceedings is to review the contested decision in a judicial manner is long-established case law (see G 9/91 and G10/91, point 18 of the Reasons and G 10/93, point 4 of the Reasons). It cannot be unfair to reiterate a long-established principle.**

2.3.2 Second, the appellant alleged that the purpose of the provisions giving boards discretionary power not to admit requests was to ensure fair proceedings, free of tactical abuse. Since there was no such tactical behaviour from the appellant in the case at hand, auxiliary requests 1 to 4 had to be admitted. However, there is neither in Article 12(4) RPBA 2007, nor in the document CA/133/02 explaining the purpose of this provision (then Article 10a), any suggestion that the boards' discretionary power should be restricted as suggested by the appellant.

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2.3.3 Third, the appellant argued that the independent claims of auxiliary requests 1 and 2 were identical to the independent claims of auxiliary request 1 and 2 on which the contested decision was based. The **only amendments were to a dependent claim**. However, **there is no legal basis for considering two requests identical when they differ merely in dependent claims.**

2.3.4 Finally, the appellant argued that these auxiliary requests prima facie overcame newly raised objections of the board. But **requests filed with the statement setting out the grounds of appeal, i.e. before the notification of the board's preliminary opinion, cannot possibly address objections not yet raised by the board.**

2.4 Therefore, since auxiliary requests 1 to 4 could and should have been presented in the examination proceedings, the board did not admit them into the appeal proceedings (Article 12(4) RPBA 2007).

3. Auxiliary request 5 - Inventive step (Article 56 EPC)

3.1 Claim 1 of auxiliary request 5 differs from claim 1 of the main request in that the appellant clarified the claim wording to better reflect the embodiment in paragraphs [0036] and [0037] of the description. These details, namely that the past actions are medical actions, that the predicting based on past actions comprises training and that the prioritising of next medical actions means displaying actions with higher probabilities at the top of the menu, were all taken into account by the board in examining inventive step involved in claim 1 of the main request. The appellant also did not submit any other alleged technical effect apart from those discussed within the scope of the main request.

3.2 Therefore, for the **same reasons as for the main request, the subject-matter of claim 1 of auxiliary request 5 does not involve any inventive step** (Article 56 EPC).

4. Auxiliary requests 6 and 7 - Admissibility (Article 13(2) RPBA)

4.1 Auxiliary requests 6 and 7 correspond to auxiliary requests 1 and 2 on which the contested decision was based. Although the **appellant had not maintained these requests when filing the appeal, it re-filed them with its letter dated 9 February 2022**. In accordance with Article 13(2) RPBA, any **amendment to an appellant's appeal case after notification of the summons to oral proceedings must in principle not be taken into account unless there are exceptional circumstances** which have been justified with cogent reasons.

4.2 The appellant argued that these requests were the same as auxiliary requests 1 and 2 on which the contested decision was based, that they were never withdrawn, and that there was no indication in the appellant's submissions that it did not intend to further pursue them. Furthermore, these requests were the result of a deletion of the amendment added to auxiliary requests 1 and 2 filed with the statement setting out the grounds of appeal. The deletion of a claim was not an amendment to the appellant's appeal case in accordance with T 995/18.

These arguments failed to convince the board. As a matter of fact, **when it filed its appeal, the appellant did not maintain auxiliary requests 1 and 2 on which the contested**

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decision is based. It is established case law not to admit the resubmission of requests which were not maintained when filing the appeal. Regarding T 995/18, the board cannot see its relevance for the current case, which does not involve the deletion of any claim.

4.3 Since no exceptional circumstances justified with cogent reasons were present, the board did not admit auxiliary requests 6 and 7 into the appeal proceedings (Article 13(2) RPBA).

T 0550/14 (Catastrophe relief/SWISS RE) of 14.9.2021

European Case Law Identifier: ECLI:EP:BA:2021:T055014.20210914

COMPUTER SYSTEM AND COMPUTER-IMPLEMENTED METHOD FOR MANAGING FUNDING OF CATASTROPHE RELIEF EFFORTS

Inventive step - parametric triggering of payments (no Inventive step - not technical)

Application number:	09710436.8
IPC class:	G06Q 40/00
Applicant name:	Swiss Reinsurance Company Ltd.
Cited decisions:	T 0141/87, T 0099/89, T 0986/96, T 0641/00, T 0368/05, T 0756/06, T 1463/11, T 1749/14, T 2314/16

Board: 3.5.01

Catchwords:
The appellant's wish for the Board to define criteria that the examining division should use to prove that a feature is not technical is tantamount to defining the term technical, which the Boards have consistently declined to do. However, as stated in e.g. T 2314/16 - Distributing rewards/RAKUTEN at points 2.6 to 2.8, over the years the case law has provided guidance on the issue of technicality. Recently, the Board has tended to use the framework for discussion given in the CardinalCommerce decision (T 1463/11 - Universal merchant platform/CardinalCommerce) to help classify whether borderline features of a claim are on the technical or the non-technical side.

It is thus clear that some discussion can and ought to take place. However, rather like objections against added subject-matter, one is essentially trying to prove a negative which tends to be a rather short exercise. On the other hand, the appellant is trying to prove a positive which involves more argument. Thus an objection from the division should probably start with a prima facie assertion that the feature in question is non-technical, perhaps because it is in one of the exclusions listed in Article 52(2) EPC, or a related or analogous field. If this is uncontested then this would be enough. However the Board considers that it is then up to the appellant to provide arguments why there is a technical effect or that some technical considerations are involved. The division should consider these arguments and give reasons why they are not convincing. As mentioned above, the Board is satisfied that this happened in the present case.

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One final piece of advice for examining divisions would be where possible to search for and start from a document that already discloses some of the alleged non-technical features, thus avoiding the discussion for these features (see for example, T 756/06 - Displaying a schedule/FUJITSU, point 5 or T 368/05 - Integrated account/CITIBANK, point 8).

(See points 3.3 to 3.5 of the reasons)

https://www.epo.org/law-practice/case-law-appeals/pdf/t140550eu1.pdf

Claim 1 reads as follows:

"1. A computer-implemented method for managing funding of catastrophe relief efforts associated with a special purpose vehicle (1'), wherein a donor makes a monetary donation to a charitable organization, the method comprising:

associating a computer system (1) with a special purpose vehicle (1'), which defines a corporate body to isolate financial risks, comprising at least a control module (10), a payment receiving module (12), a payment module (13), and a disaster information interface (14), wherein the control module (10), the payment receiving module (12), the payment module (13), and the disaster information interface (14) are realized as a functional module implemented partly or fully by means of hardware components;

receiving by means of the payment receiving module (12) of the computer system (1) of the special purpose vehicle (1') a purchase request for catastrophe protection from a computer system (3) of a charitable organization via a telecommunication network (6), wherein the control module (12) provides a data interface accessible to the computer system (3) of the charitable organization for transmitting the purchase request to the computer system (1), wherein the transmitted (p.9,1.3-4) purchase request comprises data defining a premium payment and a specification of protection for specific catastrophes in a defined area;

creating and storing a data structure (11) representing a financial product for the purchase request for catastrophe protection by means of the control module (10) of the computer system (1), wherein the financial product is linked to the charitable organization and the specific catastrophes by means of the computer system (1), and wherein the data structure (11) comprises a product identifier, a product type, a contract duration, a monetary amount of protection for a defined premium an identification of a charitable organization, and a definition of the linked catastrophes;

defining the linked catastrophe by a type of catastrophe, a geographic area, a parametric index indicative of the severity of catastrophic events, and severity threshold values for triggering payout of the protection to the charitable organization by means of the data structure (11), wherein the severity threshold values comprise criteria for the intensity of the catastrophic event and/or population number affected by the catastrophic event;

receiving a payment of the premium assigned to the financial product by means of the payment receiving module (12) from the charitable organization, the premium corresponding

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to the monetary donation made to the charitable organization by the donor (2), wherein the charitable organization is assigned protection by means of defining the financial product;

receiving an investment request comprising a capital payment assigned to the financial product from one or more investors and the specification of the financial product and receiving the payment of capital for the financial product from the one or more investors, wherein the control module (12) provides a data interface accessible to the computer system (4) of the investor for transmitting the purchase request to the computer system (1), and wherein the capital payment is transmitted from the investor's computer system (3) to the payment receiving module (12) via the telecommunication network (6);

retrieving and receiving catastrophic event information by means of the disaster information interface (14) of the computer system (1) from an information provider (5) in a periodic pull mode or in push mode provided by a the information provider (5) by means of a telecommunication module via telecommunication network (6);

triggering payment of capital to the charitable organization depending on the parametric index of the received catastrophic event information and the defined severity index threshold, wherein the payment module (13) of the computer system (1) is triggered to pay invested capital upon occurrence of a catastrophic event assigned to the financial product for refunding relief efforts for the catastrophic event, and wherein the amount paid depends on the parametric index comprising one or more geographic areas, selected type of catastrophe and/or severity of the catastrophic event,

paying, at the end of said contract duration, by means of a payment module (13) of the computer system (1) the premium paid by the charitable organization (3) from the special purpose entity as coupon to the investors (4), and repaying the invested capital to the investors (4), if no linked catastrophic event occurred within the contract duration of the financial product."

The <u>appellant</u> essentially argued that in known business methods for managing funds of catastrophe relief efforts, a charity collected funds which were used to buy cover for disasters. However, <u>in 2008 there was no incentive to derive an entirely new business model of the invention involving the expertise of an assurance expert and a capital risk expert without knowledge about parametric triggering criteria, which are measurable parameters and therefore technical</u>. Technical knowledge was therefore required to develop the new business method.

1. Background of the invention

1.1 The invention is about managing the funding of catastrophe relief efforts caused by natural or man-made disasters, such as earthquakes, see page 1, first paragraph of the originally filed application. Conventionally, as shown at the top of Figures 2 and 3, charitable organisations 3 provide relief S9 in the event of a disaster from donations S1 from donors 2. Insurance companies might offer catastrophe insurance policies, but these may be too expensive or even unavailable for developing countries, so that the available relief may be insufficient.

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1.2 The objective of the invention is to make sure that adequate funding is in place before the catastrophic event actually occurs and to pay out when it does.

1.3 The invention achieves this by providing a "special purpose entity" ("special purpose vehicle" in the claims) 1' which offers a financial product S3 (e.g. a security, or another financial instrument) in return for a premium S2 from the charitable organisation (or donor directly), see page 2, last paragraph, to page 3, first paragraph.

1.4 Investors 4 back S4 the product and receive in return for their investment a payment of the premium S2 which is issued as a coupon S10 from the special purpose entity. If a catastrophic event occurs within a defined time period, the capital is paid S8 to the charitable organisation, otherwise the capital is paid back S11 to the investors who keep the premium for their efforts.

1.5 The "special purpose entity" collects information S6 about catastrophic events from an online provider 5, see page 7, lines 8 to 16. This information is provided in the form of a "parametric index" indicating the severity of catastrophic events, which serves as a **triggering condition for whether and how much payout shall be made to the charitable organisation**, see page 10, third paragraph. The "parametric index" is linked to geographical areas, the type of catastrophe and the severity of the catastrophic event (Table 1).

1.6 Claim 1 reflects the hardware arrangement of Figure 1 where the special purpose entity 1' is associated with a computer system 1 which interacts with computer systems of the donor 2, the charitable organisation 3, the investor 4 and the information provider 5 using various modules via a telecommunication network 6.

The special purpose entity 1' has a data structure 11 that stores data about the financial product including the product type, contract duration, monetary amount of protection for a defined premium, an identification of a charitable organisation, and a definition of the catastrophes linked to the product. The latter includes threshold conditions for triggering the payout that are compared with the above-mentioned parametric index from the information provider 5.

2. Main request - Article 56 EPC

2.1 The examining division considered the basic idea of the invention to be non-technical. It was seen as a method for managing the funding of catastrophe relief efforts which enabled charitable organisations to put in place funding before a catastrophic event actually occurred. The division stated that **no technical problem could be derived** from such a non-technical method which, in the form of a business specification, was given by the business person to the skilled person for implementation, see decision paragraph 1.2.

2.2 The division considered the closest prior art to be a notorious (networked) computer system, involving a plurality of interconnected networked computers. No documentary evidence was provided.

