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**Datasheet for the decision  
of 15 June 2021**

**Case Number:** T 1453/17 - 3.5.01

**Application Number:** 05734156.2

**Publication Number:** 1782375

**IPC:** G06Q40/00

**Language of the proceedings:** EN

**Title of invention:**

PROCESS FOR PROVIDING TIMELY QUALITY INDICATION OF MARKET  
TRADES

**Applicant:**

NYSE Group, Inc.

**Headword:**

Real time broker quality indication/NYSE

**Relevant legal provisions:**

EPC Art. 56

RPBA 2020 Art. 13(2)

**Keyword:**

Inventive step - providing broker quality indications in real  
time (no - obvious implementation of non-technical  
requirement)

**Decisions cited:**

T 0641/00, G 0001/19

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

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Case Number: T 1453/17 - 3.5.01

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.01**  
**of 15 June 2021**

**Appellant:** NYSE Group, Inc.  
(Applicant) 11 Wall Street  
New York, NY 10005 (US)

**Representative:** Lucas, Brian Ronald  
Lucas & Co.  
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**Decision under appeal:** **Decision of the Examining Division of the  
European Patent Office posted on 31 January 2017  
refusing European patent application No.  
05734156.2 pursuant to Article 97(2) EPC.**

**Composition of the Board:**

**Chairman** M. Höhn  
**Members:** A. Wahrenberg  
P. Schmitz

## **Summary of Facts and Submissions**

- I. The case concerns the applicant's appeal against the examining division's decision to refuse European patent application No. 05734156.2.
- II. The examining division considered that the subject-matter of the independent claims of the then main request offended against the provisions of Article 123(2) EPC and that the subject-matter claimed in the main request and the first and second auxiliary requests lacked an inventive step (Article 56 EPC) in view of a conventional networked computer system for example as disclosed in D1 (WO 00/68841 A2).
- III. In the statement setting out the grounds of appeal, the appellant requested that the decision to refuse the application be set aside and that a patent be granted on the basis of the main or auxiliary request filed therewith. Those requests essentially corresponded to the first and second auxiliary requests in the decision under appeal. The appellant requested oral proceedings before any decision was taken by the Board to dismiss the appeal. In addition, the appellant requested at least one communication setting out the remaining objections in advance of oral proceedings, and at least one opportunity in advance of oral proceedings to submit amended claims.
- IV. The Board issued a summons to oral proceedings. In the communication accompanying the summons pursuant to Article 15(1) RPBA, the Board tended to agree with the examining division that the subject-matter of claim 1 of the main and auxiliary request lacked an inventive

step.

- V. In a letter dated 5 January 2021, the appellant submitted further arguments in favour of inventive step. The appellant also filed a second auxiliary request and requested a telephone discussion with the rapporteur with a view to resolve outstanding issues and avoid the need for a formal hearing.
- VI. In a submission of 12 February 2021, the appellant again requested a telephone discussion with the rapporteur.
- VII. The rapporteur informed the appellant's representative via telephone that it was not the practice for individual members of the Board to discuss the case with the appellant prior to the hearing and that no further written communication could be expected.
- VIII. In a letter dated 15 February 2021, the appellant requested that the oral proceedings scheduled for 15 June 2021 be held as a videoconference. The request was granted by the Board.
- IX. In a further letter dated 22 March 2021, the appellant provided more arguments in support of inventive step. The appellant also requested a further written communication in view of the recent publication of the decision of the Enlarged Board of Appeal G 1/19. The appellant once more suggested that a telephone discussion with the rapporteur might be helpful in resolving outstanding issues.
- X. In a letter dated 14 April 2021, the appellant once more requested a further written communication which it argued was plainly necessary following G 1/19.

XI. In a letter dated 27 May 2021, the appellant requested a further written communication or a telephone discussion and submitted further arguments in favour of inventive step in view of G 1/19.

XII. Oral proceedings were held as a videoconference on 15 June 2021. The appellant's final request was that the decision under appeal be set aside and that a patent be granted on the basis of the main request or auxiliary request 1 filed with the statement of grounds of appeal, or auxiliary request 2 filed with the letter of 5 January 2021.