2.3 The adaptation of this notorious (networked) computer system was seen to follow from the business specification in a straightforward and obvious manner. The skilled person would

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adapt the notorious hardware components to perform the functions of the modules in the "special purpose vehicle" and connect it via a telecommunication network to other networked computers which provided the functions of the investor, charitable organisation, information provider and donor.

The division concluded that claim 1 lacked an inventive step (Article 56 EPC).

2.4 The appellant argued that the invention was an entirely new business method which did not exist in the prior art. As mentioned in point 1.1 above, fund management traditionally involved a charity collecting funds from donors to cover disaster relief. The payout was based on the loss incurred. In the new business method the payout was based on the severity of the catastrophe without needing to consider the loss. This was determined automatically by comparing the parametric index from the information provider with the data about the financial product in the data structure in the special purpose entity. This business concept could only be derived with technical considerations, namely the concept of an electronic parametric triggered payout.

2.5 The invention therefore required a collaboration of a group of persons, involving a business person, that is, an insurance expert and a risk capital manager, and a technically skilled person. The insurance expert and risk capital manager alone would not have been able to derive the new business concept without the input from the technically skilled person **about the possibility of electronic parametric monitoring**, see T 141/87, T 99/89 and T 986/96. The appellant considered that without any further evidence from a search, the invention was not obvious.

2.6 Furthermore, the implementation of this method on notorious hardware was not obvious. The appellant agreed that applying the "COMVIK approach" (see T 641/00 - Two identities/COMVIK) in conjunction with the approach set out in T 1463/11 - Universal merchant platform/CardinalCommerce, it is the business person who establishes the business requirements, which include any non-technical aspects and features. However, in T 1749/14 the Board stated that the obviousness of an implementation going beyond a direct 1:1 mapping of a business method on conventional hardware involves technical considerations and must be proved using evidence found in a search. This was the case in the present invention because the implementation involved understanding the data structures and computer process steps and, in particular, how the system of the "special purpose entity" had to interact with other systems, such as the system of the donor, the charitable organisation, the investors and the disaster information provider, in order to design a "trigger"-based management of the funding of catastrophe relief efforts.

The invention solved this problem with a decentralised networked system where different components and systems interact with each other. This went beyond the normal technical know-how of the skilled person and beyond a "stand-alone" network computer. It was therefore novel and inventive.

2.7 The Board agr**ees with the division that a valid starting point is a networked computer system, comprising a control module and several functional modules.** Such a "networked" system **can be interconnected with other networked computers via a**

telecommunications network and not just be a stand-alone system, as argued by the appellant.

2.8 The <u>invention therefore differs, as is usually the case starting from such prior art, by all the features of the relief payout scheme</u>.

2.9 The <u>question</u> arises now <u>whether the division was right to consider all these features non-technical</u>.

2.10 The **Board agrees with the division that the features define a method for managing funding of catastrophe relief efforts.** They represent the different parties involved, which are the donor, the charitable organisation, the investor and the information provider, as well as the <u>monetary and information flow between them</u> and the role each one plays. They are therefore part of the business requirements given to the skilled person to implement.

2.11 Concerning the **feature of the parametric trigger**, the **Board agrees with the examining division's arguments in the decision**, see points 2.3 and 2.3.1. In particular, the Board agrees that the business person in the form of an insurance expert would naturally have to consider the conditions under which the payout would be made. These conditions are part of the business method and would depend on the type of financial model being used. Whereas a conventional insurance might link the payout to loss, the method of the invention links the payout to the nature of the catastrophe, which makes sense if the cost is being covered by a financial product. In the Board's view the **"parametric trigger" is simply a broad term introduced to cover such conditions** as is evident from pages 6 and 7 of the application. For instance, a catastrophe of a hurricane in the Caribbean, as shown in Table 1 on page 7, has the parametric trigger of wind speed, size of storm and location. In the Board's view, **<u>determining this parametric information, the triggering criteria and the trigger level does not require any technical considerations</u>**. Furthermore, the **business person would be aware that the relevant information** would be available from providers for weather data and catastrophe information.

2.12 The Board therefore sees **no need for the business person to have technical knowledge about networked computer systems in order to propose the business method of the invention**. The knowledge about how a "special purpose entity" has to interact with other systems, namely the donor, charitable organisation and investors, and what kind of disaster information is needed, in order to achieve a "trigger"-based management of the funding of catastrophe relief efforts, can be derived from the method for managing funding of catastrophe relief efforts alone.

2.13 Finally, the **Board cannot see any difficulties for the person skilled in the art of data processing to implement the business concept of the present invention on the networked computer system**. The <u>allocation of the respective functions to separate computer systems for each party involved in the non-technical business method and interconnecting these systems via a telecommunication network is a self-evident consequence of these business requirements</u>. The information which needs to be collected for triggering the payout implies this information being up-to-date and the frequency of its collection. It leads the skilled person to seek the appropriate information provider and the appropriate technique for

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collecting this information, such as a periodic push and pull mode which is a routine design consideration at this broad level.

2.14 Therefore the present application has to be **refused under Article 56 EPC**.

3. The Board was able to take this decision without remitting the case to the examining division as requested by the appellant. Thus also the appellant's request for remittal for further search and examination cannot be granted.

3.1 The <u>appellant</u> was <u>heavily critical that the division merely alleged that all aspects of the invention were part of a business method with no supporting evidence</u>. It was therefore deprived of a chance to argue for inventive step in a proper way. The business model had to be properly defined. Moreover, <u>if there were no arguments why certain features were deemed to be part of the business model, the right to be heard was not respected</u>. In the present case, a **more detailed discussion should have taken place about the feature "parametric trigger",** which <u>in the appellant's view was electronic, measurable and therefore technical</u> and which therefore should have been searched. The **appellant asked the Board to define criteria that the examining division should use to prove that a feature was not technical**.

3.2 The <u>Board agrees</u> that in this field <u>there is a danger of simply asserting that certain features are non-technical with no basis</u>. Indeed, the Board has seen decisions where the reasoning has not been fully convincing. But this is not one of them. As mentioned above, the examining **division addressed the argument about the parametric trigger in the decision at points 2.3 and 2.3.1. Furthermore, the division admirably minuted the discussion of this point at page 2, third last paragraph. This shows why it is always advisable to minute clearly the arguments exchanged about contentious points.**

3.3 The <u>appellant's wish</u> for the Board to **define criteria that the examining division should use to prove that a feature is not technical is tantamount to defining the term technical, which the Boards have consistently declined to do**. However, as stated in e.g. T 2314/16 - Distributing rewards/RAKUTEN at points 2.6 to 2.8, over the years the case law has provided guidance on the issue of technicality. Recently, the Board has tended to use the framework for discussion given in the CardinalCommerce decision (supra) to help classify whether borderline features of a claim are on the technical or the non-technical side.

3.4 It is thus clear that some discussion can and ought to take place. However, rather like objections against added subject-matter, one is essentially trying to prove a negative which tends to be a rather short exercise. On the other hand, the appellant is trying to prove a positive which involves more argument. Thus an objection from the division should probably start with a prima facie assertion that the feature in question is non-technical, perhaps because it is in one of the exclusions listed in Article 52(2) EPC, or a related or analogous field. If this is uncontested then this would be enough. However the Board considers that it is then up to the appellant to provide arguments why there is a technical effect or that some technical considerations are involved. The division should consider these arguments and give reasons why they are not convincing. As mentioned above, the Board is satisfied that this happened in the present case.

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3.5 One final piece of advice for examining divisions would be where possible to search for and start from a document that already discloses some of the alleged non-technical features, thus avoiding the discussion for these features (see for example, T 756/06 -Displaying a schedule/FUJITSU, point 5 or T 368/05 - Integrated account/CITIBANK, point 8).

T 1482/19 (Scale space approximation/TELECOM ITALIA) of 11.2.2022

European Case Law Identifier: ECLI:EP:BA:2022:T148219.20220211

KEYPOINT IDENTIFICATION

Inventive step - (yes)
Inventive step - technical problem derivable from the application as filed (yes)
Inventive step - long felt need (no)
Claims - functional features (yes)

Application number: 14752573.7
IPC class: G06K 9/46
Applicant name: Telecom Italia S.p.A.
Cited decisions: T 1294/16

Board: 3.5.06

https://www.epo.org/law-practice/case-law-appeals/pdf/t191482eu1.pdf

Claim 1 of the only request on file defines, in summary, a method of identifying keypoints in a digital image, comprising:

first claim feature: using an image scale space defined by a LoG or a DoG filter,

claim features a and b: defining, for each pixel, a polynomial approximation of this scale space (reciting equations 12 and 13) in a predefined range of scales, this approximation being obtained in two steps in accordance with equations 5 (approximation of the scale space as a linear combination of the base filters), 8 and 9 (approximation of the weights as polynomial functions of scale) and

last paragraph of claim feature b: identifying candidate keypoints in this scale space as global extremes of the approximation function which are found in a sub-range defined by its lower and upper ends so that the behavior of the approximation function is known in a sufficiently large neighborhood of the extremum

claim features c and d: comparing, for each pixel identified as candidate keypoint, the value of the approximation functions at said extremum with those of neighboring pixels to select the pixel or not.

The application

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1. The application relates to **identifying so-called keypoints in a digital image, for e.g. scene or object identification/matching.**

1.1 It <u>builds upon the known method</u> of scale invariant feature detection (SIFT keypoints, see D4, cited in the application on page 2), which <u>detects keypoints as extrema in the image "scale space"</u> (D4, section 3). The image scale space is <u>obtained by convolving (filtering) the original images with a Gaussian function of varying widths</u>; its standard deviation defines the scale dimension of the image "scale space". The <u>extrema</u> are not <u>detected</u> in the scale space itself, but <u>in the LoG space (Laplacian of Gaussian, second derivative with respect to scale)</u>, <u>approximated in SIFT feature detection</u> by the difference of two adjacent in a sequence of scale filtered images (difference of Gaussian - DoG, see D4, section 3).

1.2 The application proposes <u>a method of approximating the scale space by a continuous function of scale</u>, determined as a <u>linear combination of filter responses at fixed scales</u> sigma1 ... sigman (basis scales - see equation 1), the combination weights $p(sigma)$ themselves being determined as a polynomial function of scale (equation 8). The determination of the polynomials entails two steps: first the basis scales and a set of scales of interest are selected (page 10, paragraph before equation 5, page 15, 1**(st) paragraph). The combination weights for expressing the filters at the scales of interest as a linear combination of the basis filters can be determined by solving a linear system (equations 4 and 5). Then, polynomials coefficients are determined to best approximate these weights as a function of scale.

1.3 Under this approximation, given an image, the responses to the basis filters are computed and treated as constants. Then, the scale space response can be approximated at each image point as a polynomial (equations 12 and 13). <u>This allows the analytical computation of extrema points by computing the roots of the polynomial</u> (page 16, paragraph 2: first derivative equals 0). The **application proposes to select "global" extrema points, also verifying whether the local extrema are extrema in view of the end points of the scale range** (page 16).

1.4 The application <u>further</u> proposes (page 17, first full paragraph) to **select as keypoints only points in a restricted working range, where the behavior of the approximation function is known**.

8. This claim is based on original claim 1 modified in the first claim feature to define the LoG/DoG filters (see e.g. original claim 11), amended in features a and b to define the approximation used in accordance with equations 5, 8, 9, 12, 13, and further amended (last paragraph of feature b) to define the selection of candidate keypoints in a sub-range.

9. The first two amendments remedy the deficiencies noted by the Examining Division in terms of original disclosure, support and clarity (Articles 123(2) and Article 84 EPC).

10. The last amendment is based on page 17, lines 7 to 13, defining the lower and upper ends of the sub-range in respect of the highest and lowest value of the sub-range as follows:

wherein the difference between said lowest value and said lower end, and the difference between said highest value and said upper end, are such that only the maximum or minimum

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points that happen in sigmam of which the behavior of the approximation function is known in a neighborhood of sigmam that is <u>sufficiently</u> large are considered as candidate keypoints.

10.1 In the Board's view, this formulation follows unambiguously from the explanation provided in the said passage on page 17 that by restricting the selection to a sub-range, only the extrema that happen in a neighbourhood where the behavior of the approximation function are known are considered (in this way...). Though a verb is missing in the sentence on lines 12 and 13, it is clear that the discussion is about which keypoints are to be considered - see the beginning of the paragraph. Thus no objection under Article 123(2) EPC arises.

10.2 **Though functional**, the definition of the **sub-range is clear to the skilled person**, who, in the context of the application, is deemed to have expertise in applied mathematics, in particular in approximation functions. Analysing the behavior of polynomial approximations around the interpolating points and on the borders so as to appreciate the validity of the approximation (e.g. estimating the errors' order of magnitude) is a **matter of routine in this context**. Thus no objection under Article 84 arises either.

Inventive step (Article 56 EPC)

11. The Examining Division rejected the requests underlying their decision for a lack of inventive step starting from D1 in view of D4. These reasons are also pertinent for the current request and are discussed below.

12. Document D1 describes a method of scale space approximation which is the same as that of the application (see D1, equations 5 to 15). This was also stated in the decision at point 2 and was not denied by the appellant.

12.1 The purpose of D1 is (introduction, page 483, paragraph 2) to address the "main problem ... that exhaustive filtering with kernels over a wide range of fine-ly-sampled scales is computationally intensive and inefficient". The proposed method, by the formulation of what are called polynomial steering functions "lends itself well to the detection of global maxima by analytically finding the roots of the derivatives of the po-lynomials, rather than exhaustively performing ope-ra-tions over multiple scales to detect maxima as in the previous aforementioned works" (section 4, paragraph 1).

12.2 D1 uses global maxima over scales (section 4) to detect the scale of image structures in order to improve low-level feature detection and extraction by spatial filters (introduction). It is said though that the other polynomial roots "provide scale information about the other local energy maxima, minima and inflection points" (conclusion, last paragraph).

13. Document D4 represents the seminal work of Lowe regar-ding keypoint detection with scale invariant features. The method starts (section 3) by detecting local ex-trema in (DoG) scale space. These local extrema are obtained by comparing the value of a point with its neighbours both in the scale and the spatial direction (adjacent points - see figure 2). This raises the ques-tion of the sampling frequency in both scale and space domains (section 3.1). D4 uses experimentation in order to determine the frequency of sampling in the scale domain and "must settle for a solution that trades off efficiency with completeness" (end of section 3.1). To reduce computation, D4 further proposes to work on octaves (where the scale

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doubles), i.e. to repeat the method with the same set of scales, but on reduced versions of the image for each octave (see figure 1).

14. The <u>Examining Division</u> reasoned (2.4) that keypoint detection was a form of low-level feature detection and that it was commonly known to the skilled person that keypoint detection requires the same identification of scale space extrema. So the <u>skilled person would use D1 for keypoint detection</u>.

14.1 The <u>keypoint selection (steps c) and d)) based on the spatial comparison with 8 adjacent points would be done by the skilled person because it was commonly known to do so for keypoint detection (presumably from D4)</u>. There was no need to also compare with the neighbours in scale, because the extrema in scale were already determined.

14.2 Accordingly, the Examining Division concluded that <u>all claim features except for the last paragraph in feature b were obvious for the skilled person over the combination of D1 and D4.</u>

14.3 Regarding the last feature - in its previous wording, defining a sub-range separated from the ends of the predefined range by a fixed value of 0.1 - the <u>Examining Division</u> noted (2.4.1 and 2.4.2) that the <u>technical effect of eliminating unstable keypoint candidates was plausible, but could only be understood with hindsight, and could not be based on the corresponding disclosure on page 17. As a consequence, the Examining Division</u> **did not accept this feature to have the alleged effect** (2.4.3, last sentence).

15. The <u>appellant disagreed with the choice of D1 as starting point</u> (see the grounds of appeal, point 1.3.1). There was <u>no mention of keypoint detection</u> in D1, so using D1 for that purpose was not apparent to the skilled person starting from D1. D4 should be taken as the "closest prior art", because it addressed the same problem as the claimed invention, namely keypoint detection.

15.1 Further, the <u>appellant</u> argued (see the grounds of appeal, point 1.3.3) that the <u>skilled person would not have combined D4 with D1</u>, because <u>D1 was about features such as edges and ridges</u> (D1, abstract), whereas <u>D4 stated that edges were not good candidates for including keypoints</u> (D4, section 4.1). Moreover, D1 provided a 12th degree polynomial (see, e.g., equation 10), which - although being a polynomial - was clearly too complex to handle for keypoint identification. <u>Even if the two documents were combined, the combined method would have resulted in computing the approximation of D1 at each considered point in D4</u> and comparing it with the 9-8-9-neighborhood as per D4 (figure 2).

16. The **<u>Board</u>** remarks that document <u>D4 is commonly known in the field of image analysis</u>. A <u>person skilled in this art</u>, i.e. the intended addressee of D1, <u>would see that D1</u>, although it mentions edges and ridges, <u>proposes a general method of scale space approximation</u>, which is said to be more computationally efficient than computation by discretization of the scale space. Furthermore, D1 teaches that with this approximation, for each image point, local and global extrema in scale can be computed analytically in an efficient way. So the skilled person would consider employing the method of D1 to improve the commonly known keypoint detection method of D4, which uses the standard scale space discretization.

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17. That said, the Board accepts that this way of presenting the argument does not follow the established (but not mandatory) problem-solution approach, according to which the starting point would be the prior art to be improved and the objective technical problem to achieve that improvement. One does not, however, come to a different conclusion that way.

17.1 Starting from D4, the skilled person would set out to improve the efficiency of the keypoint detection method, a matter already discussed in D4, section 3.1. In doing that, the skilled person would come across D1 which discloses a solution to this problem. As explained above, even though D1 does not expressly mention keypoints, the **skilled person would not have any difficulty in realising that D1 can be employed to increase efficiency of the method of D4.**

17.2 Since D1 emphasises the importance of global extrema, the skilled person would also identify, for each considered point, the global extremum among the local extrema.

17.3 Following the D4 structure, this extremum will be compared with those of the neighbours. However, using the continuous polynomial scale space approximation of D1, the comparison with the upper and lower 9 scale layer neighbors (figure 2 of D4) **has no meaning**, as those layers are not defined. But the spatial comparison with the 8 neighbors, as carried out in D4, remains valid.

18. The appellant also asked the Board to further consider (i) that the invention responded to a long-felt need and was included in the MPEG-7 standard, and (ii) that, although D1 and D4 were published in 2004, no one had the idea the inventors had up until 2013.

18.1 Regarding the first point, the appellant has not elaborated on any specific "long-felt need" or demonstrated any failed attempts in the art to address it. For this reason alone, the appellant's argument must fail.

18.2 Regarding the second point, the Board notes that the **obviousness of the claimed invention is assessed in an "objective" manner, i.e. irrespective what actually happened, by reference to what a fictitious skilled person "would have done**". The Board believes that the link between D4 and D1, provided by the problem of efficiency, would have led the skilled person to consider their combination, irrespective of whether that had actually happened in the cited period.

19. Thus the Board agrees in essence with the reasoning of the Examining Division regarding the combination of D1 and D4, though indeed the natural starting point according to the problem-solution approach is D4 rather than D1, because D4 is improved by D1 and not vice versa. It follows that all the claimed features but the last in feature b are obvious in view of said combination.

20. Regarding this last feature, the Examining Division and the appellant agree that this step solves a technical problem in that it allows to eliminate spurious or unstable candidate keypoints, due to the effects of the approximation.

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20.1 The Board also notes that the Examining Division did not find this feature obvious over D1 and D4 but did not accept that the alleged technical effect could be acknowledged based on the application documents as filed.

20.2 The **Board accepts this as a legitimate concern but finds to the contrary.** The skilled person understands from page 17 that by keeping only the points for which "the behavior of the approximation functions are known in a neighborhood ... that is <u>sufficiently</u> large", the points outside the validity range of the approximation are eliminated, and that these are potentially not true extrema, and hence no real keypoints, but are due to errors in the approximation. Thus the **<u>technical problem of eliminating "false" extrema is clear from the application.</u>**

21. The Board concludes that claim 1 of the **sole request involves an inventive step**.

T 1900/18 (Ingredient-based product recommendation/SOUTHAM) of 4.3.2022

European Case Law Identifier: ECLI:EP:BA:2022:T190018.20220304

RECOMMENDING CONSUMER PRODUCTS USING PRODUCT-INGREDIENT EFFICACY AND/OR USER-PROFILE DATA

Inventive step - recommending wellness products (no
Inventive step - mere automation of standard medical practice)
Inventive step - improvement effect not made credible within the whole scope of claim

Application number: 12798901.0
IPC class: G06Q 30/02
Applicant name: Southam, Adam Gyles

Cited decisions: T 0056/01, T 0537/04, T 0671/06

Board: 3.5.01

https://www.epo.org/law-practice/case-law-appeals/pdf/t181900eu1.pdf

The sole independent claim of the second auxiliary request reads:

"1. A system for recommending wellness products, the system comprising:

means for receiving via the Internet at least one of a wellness goal and medical condition for a user; and

a recommendation engine, responsive to the one of the wellness goal and medical condition for the user and responsive to at least one scientific efficacy rating for the one of the medical condition and wellness goal for a product ingredient contained in one or more ingestible wellness products in a database, for recommending a set of two or more ingestible wellness products to the user via an electronic device based on the one of the wellness goal and medical condition for the user and based on the at least one scientific efficacy rating, wherein the at least one scientific efficacy rating is derived from medical evidence from millions of published scientific reports and clinical studies."

1. The invention

The invention concerns recommending wellness products, such as nutritional supplements or vitamins, that are effective for a user's medical condition or wellness goal (page 5, lines 6 to 15 of the published application).

The recommendation of products is based on the efficacy of their ingredients as obtained from scientific reports or clinical studies (page 16, lines 15 to 26).

4. Second auxiliary request - inventive step

4.1 Claim 1 of the second auxiliary request clarifies that the <u>recommended products are for a user's wellness goal or a medical condition and that the "scientific efficacy rating" of a product ingredient is derived from medical evidence from published scientific reports and clinical studies.</u> This request was filed in response to the Board's clarity objections raised for the first time in the communication under Rule 100(2) EPC. The Board, therefore, decided to admit the request into the proceedings (Article 13(1) RPBA).

4.2 The <u>examining division</u> considered that the invention, albeit as claimed in the main request, related to a <u>non-technical method whose technical implementation was obvious when starting from a general-purpose networked computer system</u>. The claimed technical features were also said to be known from D1.

4.3 The <u>appellant</u> argued that s<u>electing wellness products that were effective for a particular medical condition or wellness goal was technical.</u> Unlike D1 or standard medical practice, the recommended products in claim 1 were based on the efficacy of the products' ingredients for the user's wellness goal or medical condition, not on the efficacy of the entire products. Hence, the invention provided a "<u>better recommendation of products</u>", which were "**<u>likely</u>** <u>to be beneficial for the user defined goal</u>".

4.4 The Board doubts that recommending wellness products is a technical problem. But regardless of this, the Board considers that the solution in claim 1 is not inventive **because, at the level of generality claimed, it merely automates standard medical practice in a straightforward manner**. Health practitioners typically recommend medical products based on their active ingredients. When doing so, they rely on the ingredients' efficacy, which is usually established through clinical studies. The restriction to "millions of published scientific reports and clinical studies" does not, in the Board's view, provide a technical limitation as the amount of literature is inconclusive in respect of the reliability of the literature's content.

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Thus, the only technical features claim 1 adds to this known procedure are for its implementation by using the Internet and a "recommendation engine". In the Board's judgement, however, this implementation amounts to a straightforward automation in a general-purpose computing system, which would have been obvious to the skilled person.

4.5 Even if claim 1 was interpreted in light of the description, it would still not involve an inventive step. The algorithm in the description is based on the assumption that the effect of the ingredients is additive, i.e. that a product's efficacy is proportional to the number and efficacy of its ingredients (page 25). This, however, is a heuristic assumption. In reality, ingredients often interact with each other and may either inhibit or enhance each other's effects. Consequently, when comparing two products, the product with more or more effective ingredients is not necessarily the more effective one.

4.6 Hence, the **Board considers that the effect put forward by the appellant, i.e. providing a better recommendation of products, is not reliably achieved and, therefore, cannot be taken into account for inventive step** (see e.g. T 0537/04 - Slimmer's calculator/WEIGHT WATCHERS, point 10).