XIII. Claim 1 of the main request reads:

An electronic communication network for securities trading and for providing real time, or near real time, execution quality indications, comprising:

an electronic data connection between a trader and an executing broker for transmission of order information electronically from the trader to the executing broker and for transmission of execution information electronically from the executing broker to the trader;

a message interceptor for without interfering with the data transmissions (a) intercepting in real time or almost real time an electronic order communication from the trader to the broker and accessing order data therefrom and (b) for intercepting in real time or in almost real time an electronic execution communication from the broker to the trader and accessing execution data;

a generic market data source; and

an execution quality calculation module (EQCM) in communication with the generic market data source, the message interceptor and the trader for electronically receiving on a real-time basis market data from the generic market data source, electronically receiving copy order data and copy execution data from the message interceptor, calculating one or more execution qualities corresponding to one or more of said electronic market order executions using said real-time or near real-time market data, and electronically transmitting to the trader information related to the one or more execution qualities for real-time or near real-time quality assessment of the market trade transactions.

XIV. Auxiliary request 1 adds "using the FIX protocol" after the second "executing broker" in claim 1.

XV. Claim 1 of auxiliary request 2 reads:

An electronic communication network for securities trading and for displaying to a financial market trader execution quality indications enabling the trader to maintain an overview of execution quality at all times including while an order is currently open and is being executed in the market, said network comprising:

an electronic data connection between the trader and an executing broker for transmission of order information electronically from the trader to the executing broker and for transmission of execution information electronically from the executing broker to the trader;

a message interceptor for without interfering with

the data transmissions (a) when a particular order or orders is/are to be evaluated intercepting in real time or almost real time an electronic order communication from the trader to the broker and accessing order data therefrom, (b) for intercepting in real time or in almost real time an electronic execution communication from the broker to the trader and accessing execution data therefrom and (c) copying the intercepted order and execution data and outputting the copied data;

a generic market data source;

an execution quality calculation module (EQCM) in communication with the trader, with the message interceptor for receiving the copied data and with the generic market data source for

(a) electronically receiving on a real-time basis market data from the generic market data source

(b) electronically receiving from the message interceptor the identity of the order or orders to be evaluated in which a single order involves a plurality of executions, copy order data and copy execution data,

(c) calculating one or more execution qualities corresponding to one or more of said electronic market order executions using said real-time or near real-time market data,

(d) electronically transmitting to the trader information related to the one or more execution qualities for real-time or near real-time quality assessment of the market trade transactions, and

(e) displaying at the trader a screen showing



in real time (or near real time) a selectable list (401) of currently open orders and a point graph on a display panel (402) displaying market execution data for the selected order's stock as first points (407), while executions by others in that stock are overlaid using second points (408) visually distinct from the first points.

XVI. The appellant's arguments can be summarised as follows:

The closest prior art was more accurately reflected by the system depicted in Figure 1 of the published application in which traders were in direct electronic communication with brokers using the FIX protocol.

Document D1 was related to a different purpose than the claimed invention. Therefore, the skilled person would not have considered it.

The claimed invention was not a business method for providing a trader with information but an improved networked infrastructure with which such information could be provided without latency. The claimed invention added new components and functions including the Message Interceptor Module and Execution Quality Calculation Module (EQCM). The message interceptor made copies of data transmissions between the trader and the broker without disturbing the original data transmission. The copies were then provided to the EQCM, which in parallel assessed and determined a quality associated with the data transmissions. As the quality determination was made on copies in parallel with the original data transmission, the quality determination did not delay the communications between the trader and broker, and the information could be provided to the trader in real time or near real time.

In other words, the invention solved the technical problem of latency in the technical field of electronic communication networks.

At the priority date, it had not been known to provide quality indications in real time or near real time. At that time, broker quality information was rather available from reporting agencies in the form of broker report cards and "league tables. Thus, it followed from the case law on problem inventions that real time quality indications could not be included in the objective technical problem to be solved without hindsight.

At the priority date, there had been a strong disinclination to introduce anything in a trading system that could have potentially interfered with trader-broker communication or introduced undesired latency. This was supported by the "Cisco paper" filed with the response of 25 November 2016 in the examination proceedings. Thus, the skilled person would not have introduced a message interceptor and an EQCM in the prior art trading system.

The present claims were not directed to a business method but to a technical apparatus, and the business professional would not have been able to provide such an apparatus. Since the Comvik decision (T 641/00 - *Two identities/Comvik*) concerned a method, the Comvik approach was not applicable to apparatus claims.