4.7 Accordingly, claim 1 of the second auxiliary request lacks an inventive step (Article 56 EPC).

T 0288/19 (notional business person) of 17.2.2022

European Case Law Identifier: ECLI:EP:BA:2022:T028819.20220217

AVIONIC SYSTEM FOR EMERGENCY INTERCEPTION IN CASE OF IMMINENT DAMAGES OF AIRCRAFT FLEETS FOLLOWING NATURAL DISASTER EVENTS

Inventive step - mixture of technical and non-technical features
Inventive step - skilled person
Inventive step - reformulation of the technical problem
Inventive step - main request (no)
Inventive step - auxiliary request (no)

Application number: 12735847.1
IPC class: G06Q 40/08, G08G 5/00
Applicant name: Swiss Reinsurance Company Ltd.

Cited decisions: G 0003/08, G 0001/19, T 0641/00, T 2079/10, T 1463/11, T 2522/16, T 0589/17, T 1632/18

Board: 3.4.03

Catchwords:

The <u>business person</u> sets the framework of the problem to be solved by their business model (insurance conditions) and thus <u>reduces - by setting specific boundary conditions - the degrees of freedom of the skilled computer specialist</u>. The <u>technically skilled person</u>, who has to solve the objective technical problem of implementation, therefore <u>has no latitude in selecting the corresponding (physical) parameters</u> (reasons 3.6.10).

https://www.epo.org/law-practice/case-law-appeals/pdf/t190288eu1.pdf

Claim 1 according to the Main Request and First Auxiliary Request is directed to an Avionic system for emergency interception preventing imminent grounding or damages of aircraft fleets following natural disaster events by providing interruption cover of the aircraft fleets by means of an automated damage covering system.

1. The invention as claimed

1.1 The volcano activities in Iceland 2010 and the subsequent closure of airspace led to an estimated loss of 1.7 billion dollars for the airline industry. Between 15 and 21 April 2010 almost the entire European airspace was closed resulting in cancellation of all flights in, to and from Europe. The <u>invention relates to dealing with such airport closures and flight plan changes related to natural disaster events</u>.

1.2 When aircraft are grounded for more than ten days, airline companies may no longer be able to pay the operating resources (kerosene, salaries, maintenance etc.) due to lack of revenues. It is an aim of the invention to reduce the risk that airline companies go bankrupt due to lack of cash for operation during or after natural disaster events. The airlines seek risk transfer by means of insurance technology to cover such unforeseeable events and to ensure operation of the aircraft fleets. The related technology should be able to cover risk events such as 1) strikes, riots etc.; 2) war, hijacking, terror; 3) pandemic-based risks; 4) extreme weather situations; 5) instabilities in Air Traffic Control (ATC). However, the <u>covers are technically difficult to design because no standards e.g. for critical ash concentrations exist</u>. It is an **object of the invention to provide an automated system preventing imminent grounding of aircraft fleets due to missing financial resources after risk events and to provide a systematic and automated management of risk exposure.**

1.3 The **invention proposes automatically paying financial compensation to the affected business units, i.e. airlines and their fleets, by monitoring relevant airport data, defining critical thresholds and automating cover payments in case of airport closures**.

Inventive step - Annex A (Main Request)

3.1 Closest prior art

D1 is chosen as closest prior art because it has the most technical features in common with claim 1. It discloses detection of airport closures and the use of a stack memory for risk evaluation. D3 discloses an emergency system based on ACRAS (Airborne Call and Recording System) and also deals with risk management and automated emergency procedures for aircraft. D11 is a Wikipedia article about hash tables.

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3.2 D1

3.2.1 D1 discloses an automated system for a fleet of aircraft (40, 41, 42). The system comprises sensors (3, 411, 601) both in the aircraft and in the ground station (81) for measuring parameters relevant for geophysical disasters, e.g. sensors for wind speed, satellite images, water level sensors, water and wind temperature sensors etc. The system activates an emergency procedure in an aircraft when certain conditions are met (claim 1). Such a condition may be the event of reaching a threshold in an incremental stack memory. The stack memory stores critical weather and flight-specific data for defined time intervals (page 6, right-hand column, last but ninth line). In addition, ATIS (Automatic Terminal Information Service) data comprising relevant airport information is stored in the stack (claim 30). The likelihood for a risk exposure to the aircraft fleet is therefore defined by the threshold. The threshold is dynamically adapted ([0012]).

3.2.2 Furthermore, D1 discloses evaluating the probability of malfunction ([0012]) and calculation of [insurance] tariffs (page 3, right-hand column, center part: "the aviation system, for the first time, allows full automation of the additional tariff setting of the operating malfunction at all stages"; Swiss Reinsurance is Applicant for D1, therefore insurance tariffs are meant). These calculations are performed in a central processing unit (81) comprising an assembly module for evaluating the risk (101-103). Under point 6.2.4 of the Board's communication under Article 15(1) RPBA 2020, it was stated, and not disputed by the Appellant, that the ATIS message would comprise essential airport information including the information about the closure of parts of the airport (runways) or the entire airport. Therefore airport closures are taken into account for the risk evaluation and data relating to airport closures are saved in the central computer of earth station 81 (see D1, paragraphs [0024], [0014] and claim 30)).

3.2.4 The Appellant argued that the detection devices of document D1 were integrated into the avionics of the aircraft and that this was in contrast to the electronic detection device of claim 1 of the present invention. ….

3.2.5 The Board however is of the opinion that D1 clearly discloses that the detection devices can be implemented as part of a monitoring system of a land base, e.g. an airport (see page 3, bottom of left-hand column, passage starting: "However, the land bases can ..."), and that the detection device can include "sensors and/or detection means for dynamic detection of land-base-specific data of the assigned landing/take-off base" (see D1, paragraph [0024], passage starting: "The detection device 411 can also include ..."). Thus conditions at or close to the airport would be monitored by the detection devices and the resulting signal would then be fed to a computer to generate the automated ATIS message (see D1, paragraph [0024], passage starting: "Also, by means of the avionics 402 ...").

3.2.6 ATIS data comprises weather data close to the airport and information about airport closure. The ATIS message prevents approaching aircraft from initiating the landing procedure in case of airport closure. The event tracker in the stack (101) evaluates the ATIS data. The stack memory therefore comprises information about both airport closures and weather conditions measured close to the airport. It is therefore implicit that the time interval parameter ("relevant time window" in D1) relates inter alia to airport closures. The stack and the computer module 2 triggering the emergency procedure are not located in the aircraft, but

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in the ground station 81. D1 therefore discloses trigger thresholds of the measuring parameters of natural catastrophes located close to the airport.

3.2.7 Therefore D1 does not explicitly disclose

(a) flight plan data is presented as a hash table.

(b) a threshold which is linked to a minimum number of airport identifications assigned to airport closures thus creating an implicit geographic spread of the closed airports of the flight plan.

(c) the geographic spread is associated with geophysical disaster events.

(d) damage covering is performed with a definable upper coverage limit, instead of simple damage prevention.

(e) automated payments are scaled payments and are based on the likelihood of said risk exposure.

(f) flight interruption risks are shared by providing a self-sufficient risk protection.

3.3 Effects

3.3.1 Features (d) to (f) as such and disconnected from the (technical) automated system are related to a business method. Features (a) to (c) are technical. The application does not disclose for which reason the flight plan data is hashed (feature (a), part 2). A hash table appears to be advantageous for database indexing and improved retrieval of data.

3.3.2 Effects and technical/non-technical character of the features:

(i) features (a) [part 1, considering the flight plan], (b) and (c) [creating an implicit geographic spread of the closed airports in case of a natural disaster] are related to preventing further financial damage. The character of these features is technical, **the purpose is non-technical.**

(ii) hashing the flight plan data has the technical effect of improved data base indexing. Both the character and effect of feature (a), part 2, are technical.

(iii) features (d) to (f) are related to a shared insurance cover system including managing the payments; the character and effect of these features as such are non-technical.

3.3.3 To summarise, the subject of the present invention (the "what") is an automated system for dealing with technical/financial damage of an aircraft fleet and is without any doubt technical. The purpose (the "why") of the present invention however is the automation of a business scheme for providing monetary cover for financial damage to aircraft fleets based on available information, including flight plans and information about airport closures and natural events, i.e. a managerial system for managing the business operations of aircraft fleets including involved operational and financial risks, including covering financial losses of airlines caused by the situation of airport closures resulting from natural disaster. This

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purpose is non-technical and relates to a business method. **The solution (the "how") with respect to the disclosure of D1 is both technical (adaptation of the software) and non-technical (implementation of the business model)**. Therefore, the overall character and effect of claim 1 is technical.

3.3.4 Non-technical features within the meaning of Article 52(2)(c) EPC, i.e. features related to business methods, are allowed in the context of other technical features, but cannot contribute to inventive step. These features can thus be included into the formulation of the task (see, inter alia, G 1/19 [reasons 31], T 0641/00, G 3/08, Case Law of the Boards of Appeal, 9th edition 2019, sections I.D.9.1.2 to I.D.9.1.4). According to T 0641/00, the aim to be achieved in a non-technical field may legitimately appear in the formulation of the problem as part of the framework of the technical problem. Therefore, the non-technical features (O) to (V) ("damage cover" and "automated payment") can be included into the task formulation as a framework condition to be fulfilled.

3.3.5 Furthermore, the application as a whole is silent on the technical details of the sensors or detection devices needed, and on exactly what physical properties are measured and how from those measurements the situation of a natural disaster or an airport closure can be determined. The effect of features (i) to (iii) is therefore limited to the broad formulation of the corresponding features in claim 1.

3.4 The skilled person

3.4.1 The Appellant argued that the skilled person is a business person. In T 1463/11, the Board introduced the **concept of the notional business person to help separate business considerations and technical considerations.** The business person might formulate business requirements but would not include any technical matter. This approach ensured that, in line with the COMVIK approach, all the technical matter, including known or even notorious matter, could contribute to inventive step and was therefore considered for obviousness.

3.4.2 The Board agrees that the business person defines the business framework conditions for the system:

(a) The **business person defines the insurance conditions**. Depending on these conditions specific geophysical events (volcano ash, riots, hurricanes, strikes etc.) are covered (or not).

(b) It has further to be defined in the **insurance conditions** which airports/specific regions, which specific time interval and/or which specific types of event are to be taken into account, e.g. only Eurasian and American airport closures may be taken into account for a minimum of seven consecutive days of closure, financial damage due to strike within the airline company and closures for less than seven days may not be taken into account etc.

(c) Another implicit condition is that **only groundings of scheduled aircraft** (i.e. according to a flight plan) are considered.

3.4.3 In the present case the skilled person solving the objective technical problem however is not the "notional business person", but a computer specialist, because the **solution of the problem concerns principally re-programming the central CPU** (e.g. of the ground station

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81). The **business person however provides the framework and object of the invention.** This is very frequently the case for technical inventions, e.g. a business person may instruct an engineer to design a double-deck aircraft for up to 850 passengers with a budget of 10 billion dollars. The solution to this object can only be provided by a technically skilled person. In the present case the **notional business person (e.g. insurance company in cooperation with the airline companies concerned) instructs a computer specialist with the implementation of an automated system.** Their task is to adapt the software in module 81 of D1 (cf. also T 2522/16, reasons 3.2.1, T 0589/17, reasons 2.6, T 0755/18, reasons 3.5).

3.4.4 The Appellant argued that the skilled person needed to have specific knowledge in aircraft communication systems and aircraft security. The Board however concludes that such specific knowledge is not necessary because all raw data required for solving the problem is available on the computer base station 81 of D1. The modified software has only to provide a link between airport closure data and automated payments.

3.5 Problem

3.5.1 The Appellant has formulated the technical problem during the oral proceedings as "if airports are closed we cover the financial damage: how can we trigger the payouts quickly and automatically".

3.5.2 The **Board therefore formulates the objective technical problem with D1 as starting point as "technically implementing an automated management of financial risk exposure of scheduled flights due to airport closures, including implementing the claimed non-technical features (O) to (V)".**

3.6 Obviousness

ad (i)

3.6.1 The technically skilled person would therefore consider analysing whether airports were closed and whether such closures were linked to geophysical events covered by the insurance policy. They **would then adapt the threshold defined in D1 to a specific number of airport closures within the given time window as defined in the insurance policy**.

3.6.2 In order to deal with the technical and financial consequences of airport closures it is obvious to the skilled person to consider the concerned airports and flight plan routes to and from the closed airports. In view of the objective technical problem to be solved it would be a normal option to monitor which flight plan connection (and therefore which fleets and airlines) are concerned by the closure of specific airports and air-spaces. Furthermore, the emergency system of D3 teaches ([0084]) to take flight plan data into account. The skilled person would therefore adapt the software architecture of D1 and correlate the airport closure events with the flight plan data.

ad (ii)

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3.6.3 In order to improve the data base indexing of the flight plan table the skilled person would choose the common option of providing the flight plan data in a hash table. D11 teaches the use of hash tables.

ad (iii)

3.6.4 Features (O) to (V) directly result from the problem to be solved.

3.6.5 The **Appellant** argued that D1 had a different purpose, i.e. preventing emergency situations of particular aircraft. D1 disclosed a plurality of parameters to be monitored and to be taken into account for risk calculation. Since in the present case the skilled person was a business person, they were not able to

(a) select between the plurality of physical parameters the parameter of airport closures;

(b) to implement feature (Q), i.e. creating a geographic spread of the closed airports of the flight plan;

(c) to create a robust, effective and reliable software implementation making the link between the spread of closed airports and the automated payment of insurance cover premiums. This implementation comprised complex insurance algorithms.

In addition the Examining Division had neither provided a document teaching the creation of said spread of closed airports nor a document teaching the automation of damage cover payments by means of a computer system and without an intermediate agent.

3.6.6 According to T 2079/10 the skilled business person was not able to select relevant physical parameters. In T 2079/10 the Board held (reasons 4.2 and 4.3):

It cannot be assumed that a technical specialist will first determine a physical output variable, on the basis of which it will then be instructed by the businessman to implement the concept of a purely abstract business process. This procedure also does not correspond to the COMVIK approach (T0641/00) applied according to current case law. On the other hand, **it cannot be assumed that a businessman specifies technical features, such as physical measurement parameters in the present case, as part of a purely administrative business process**. Otherwise, technical features contributing to technical character would be excluded from the assessment of inventive step (see also T1463/11 CardinalCommerce, point 16). According to current case law, the objective technical problem has to be free of solution features of the claimed subject matter. Claim features may only be part of the problem if such features themselves do not contribute to the technical character and are therefore not part of the technical solution (see T0641/00 COMVIK).

3.6.7 However, the Board is of the opinion that T 2079/10 relates to the control of an alarm system and to dynamically adapt alarm threshold parameters of a memory stack similar to the system described in D1. **Business considerations play a role, if any, only after selection of the physical parameters** (cf. also T 1632/18, reasons 2.8). The **present case is not comparable**. **Whether or not an airport is closed cannot be considered to be a "physical measurement parameter"** in the sense meant in T 2079/10; **it is rather a business**

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consideration with which the business person in the field of aviation or aviation insurance would be fully familiar. The decision to pay compensation automatically in the case of such closures, including making payment dependent on the number of closures and the geographical spread of, and reasons for, such closures, **would be entirely a matter for the business person in the field of insurance**. Only the technical implementation would be delegated to the skilled programmer.

3.6.8 The present application involves the automated payment of insurance premiums based on a minimum number of airport closures, according to a geographical spread. The insurance policies would define this business framework. The skilled person has to provide the technical implementation, i.e. software analysing airport closure data according to the insurance conditions, e.g. location of the closed airports, time span of airport closure, reasons for the closure etc. The business model boundary conditions (insurance conditions) therefore directly require the analysis of parameters related to number, location, time window and relevance of the airport closures. It is therefore inherent to the problem to be solved (i.e. the business constraints to be met) that airport closures, flight plan data and the geographic spread of the closed airports (Feature (Q)) must be taken into account in the technical implementation.

3.6.9 Although **D1 has primarily a different purpose with respect to the present invention, it provides teachings for all the technical features of the proposed solution except using hash tables for data storage and creating a geographical spread**. As discussed above, **these features are however obvious** in the given context. Applying the technical infrastructure disclosed in D1 for a different purpose, i.e. automated premium payouts, is directly suggested by the problem to be solved, in particular the non-technical constraints to be met. In addition, the Board considers automatically adapting insurance tariffs (as suggested in D1) - and therefore indirectly adapting insurance premiums - and automatically paying out insurance premiums not as being remote from each other. Furthermore, insurance algorithms and details about how the parameters are treated are neither part of the scope of the claim nor disclosed in the description.

3.6.10 To summarise, the business person sets the framework of the problem to be solved by their business model (insurance conditions) and thus reduces - by setting specific boundary conditions - the degrees of freedom of the skilled computer specialist. The technically skilled person, who has to solve the objective technical problem of implementation, therefore has no latitude in selecting the corresponding (physical) parameters. Working out the specific implementation of the features follows in a straightforward manner from the teaching of D1 and from the problem to be solved.

3.6.11 Consequently, claim 1 of Annex A **does not involve an inventive step** over the disclosure of document D1 and the common general knowledge of the person skilled in the art. As a result, neither the Main Request nor the First Auxiliary Request can be allowed.

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T 1234/17 (Customization based on physiological data/ADIDAS AG) of 4.3.2022

European Case Law Identifier: ECLI:EP:BA:2022:T123417.20220304

Customization based on physiological data

Inventive step - customisation of footwear are based on human gait (no
Inventive step - no technical features)
Inventive step - mapping acceleration data to human gait (no
Inventive step - not technical)

Application number: 12196928.1
IPC class: G06Q 30/06, G06F 3/01, A63B 24/00
Applicant name: Adidas AG
Cited decisions: T 2079/10, T 1798/13

Board: 3.5.01

Catchwords:
However, the question is whether the mere idea of mapping this acceleration data to gait category is technical, involving any technical considerations or having any overall technical effect. This question arises in many inventions that involve mappings and algorithms.

In T 1798/13 (Forecasting the value of a structured financial product/SWISS REINSURANCE COMPANY LTD), points 2.7 to 2.9, the present Board essentially held that it was not enough that an algorithm makes use of a technical quantity in the form of a measured physical parameter (weather data). What matters is whether the algorithm reflects any additional technical considerations about the parameter, such as its measurement. In that case there were none. This was contrasted with T 2079/10 (Steuerung von zellulär aufgebauten Alarmsystemen/SWISSRE) where the invention was seen to lie in the improvement of the measurement technique itself, which involved technical considerations about the sensors and their positions.

Such a situation is conceivable in the present case, if the algorithm were to somehow enhance the input data using considerations of e.g. the placement of the sensors. However, the claim only specifies that the data "includes a time series of acceleration vectors" and that this data is "analyzed". There are no further details that could constitute technical considerations about the data or the sensors.

https://www.epo.org/law-practice/case-law-appeals/pdf/t171234eu1.pdf

Claim 1 of the main request reads as follows:

"A computer-controlled method for customization of a piece of footwear, the method comprising:

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receiving (602) data characterizing a category of human gait of at least one person, the data characterizing said category of human gait being based at least in part on data generated by at least one sensor; and

determining (608) a customized design for the piece of footwear, the customized design based at least in part on the data characterizing said category of human gait,

wherein said at least one sensor includes an accelerometer and the collected sensor data includes a time series of acceleration vectors,

wherein the data collected by said at least on [sic] sensor is analyzed by a sensor data analysis module, and

wherein the sensor data analysis module applies a model of human physiology to associate the time series of acceleration vectors with one of the following categories of human gait: supination, protination, over-protination or neutral."

1. The invention

The invention relates to the customisation of a piece of footwear based on a given set of characteristics of a person's gait as measured by an accelerometer. The auxiliary request further specifies that the customised design has a different shape, size or material composition of the footwear.

2. Main request - Article 56 EPC

2.1 The appellant (grounds, page 12, c1.) argued that D3 was the closest prior art for claim 1. D1 did not disclose any kind of customisation, whereas D3 related to the provision of a customer with a best-fit piece of footwear (paragraph [0003]). The Board agrees. Moreover, D3 teaches that the customised design represents the model of a foot, see paragraphs [0025] [0026] and [0040], which model is digitised and stored in a database, see paragraph [0048].

2.2 It is common ground that claim 1 **differs from D3 essentially in that the customisation uses sensor data including a time series of acceleration vectors applied to a model of human physiology to produce a category of human gait, namely supination, protination, over-protination or neutral.**

2.3 The division considered that the claimed customisation was based on non-technical criteria, such as business requirements, aesthetic appeal or user preferences (point 1.3).

They also considered the use of the human physiology model as non-technical (point 2.9).

They considered that the skilled person would need to be given instructions on both how the "physiological attribute", now category of human gait, should be based on the sensor data (point 1.11), and how the customisation should be based on the human gait (point 2.10). This was said to be an indication that they were not technical.

2.4 The appellant argued that the term "design" pertained to technical properties of the piece of footwear, like shape, size and material composition and that "customization" had to be interpreted as customisation of a physical item rather than graphics customisation (grounds, page 13, paragraph c4.). The description clearly set out, see paragraphs [0023], [0027], [0041], how sporting footwear could be customised based on one or more properties of a user's running gait, determined from sensor data representing time series of acceleration vectors by applying a model of human physiology.

2.5 The appellant also pointed out that the advantageous technical effect of the combination of the above features was that not only static data about the shape of the foot of a wearer - in the form of a 3D scan of the foot and pressure map of the foot sole - was used in the customisation process for the piece of footwear, but that dynamic information - in the form of a time series of acceleration vectors - was utilised to obtain information about the gait category of the wearer. The gait category was used to determine the design of the customised footwear which better fitted the user's typical movement patterns.

2.6 The appellant argued that the objective technical problem should be formulated as how to improve the accuracy and user-friendliness of the customisation process of D3.

2.7 In the **Board's view, the claimed invention can essentially be seen as two mappings**: the first maps sensor acceleration data to gait category and the second maps the gait category to a "customized design". The first mapping is specified in the claim to be via a "model of human physiology", which according to the description, see [0041], might involve "suitable statistical processing". The model of human physiology is defined by physiological attributes, which depend on the type of item to be customised, see [0039]. In the case of footwear, the physiological attributes are a set of categories of human gait (e.g., supination, protination, over-protination, neutral). The only details of the second mapping are in the description, see [0045], and claim 1 of the auxiliary request, namely that it involves shape, size and composition.

2.8 Considering the second mapping first, the Board notes that the "customization" of a piece of footwear, referred to in paragraph [0027] of the application, is only one of numerous sporting and fashion items which the invention claims to be able to customise.

The Board considers that it amounts to simply using the category of gait somehow in the customisation of sporting footwear. This covers the example in the description of "assisted selection from a set of predetermined item configurations" which could be simply choosing a particular shoe suitable for the user's gait, possibly with the help of a shop assistant, see paragraphs [0023] and [0026]. It could also simply mean to generate a customised graphics visualisation of a shoe with similarly selected parameters, see paragraphs [0063] and [0064].

2.9 **The lack of detail in the claim, and indeed the description, leads to the conclusion that there are in fact no real "technical considerations" involved in the design, apart from the fact that it involves a physical object, namely footwear**.

2.10 Thus, the Board considers that the **basic idea of customising footwear depending on the model of human physiology, that is, the type of human gait, does not contribute to**

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inventive step, but is a non-technical idea that would be given to the skilled person as stated out by the division.

2.11 Regarding the <u>first mapping</u>, the recording of sensor data, such as time series of acceleration vectors, is no doubt technical. However, the **question is whether the mere idea of mapping this acceleration data to gait category is technical, involving any technical considerations or having any overall technical effect.** This question arises in many inventions that involve mappings and algorithms.

2.12 In T 1798/13 (Forecasting the value of a structured financial product/SWISS REINSURANCE COMPANY LTD), points 2.7 to 2.9, the present Board essentially held that it was not enough that an algorithm makes use of a technical quantity in the form of a measured physical parameter (weather data). **<u>What matters is whether the algorithm reflects any additional technical considerations about the parameter, such as its measurement</u>**. In that case there were none. This was contrasted with T 2079/10 (Steuerung von zellulär aufgebauten Alarmsystemen/SWISSRE) where the invention was seen to lie in the improvement of the measurement technique itself, which involved technical considerations about the sensors and their positions.

2.13 Such a situation is conceivable in the present case, if the algorithm were to somehow enhance the input data using considerations of e.g. the placement of the sensors. However, the claim only specifies that the data "includes a time series of acceleration vectors" and that this data is "analyzed". There are no further details that could constitute technical considerations about the data or the sensors.

Thus, the Board considers that the mere idea of mapping acceleration data to gait category does not contribute to inventive step either, but is an idea that would be given to the skilled person as stated out by the division. Only its implementation involving the sensors could contribute.

2.14 The Board therefore concludes that **neither the term "customized design", nor the use of acceleration data in the customisation of an item have any technical effect. They cannot contribute to inventive step.**

2.15 As a result the problem to be solved is along the lines of how to adapt the customisation process of D3 to take into account categories of human gait derived from acceleration data.

2.16 Contrary to the appellant, the Board notes that D3 provides a motivation to improve the customisation process. For instance, paragraph [0029] explains that D3 rather aims at using the most suitable sensor data for the most accurate model for a user's foot to obtain the best-fitting piece of footwear, see paragraph [0040]. There is no hindrance for the skilled person to look for other kinds of data, including dynamically collected data, which improve the best-fit model.

2.17 Furthermore, the skilled person learns from D1 that time series of sensor data, see paragraphs [0052] to [0054], for example by acceleration sensors which are worn by a user during a sports activity, can be captured as dynamic data about a user during a sports activity.

2.18 The Board considers it obvious to add sensors to the arrangement of D3 to arrive at the invention. The Board considers that this would be true even if the idea of using acceleration data were not included in the definition of the problem.

2.19 Accordingly, claim 1 of the main request lacks an inventive step over D3 and D1 (Article 56 EPC).

3. Auxiliary request I - Article 56 EPC

3.1 The division considered, in connection with the then fourth auxiliary request, that the additional features referred to determining a customised design and a particular analysis of sensor data to determine a category of human gait, see points 2.7 to 2.11 of the impugned decision. The division found that these features did not have technical character.

3.2 The Board agrees. In particular, **merely "providing the customized design" for manufacture does not alter the abstract nature of the customisation.** Manufacturing of an item based on a customised design is certainly a technical problem. However, **the present invention does not define how the final product, e.g. footwear, is manufactured, but it stops with customised component specifications**, see lines 23 to 25 of paragraph [0045]. Even if the design is actually presented to the user who may then place orders for the manufacture and/or assembly of customised items, see lines 1 to 2 of paragraph [0046], **the customised component specifications do not define how a manufacturing process is controlled to produce the item or what components are to be used. Similarly, specifying that a design component can vary in shape, size or material composition does not alter the abstract nature of the customisation.**

3.3 The appellant argued that this combination of features achieved an additional technical effect which was that the user of the customisation system was provided with instant feedback on the influence the performed activity had on the variation (in shape, size or material) of the customised design component, see point c. on page 16 of the grounds of appeal.

3.4 The Board takes this to mean to show the user the customised design while he is performing the activity. The capturing of a time series of sensor data would necessarily be performed during a sports activity in order to capture dynamic data as in D1. The determining of the customised design may be performed as a background process, the processing time of which would depend on the hardware used. Thus, the Board judges that these features do not add anything inventive. Even if "customised design" involves interactivity, see [0032], which is not claimed, there are no details provided in the application about how this would work.

3.5 Accordingly, claim 1 of the auxiliary request lacks an inventive step over D3 and D1 (Article 56 EPC).

T 1645/19 (Selective haptic feedback/APPLE) of 26.1.2022
European Case Law Identifier: ECLI:EP:BA:2022:T164519.20220126

DEVICE AND METHOD FOR FORGOING GENERATION OF TACTILE OUTPUT FOR A MULTI-CONTACT GESTURE

Inventive step - main request (yes)

Application number: 13795392.3
IPC class: G06F 3/01, G06F 3/041, G06F 3/0488
Applicant name: Apple Inc.

Board: 3.5.05
https://www.epo.org/law-practice/case-law-appeals/pdf/t191645eu1.pdf

A method (10000), comprising:

at an electronic device (300) with a display (450) and a touch-sensitive surface (451),

wherein the device includes one or more sensors (357) to detect intensity of contacts with the touch-sensitive surface:

detecting, on the touch-sensitive surface, a gesture that includes an increase of intensity of a contact above a respective intensity threshold (10002); and
in response to detecting the gesture (10008), triggering an event in accordance with the gesture:
in accordance with a determination that the gesture includes a first number of contacts, generating a tactile output on the touch-sensitive surface (10010); and
in accordance with a determination that the gesture includes a second number of contacts different from the first number, forgoing generating the tactile output on the touch-sensitive surface (10018) and performing an operation of reducing a size of an object displayed on the display in accordance with the gesture including the second number of contacts,
wherein the first number of contacts is one contact (10012), and the second number of contacts is two contacts (10020)."

2. Main request - inventive step

2.1 Prior art

D1 discloses a touch-sensitive device able to provide tactile feedback when a user applies a touch having a characteristic above a touch threshold on a touch key of the device (see paragraphs [0024], [0030] and [0038]). The touch threshold may be a force threshold, i.e. a user who presses a touch key of the device with a force above the threshold will receive tactile feedback (see paragraph [0032], lines 24 to 38). Multiple thresholds may be used for a touch key, each corresponding to a particular function of the touch key (see paragraph [0032], lines 41 to 49, and paragraph [0034], lines 33 to 34 and 43 to 47). In particular, tactile feedback may be generated only when the touch exceeds a certain threshold (see paragraph [0032], lines 55 to 58 and paragraph [0057], lines 24 to 30).

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D1 also discloses that, once a number of simultaneous touches on the device has exceeded a certain threshold, the touches may be disregarded (see paragraph [0033], lines 13 to 17, and paragraph [0043], lines 36 to 39), since the detection of a number of contacts above a certain figure is indicative of a user making inadvertent touches.

Paragraph [0042] mentions in lines 21 to 25 that modifying the touch threshold may comprise modifying a threshold of other characteristics related to a touch. As examples of such characteristics, the duration of a touch, the number of touches, the touch rate, and the size of the contact area are listed. However, D1 is vague about the meaning of the wording "number of touches" in this paragraph, so it is not clearly disclosed whether the number of touches means the number of simultaneous touches at different positions of the touch surface, or the number of repeated touches at the same position.

2.2 D1 does not disclose the following features of claim 1:

- the device performs an operation in response to detecting a gesture including two contacts and including an increase of intensity of a contact above the threshold for triggering an event,

- this operation consists in reducing the size of an object displayed in accordance with the gesture, and

- for this two-contact gesture, generation of tactile output is forgone.

The **technical effect** of these distinguishing features is that an **operation of zoom-out is enabled by a two-contact gesture, without any tactile feedback**.

The **objective technical problem** can thus be formulated as **how to improve the operations and feedback provided during interaction with the device.**

2.3 At the priority date of the present application in 2012, the skilled person was aware that touch-screen devices able to detect multi-touch gestures, i.e. multi-finger contacts, such as the device of D1, could be adapted to detect the so-called "pinch-to-zoom" gesture. It was thus common ground in the oral proceedings that applying to the device of D1 recognition of the pinch-to-zoom gesture and its associated functionality did not contribute to an inventive step.

However, only in one passage does D1 disclose forgoing tactile feedback when an operation is performed after a touch (see paragraph [0057]. In that case, a lower touch threshold and an upper touch threshold are defined for a location, and a touch having an intensity between the lower and the upper touch thresholds results in the operation of highlighting a selection option, but without tactile feedback. The teaching of paragraph [0057] therefore implies that for a one-contact gesture, the performing of an operation may occur with tactile feedback. However, **claim 1** specifies that for all the locations on the touch screen the same intensity threshold, i.e. force threshold, triggers an event both in the case of a one-contact and in the case of a two-contact gesture, whereas tactile feedback is always generated in the case of a one-contact gesture. Thus, **nothing in the teaching of D1 in paragraph [0057] provides any hint to the skilled person of implementing the forgoing of tactile feedback only in the case of a two-contact gesture** as defined in claim 1.

Furthermore, <u>D1</u> discloses in paragraphs [0033] and [0043] the **forgoing of tactile feedback in case of a multi-contact gesture, but only on the assumption that this gesture was made inadvertently and is therefore not to trigger any operation.** Thus, the teaching of D1 in paragraphs [0033] and [0043] does not provide any hint to the skilled person of implementing the forgoing of tactile feedback in the case of a two-contact gesture triggering an operation, as defined in claim 1.

Moreover, even if paragraph [0042] of D1 were interpreted as meaning that a touch force threshold may depend on the number of simultaneous touches, i.e. that a force threshold for a two-contact gesture could be made different from a force threshold for a one-contact gesture, this passage of D1 would not provide the skilled person with any hint with respect to forgoing tactile feedback depending on the number of touches.

Furthermore, the **<u>board agrees with the appellant</u>** that *cherry-picking different aspects* **of D1 for a** *combination that is not disclosed and for which there is no pointer* **in D1 - namely implementing a touch threshold for generating tactile feedback - and then choosing a number of contacts as the basis for the threshold even when a gesture is positively identified and a subsequent action taken** *would be based on <u>hindsight</u> knowledge of the invention*.

The appellant also plausibly argued that forgoing tactile feedback when making a zoom gesture, as defined in claim 1, is advantageous, since the user might exceed the contact intensity threshold at any point during the zoom operation. In that case, tactile feedback would potentially interfere with the user's ability to make an ongoing zoom input gesture and be disturbing. Moreover, forgoing tactile feedback in such circumstances will also help to save battery charge for portable electronic devices.

For these reasons, the board holds that the subject-matter of claim 1 involves an inventive step, having regard to the prior art on file.

T 1567/19 (Workflow generation in a print shop / Ricoh) of 22.11.2021
European Case Law Identifier: ECLI:EP:BA:2021:T156719.20211122
Workflow generation in a print shop environment

Inventive step - (no)
Inventive step - lack of technical effect

Application number: 12155216.0
IPC class: G06F 3/12
Applicant name: Ricoh Company, Ltd.

Board: 3.5.05

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https://www.epo.org/law-practice/case-law-appeals/pdf/t191567eu1.pdf

Claim 1 of the main request and of auxiliary request 3 reads as follows:

"A system (102) comprising:

a memory (123) configured to store different workflow rules that describe logical relationships of activities at a print shop;

an interface (121) configured to receive print jobs for each of the multiple different customers;

a workflow generator (124) configured to identify the customer and, for each of the print jobs, access the memory to identify the particular workflow rules defined for the customer that the print job is for based on the identifying of the customer and retrieve the rules for the customer, receive a set of device capabilities from resources (130) of the print shop, the capabilities indicating the status of the resources and their available activities, identify from the device capabilities the activities available at the print shop, and generate a custom workflow for the print job based on the identified particular workflow rules defined for the customer, the available activities, and a job ticket of the print job, wherein the custom workflow comprises an ordered set of activities; and

a resource manager (125) configured to direct resources of the print shop to perform the activities of the custom workflow."

1. The present application pertains to a method and to a device for generating and executing workflows in a print shop. Workflow rules are stored. Print job requests are received from a customer. Rules defined for the customer, capabilities of the resources of the print shop and information from the print job are used to generate a customer workflow for the print job.

2. Document D1 discloses generating a workflow for a printing service, based on available services and data from a received job request.

Main request

3. Patentability

3.1 The claims of the main request correspond to the claims of the first auxiliary request underlying the contested decision.

3.2 The board confirms the outcome and the main line of argument of the inventive-step analysis in the decision under appeal.

3.3 The appellant argued that, in addition to the features indicated in section 2.2 of the impugned decision, document D1 did not disclose

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- an interface configured to receive print jobs for each of the multiple different customers;

- a workflow generator configured to identify the customer and retrieve the rules for the customer.

3.4 With regard to the first feature, the board considers that it is disclosed in document D1. According to claim 2 and paragraph 59, one or more clients may originate job requests and a human user may use the client 31.

3.5 D1 does not disclose the second feature listed above.

3.6 The appellant submitted in the statement setting out the grounds of appeal, in the first paragraph on page 4, that "the distinguishing features have a **technical effect** in that the rules used to generate the workflow will be different all things being equal".

The board does not agree that such an effect is achieved.

First, "all things being equal" is not correct. "All things but the customer identification being equal" is probably what the appellant meant.

Second, the same rules may be used for a customer with a different identification, e.g. three different customers may be treated as loyal customers, for which the same "loyal customer" rule is foreseen (Figure 3 of the application in suit, item 308).

Third, while the resulting workflow may be different, the differences are **not necessarily of technical character**. The rules for loyal customers vs. new customers (see Figure 3 and pages 13, 16 and 17 of the description) lead to differences in billing (discount and full price) and in the presence of a credit check and "send promo" for a new customer. **Defining and using rules concerning business aspects for different customers or types of customer is a business decision.** The implementation of this in a computer system involves technical considerations; however, these considerations do not pose any difficulties for the skilled person.

The board notes that differences in the workflow which are of technical character (e.g. that a dry run print is to be performed) are **not based on the rules**, but on the print job being identified as large print job (see Figure 3 and page 16).

3.7 The appellant argued on page 2 of the statement setting out the grounds of appeal that "it is absolutely clear that if workflow generation is technical (and that appears to be indisputable) in the type of system under consideration, then the fact that the workflows will differ (based on the identity/type of the customer) would appear to mean that there is a technical result even if the motivation for the technical result was non-technical (commercial); in other words, in order to achieve the result technical means are required and the technical means result in a technical solution. All inventions are motivated by commercial reasons the question is only whether the invention is technical".

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The **board disagrees**. **Workflow generation is not technical per se**. In the case at hand, the differences between the generated workflows pertain to business aspects, as explained above in section 3.6. Furthermore, it is correct that technical means are involved in the billing process, for example; however, the board holds that such means would be foreseen by the skilled person, based on the business requirements and in an obvious way.

3.8 The appellant submitted that rules were customer-specific and were set once and then reused, which increased efficiency and flexibility.

This **argument is not persuasive**. Document D1 similarly discloses rules which are stored in a database and thus reused; see the abstract and paragraphs 60 and 61. Furthermore, **the fact that the rules are customer-specific does not lead to a technical effect,** as explained in section 3.6 above.

3.9 For these reasons, the board holds that the **distinguishing features do not lead to technical effects but to business-related effects** and that a skilled person, faced with the problem of adapting the system in document D1 to provide rules and to consider them depending on the customer identification, would arrive at the subject-matter of claim 1 without any need for inventive activity.

Consequently, the subject-matter of claim 1 of the main request does not involve an inventive step.

T 1822/18 (Augmenting user-input information/ARRIS ENTERPRISES) of 24.11.2021

European Case Law Identifier: ECLI:EP:BA:2021:T182218.20211124

Method and device for augmenting user-input information related to media content

Inventive step - main request and first auxiliary request (no)

Application number: 13718436.2
IPC class: G11B 27/34, G11B 27/10, H04N 21/254, H04N 21/854, H04N 21/431,
                     H04N 21/488, H04N 21/478, H04N 21/4722, G06F 17/30
Applicant name: ARRIS Enterprises LLC
Cited decisions: G 0003/08, G 0001/19, T 1173/97, T 1741/08, T 1834/10

Board: 3.5.07

https://www.epo.org/law-practice/case-law-appeals/pdf/t181822eu1.pdf

The invention

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1. The application relates to <u>augmenting user-input information associated with a media source</u> such as a movie (description as published, paragraph [0002]). According to the background of the invention (description, paragraph [0003]), various devices exist that provide a source of viewable media content, such as televisions, computers and mobile devices. Viewers of such media sources may wish to provide some type of commentary related to what is being viewed.

Some services offer a viewer the opportunity to provide a comment that is then viewable by others who follow the viewer or who visit the web page hosting the comment. The comment is often general and easily assigned to the media content as a whole. <u>In other cases, however, the comment is specific to a single portion of the content</u>. This can be confusing, since a comment directed to a specific portion, for example, can lack relevance to a user outside the context of that specific portion of the content. <u>A user may often wish to obtain additional information about a specific portion of content, people or objects viewed in the content, and this can be challenging.</u>

Main request

2. Inventive step

2.1 The examining division considered document D1 to be a suitable starting point for assessing inventive step and this was not contested by the appellant.

2.2 The <u>examining division</u> identified feature <u>F4b</u> (see linked pdf file) of claim 1 as the <u>sole distinguishing feature</u> over document D1.

2.3 In its statement of grounds of appeal, the <u>appellant</u> argued that <u>features F6, F6a and F7 were further distinguishing features</u> (statement of grounds of appeal, page 4, third paragraph).

2.4 Regarding the alleged differences from document D1, the **board** analyses document D1 in detail below.

2.5 D1 discloses a method of inputting user comments while a movie is displayed on a screen of a computer device (see D1, Figures 2, 3A and 3B; paragraphs [0044], [0045], [0075] to [0116]; claims 1 and 2). For commenting, the user uses a "point and click" operation to select an object of the movie content on a display (D1, paragraphs [0077] to [0079]). The method then uses the click coordinates and the elapsed time of the movie (movie metadata) to determine the selected display subject (D1, paragraphs [0051] and [0081] to [0084]). The user can then write an arbitrary comment regarding the selected display subject using a thumbnail image corresponding to the elapsed time of the movie and the display position selected by the "point and click" operation (D1, Figure 3B, paragraphs [0086] to [0088]).

2.5.1 In view of the above analysis of the disclosure of document D1, the <u>board agrees with the examining division</u> (see also the contested decision, point 13.2) that document D1 discloses features F1 to F4a, F5 and F8. The <u>board also agrees with the appellant</u> and the examining division that D1 does not disclose feature F4b.

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2.5.2 The board agrees with the examining division that the method disclosed in document D1 automatically creates an association between the user comment and the primary-content metadata, this metadata comprising, for example, the content ID and point in time (D1, paragraphs [0084], [0085], [0088], [0104], [0109] and [0114]). However, the board agrees with the appellant that features F6a and F7 are not disclosed in document D1. Consequently, the board concludes that the **distinguishing features are the features F4b, F6a and F7.** In the oral proceedings, the appellant agreed that these features were distinguishing features over the prior art D1 and submitted its further arguments on inventive step on that basis.

2.6 According to the appellant a **technical effect of the distinguishing features was that an association between the user-input information and a specific viewable object in the primary media content could be generated automatically using only the user's comment and the primary-content metadata**. In other words, the only user-input information that was used to generate the association was the user's comment (statement of grounds of appeal, page 3).

2.6.1 Consequently, the distinguishing features solved the technical problem of **lowering a burden on a user** who was commenting on media content by avoiding the need for mouse input for a "point and click" operation. Thus the user's attention was diverted away from the primary media content to a lesser extent. This improved user experience and reduced the likelihood of the user missing key story/plot points. Moreover, the distinguishing features solved the further technical problem of reducing the requirement for hardware support for "point and click" operations on user devices.

Furthermore, in the oral proceedings, the appellant argued that the distinguishing features had the technical effects set out below.

- According to the method disclosed in document D1 it was necessary to provide a "point and click" operation on the device on which the movie was playing. This meant that it was necessary to configure the primary media device with appropriate input possibilities. That limited the kind of devices in which the method disclosed in D1 could be used. In particular, it could not be used on all media devices such as when playing the movie on a television without a touch screen or mouse, or on a cinema screen.

- In the case of multiple viewers, the "point and click" operation used in the method disclosed in document D1 was very disruptive when a user wished to input a comment.

- The "point and click" operation of the prior-art method could lead to a wrong association if the displayed objects on which the user wished to comment were small and/or fast-moving (such as cars or aeroplanes), since these objects were difficult to select with a mouse pointer. This applied all the more in the case of users with special needs.

2.6.2 The appellant argued that in the light of the aforementioned **technical effects the objective technical problems solved** were: **(i) how to adapt the method of document D1 to work with different devices, (ii) how to reduce or eliminate the disruption to viewers due to interaction with the primary device, and (iii) how to remove the possibility of incorrect "point and click" operations.**

2.7 Regarding the alleged effects of the distinguishing features with respect to avoiding the "point and click" operations used in the method disclosed in D1, there is **nothing in claim 1** which precludes the use of "point and click" operations for user input, including for inputting the text of a user comment (for example by using a pointing device to select letters on a displayed keyboard). Moreover, according to the established case law, **lowering the cognitive burden for a user is not a technical effect** (see, for example, T 1741/08, Reasons 2.1; T 1834/10, Reasons 5). This applies also with respect to diverting the user's attention as well as in the case of multiple viewers.

2.7.1 Furthermore, the board does not see that lowering a burden for the user is derivable from the distinguishing features **over substantially the whole range claimed** (see G 1/19, Reasons 82). Indeed, the claimed subject-matter is broad, and it is not limited to: a particular form of human-machine interaction, the case of multiple viewers, or a commenting user with special needs.

2.7.2 Regarding the possible generation of a wrong association in the method disclosed in document D1, the board informed the appellant during the oral proceedings that it was not convinced that the association created by the claimed method was necessarily one that was intended by the user. Indeed, the association created depends, among other things, on the availability of suitable primary-content metadata and the time period for receiving a comment after a user has viewed a specific media content on the display.

Furthermore, the method of claim 1 is not limited to receiving user comments or user input regarding small or fast-moving objects. Consequently, the board does not see that any effect with respect to avoiding unintended associations between user comments and specific objects in the media content is derivable over the whole scope of claim 1.

2.7.3 The appellant argued that the claimed method would overcome limitations of the prior-art method to certain kinds of devices. However, the board notes that the claimed method is not limited to devices such as a cinema screen or a television without a touch screen. Moreover, the appellant could not provide, during the oral proceedings, any evidence where any details concerning the use of a cinema screen were disclosed in the application as filed. Instead, it stated that it was not necessary for the application to provide examples of all possible primary media devices.

The board notes that according to claim 1 user-input information is received in the first secondary device, but how exactly that input is provided is not specified. Consequently, **no conclusions can be drawn as to the user-friendliness** of the manner of providing input. According to the description of the application as filed, paragraphs [0015] and [0016], the primary media device includes a device allowing the viewing of the primary media content such as a television, and the first secondary device may be a laptop or desktop computer. Document D1 discloses in paragraphs [0045], [0078] and [0079] that the information processing device used may include various types of computer devices with an input device and a display screen. Consequently, the board considers that claim 1 covers methods implemented using substantially the same devices as those disclosed for implementing the method disclosed in document D1.

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In view of the above, the appellant's arguments that the claimed method had the effect of overcoming the limitations to certain kinds of devices are not convincing. Indeed, this effect is not derivable from the wording of claim 1 **over substantially the whole scope claimed**.

2.8 Contrary to the appellant's submissions, the board considers - in line with the examining division's opinion (see the contested decision, point 13.4; see also the annex to the summons of 10 May 2017, point 4.3) - that the **distinguishing features are aimed at the presentation of information to the user for a non-technical purpose** (for informational and commercial applications, for example; see the description, paragraph [0035], for an example application). In particular, the relationship between a user's comment and a specific viewable object displayed serves only for the purpose of displaying this relationship with the aim of enhancing ("augmented user comment") the informational content presented to a user.

In view of the above, the **distinguishing features do not contribute to a "further" technical effect** (see decision T 1173/97, OJ EPO 1999, 609). Moreover, the board does not see that the distinguishing features involve any "further technical considerations" (see opinion G 3/08, OJ EPO 2011, 10, Reasons 13.5.1). Instead, the generation of the association between the parsed user-input metadata and the primary-content metadata by means of analysing the metadata **can only be seen as a non-technical algorithm** underlying the claimed method. Claim 1 does not specify how this non-technical algorithm underlying the distinguishing features is specifically implemented by exploiting particular computer hardware characteristics, for example, which may, at least in certain circumstances, allow a specific technical effect to be derived within the computer system in the sense of a "further" technical effect (see decision G 1/19, Reasons 51).

2.9 Consequently, the distinguishing features **do not go beyond the mere automation of a non-technical algorithm** underlying these features. It follows that the method of claim 1 lacks an inventive step in view of documentD1 (Article 56 EPC).

T 0890/18 (Web application/APPLE) of 2.2.2022
European Case Law Identifier: ECLI:EP:BA:2022:T089018.20220202
WEB APPLICATION ARCHITECTURE

Substantial procedural violation - violation of the right to be heard (yes)

Application number: 12737666.3
IPC class: G06F 9/54
Applicant name: Apple Inc.
Cited decisions: R 0010/18

Board: 3.5.06

https://www.epo.org/law-practice/case-law-appeals/pdf/t180890eu1.pdf

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The application

1. The application relates to a web application architecture. It defines a wrapper application that runs on a standard browser and provides life cycle management for applications, such as e-mail, calendar etc.; these may use data from different web servers (paragraphs 2 to 4). Each application is opened in its own frame and may be moved to the front or remain in the background; in the latter case the execution state (including user interface context) is maintained. The wrapper also provides separate error handling for each application (paragraph 31).

The decision under appeal

2. The main request was refused (decision section 1.1) for a lack of inventive step starting from a document referred to as D1.

3. The Examining Division identified (point 1.1.2) **five differences over document D1**, and considered all of them to be separately obvious (1.1.3) as mere design options (first four) or straightforward implementation details (last one). Because "the presence of each of the differences would be obvious to the skilled person and, when put together they do not produce any surprising technical effect greater than the mere sum of the partial effects" (1.1.4), it was considered that the claimed subject matter was obvious in view of D1.

Article 113(1) EPC

4. As the appellant submitted (grounds of appeal, page 3), the **reasoning provided in the decision is in essence the same as that provided in the summons to oral proceedings** (dated 13 February 2017; point 3, and in particular point 3.4).

5. In response to that summons, with a letter dated 16 August 2017, the appellant filed the claims according to the three requests now on file, and **provided counter-arguments** to the analysis of the Examining Division in the summons. Notably, it was argued (page 2; see esp. paragraphs 5 and 9) **that it was improper to consider the differences separately**:

"the use of partial problem[s] and the subsequent piecemeal analysis of the inventiveness of the claims is not justified and incorrect in light of the syner-gistic interaction of the novel features of the claim".

According to the appellant, (page 2, see esp. para-graphs 6, 7 and 8) there was a **functional dependency between the novel features, and therefore, as generally accepted in the context of the problem-solution approach, the claimed invention had to be considered as a whole**. It was proposed that the features of the claims (of all requests) in combination solved the problem of improving the ability to handle and switch between applications.

6. These **arguments are central to the reasons for the inventive-step objection**: if the features cannot be separately considered, then the reasons put forward by the Examining Division fail to support the decision.

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6.1 It is not apparent from the file that the Examining Division has considered the merits of the appellant's arguments. They are not addressed in the reasons of the decision, nor even mentioned in the facts and submissions (see point 5 of the decision), nor in the minutes of the oral proceedings, which took place in the absence of the appellant. Instead, the decision essentially repeats the arguments set forth in the summons, the only modification being that a further difference was acknowledged (the third, error handling). **All five differences were still treated in terms of partial problems with no reference to the appellant's arguments**.

6.2 Consistent with established case law of the boards of appeal (see R 10/18), the Board considers that the right to be heard is infringed in this case, because the **Examining Division did not address in the reasons for its decision the submissions made by the applicant** mentioned in point 5 above. On an objective basis, these submissions are decisive for the outcome of this case. This infringement of the right to be heard constitutes a **substantial procedural violation**.

Remittal

7. A substantial procedural violation is a fundamental deficiency which, as a rule, constitutes a special reason for the Board to remit the case to the Examining Division for further prosecution (see Article 11 RPBA 2020; Article 111(1) EPC) without assessing the appeal as to its merits.

8. The Board further remarks that, as the appellant also submitted (grounds of appeal, page 7), the Examining Division did not bring documentary evidence to support the provided reasoning; this seems to relate, in particular, to the assertions that the differences were a matter of design choice.

9. With this decision, the **Board does not take position on whether the main request should be granted or not.** In particular, it **does not decide against (does not "not allow") the main request,** which was the condition under which the appellant had requested oral proceedings. The Board therefore is in a position to deliver this decision in writing, without holding oral proceedings.

10. The substantial procedural violation affected the assessment of inventive step, which is the only ground for refusal. It is therefore causally linked to the filing of the appeal, and the Board finds it equitable to reimburse the appeal fee (Rule 103(1) EPC).

T 1371/16 (Designing a wiring path/YAZAKI) of 17.9.2021
European Case Law Identifier: ECLI:EP:BA:2021:T137116.20210917
CAD apparatus, method, program and medium storing the program, for designing a wiring path

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Inventive step - main request (no)
Inventive step - mixture of technical and non-technical features

Application number: 03257060.8
IPC class: G06F 17/50
Applicant name: YAZAKI CORPORATION
Cited decisions: G 0001/19

Board: 3.5.07

https://www.epo.org/law-practice/case-law-appeals/pdf/t161371eu1.pdf

Claim 1 of the main request reads as follows:

"A wire harness wiring path design aiding apparatus comprising:

a designing unit which designs a wiring path of a wire harness by using body data on an object to which the wire harness is installed and three-dimensional data on an auxiliary device installed on a vehicle body;

a storing unit which stores data on a minimum bending radius of the wire harness; and

a checking unit which judges whether the wiring path data designed by the designing unit satisfies the minimum bending radius, and outputs, if the wiring path data does not satisfy the minimum bending radius, data on corrected wiring path data designed in light of the minimum bending radius, characterised in that

the storing unit stores, as the data on the minimum bending radius, a first minimum bending radius defined based on properties of material of the wire harness and a second minimum bending radius defined based on force of worker's hand, and

wherein the apparatus includes a selecting unit which, when the first minimum bending radius differs from the second minimum bending radius, selects one of the first and second minimum bending radii which has larger minimum bending radius."

Application

1. The application concerns an apparatus and method for aiding a design of wiring paths of wire harnesses in a three-dimensional space such as a vehicle body. The design takes into consideration three-dimensional data of a body in which the wire harness is installed, a minimum bending radius of the wire harness which varies depending on a type and the number of wires to be bundled into a wire harness, and a type of the covering of the wire harness (see application as filed, page 1, lines 5 to 15; page 3, lines 4 to 8).

Main request

Inventive step - claim 1

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2. Document <u>D1</u> discloses the EMbassy software that <u>generates virtual wire-harness prototypes for verification</u> (see page 89, subtitle). The software takes into account electrical cable and wiring data, mechanical component installation and layout data (including 3D models of housings) and detailed component specifications, and it <u>generates wire lists</u>, bills of materials, and nailboard and harness drawings (page 90, figure, including its caption, and description of the EMbassy program on pages 89 and 90). It <u>takes into account minimum bend radii and mechanical interferences</u> in the space available in the assembly to design the structural assemblies that determine wire routing (page 89, right-hand column; page 91, upper figure).

2.1 The board agrees with the examining division that document D1 discloses the features of the preamble of claim 1. This has not been contested by the appellant.

2.2 In addition, document D1 discloses storing a first minimum bending radius based on properties of the wire harness material (page 92, left-hand column, last two full paragraphs). The distinguishing features are therefore the following:

(d1) the storing unit also stores a second minimum bending radius based on force of the worker's hand,

(d2) a selecting unit selects the largest of the first and second minimum radii if they differ.

3. <u>Claim 1</u> concerns an <u>apparatus for computer aided design of a wire harness wiring path</u> which **outputs "data on corrected wiring path" as a final result**. It thus **relates to a design process which uses computer-implemented simulation to produce numerical data describing a wiring path.** The distinguishing features result in wiring path data being output by the apparatus which take into account the force of the worker's hand.

4. The claimed subject-matter is thus analogous to a computer-implemented simulation of a technical system. Its patentability is to be assessed taking into account the criteria established by the recent decision G 1/19 of the Enlarged Board of Appeal on the patentability of computer implemented simulations (OJ EPO 2021, A77).

4.1 According to decision G 1/19, if a claimed process results in a set of numerical values, it **depends on the further use of such data** (which use can happen as a result of human intervention or automatically within a wider technical process) whether a resulting technical effect can be considered in the inventive step assessment. If such further use is **not, at least implicitly, specified in the claim**, it will be disregarded for this purpose (point 124).

4.2 **Calculated numerical data reflecting the physical behaviour of a system modelled in a computer usually cannot establish the technical character of an invention** even if the calculated behaviour adequately reflects the behaviour of a real system underlying the simulation. Only in exceptional cases may such calculated effects be considered implied technical effects (for example, if the potential use of such data is limited to technical purposes) (point 128).

4.3 In section V, decision G 1/19 presents its conclusions for the application of the COMVIK approach to simulations. It explains that the **underlying models of the simulation may contribute to technicality if, for example, they form the basis for a further technical use of the outcomes of the simulation** (e.g. a use having an impact on physical reality). In order to avoid patent protection being granted to non-patentable subject-matter, such **further use has to be at least implicitly specified in the claim** (points 136 and 137).

4.4 Decision G 1/19 provides some **examples of further technical uses** of the numerical data resulting from a simulation, which under certain conditions may be potential uses, implicitly specified or implied by the claim. One example is the **use of the data in a manufacturing step**, which "would of course be an argument in favour of patentability" (point 134).

4.5 **Another example** of a further technical use is the use of the data in controlling a technical device, which can be recognised if the resulting numerical data is specifically adapted for "the purposes of its intended technical use", i.e. for controlling a technical device (point 94). In that case, the data is **considered to have a technical character because it has the potential to cause technical effects.** Either the technical effect that would result from the intended use of the data could be considered "implied" by the claim, or the intended use of the data (i.e. the use in connection with a technical device) could be considered to extend across substantially the whole scope of the claimed data processing method (point 94). **These arguments cannot be made if claimed data or data resulting from a claimed process has relevant uses other than the use with a technical device** (point 95).

5. In support of inventive step, the appellant argued that the distinguishing features achieved a technical benefit over D1 by providing a wiring harness design capable of being installed simply and effectively in circumstances where a design output by the system of document D1 would not. By providing the second minimum radius based on the force achievable using an assembler's hand, the invention was "able to generate the design of a wiring harness which is easier to manufacture, yet which also does not have excessive stress generated on it, and yet which is also of as short a distance as possible in order to reduce cost and weight, as well as potentially improve the reliability of the systems utilising that harness through shorter communications paths". The distinguishing features ensured the manufacturability of the design.

5.1 Citing decision G 1/19, points 128 and 137, the appellant argued that the claimed invention produced data that allowed manufacturing the wire harness. The numerical data produced by the claimed apparatus reflected the physical structure of the designed wiring path and not merely the physical behaviour of a simulated system. The claim specified at least implicitly a further use of the designed wire harness which had an impact on physical reality, and therefore fulfilled the requirements expressed in G 1/19, point 137. As with a claim to a bicycle that did not need to specify that the bicycle had two wheels, there had to be a limit to which features had to be specified in the claim for recognising the technical purpose. The claim explicitly specified that the design aiding apparatus comprised a designing unit and that the wiring harness was installed in a vehicle body. It was sufficient to show that the end result had, at least implicitly, a technical purpose. It was clear from the claim that the technical area of the invention was the installation of the wiring harness along the path.

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6. The **board is however not convinced that the distinguishing features contribute to a technical effect in accordance with the criteria established by decision G 1/19.**

6.1 The **only purpose of the wire harness wiring path design aiding apparatus according to claim 1 is to output "data on corrected wiring path data", which is numerical data about the wiring path design.** As explained above, the distinguishing features result in wiring path data being output by the apparatus which takes into account the force of the worker's hand.

Claim 1 does not specify any further use of the output wiring path data, further properties or specific data format that could limit the possible uses of the data. In view of that, **other relevant uses of the output data for non-technical purposes, for example informational, study or training purposes, are within the scope of the claim.** Since the data can be output in any form or format, it cannot be considered to be specifically adapted for the purposes of an intended technical use. In particular, the output data is not specifically adapted to be used in controlling a technical device or manufacturing a wiring path.

It can thus be concluded that the **data** produced by the apparatus of claim 1 is **not limited to a further technical purpose and does not contribute to an "implied" technical effect that is to be taken into account in the assessment of inventive step.**

6.2 Furthermore, the distinguishing features do not include any inventive details of the computer implementation, and the appellant has not argued otherwise.

6.3 Therefore, the subject-matter of claim 1 lacks an inventive step (Article 56 EPC).

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