The reasoning in G 1/19 was generally favourable to the allowance of computer implemented inventions. The Enlarged Board of appeal found that no group of computer implemented invention could be *a priori* excluded from patent protection and that the Comvik

approach required an assessment of the technical contribution of the individual features of the computer implemented invention. No output having a direct link with physical reality was required.

The claims at issue in the present appeal had significantly more connection with physical reality than the claims in G 1/19 because they related to an apparatus and specified a separate execution quality calculation module. Thus, the generally favourable approach in G 1/19 was even more applicable to the claims of the present application.

A search in the Esp@cenet database had revealed many granted European patents in the field of transaction monitoring (see Appendix A to the reply of 22 March 2021). This demonstrated the technical nature of such inventions.

The second auxiliary request included the claims of the corresponding patent granted in the US (US 10,796,364). Justification for the late filing of the second auxiliary request was that the patent had only recently been allowed by the USPTO's Appeal Board.

The TRIPS agreement set common standards and principles concerning the availability, scope and use of trade-related intellectual property rights. Although TRIPS was not directly applicable in the context of the EPC, the Boards of Appeal had considered it in a number of decisions. If the Board rejected the second auxiliary request which had been found to be patentable in the US, this would give rise to issues of undue breadth of the non-technical feature doctrine under the EPC justifying a referral to the Enlarged Board of Appeal.

## **Reasons for the Decision**

### 1. *Background*

- 1.1 The invention concerns an electronic trading system which provides the trader with real time execution quality indications.
- 1.2 Traders typically place orders with brokers who execute the orders through buying or selling financial instruments (stocks, bonds, derivatives, etc.) in the market. However, the performance of brokers varies; they will not all be able to achieve the same price for a given order. The trader might therefore be interested to know the broker's performance.
- 1.3 Previously, "broker report cards" and "league tables" were used to determine which broker was best for a given financial instrument. However, the information was not available in real time. The trader might want to know in real time how well the broker is doing on a particular order.
- 1.4 As shown in Figure 2, the invention introduces an intercept (Message Interceptor) in the electronic data communication between the trader and the broker to record order and execution data. The data is sent to an "Execution Quality Calculation Module" (EQCM) which compares it with real time market data to calculate the execution quality in real time or near real time. The result is then provided to the trader.

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

- 2.1 The examining division assessed inventive step using the "Comvik approach" (see decision T 641/00 and The Case Law of the Boards of appeal, 9th ed., I-D 9.1.3).

According to the Comvik approach, only the technical features which contribute to the solution of a technical problem by providing a technical effect can contribute to inventive step. The non-technical features which make no technical contribution may instead be considered as being part of the technical problem to be solved, which is often formulated as a set of requirements to be implemented.

- 2.2 The appellant argued that the Comvik approach should not be used for apparatus claims. The Board does not share this view.

The Comvik approach is not based on merely one decision. It is a practice that has been established over many years by a large number of cases involving inventions of different categories.

The basic principle of the Comvik approach is that non-technical features have no significance in the assessment of inventive step. An apparatus is by definition technical, but that does not mean that every idea that can be implemented on an apparatus solves a technical problem on its own. The Comvik approach ensures that only the features which make a technical contribution count towards inventive step. This applies irrespective of the claim category.

Thus, the Comvik approach applies to apparatus claims

and can be applied to claim 1 of the main request.

2.3 Applying the Comvik approach, the examining division considered that the process of evaluating the quality of a broker's trading activity, comprising intercepting order and execution information and comparing this information with current market data, was a non-technical business process, and that the technical problem to be solved boiled down to the implementation of the business process on a conventional networked information system such as disclosed in D1. The examining division argued that the implementation would have been a matter of routine for the skilled person, and the provision of data in real time or near real time was considered to be a straightforward effect of the computer implementation.

2.4 The appellant argued that, by intercepting the messages and calculating execution quality based on copies of the data, in parallel to the transmission of the original data, the claimed invention provided a mechanism for making quality determinations without having to interfere with the transmission time or path of the original data transmission. In the appellant's view, this was a technical effect that counted towards inventive step under the Comvik approach, and the solution would not have been obvious to the skilled person.

Furthermore the need for indicating execution quality in real time had not been identified at the priority date. Thus, in accordance with the case law on problem inventions, the provision of execution quality information in real time could not be included in the problem to be solved.

The appellant furthermore argued that, at the priority date, there had been a strong disinclination to introduce anything in trading networks that could potentially interfere with the trader-broker communication and cause undesired latency. In other words, there had been a technical prejudice against intercepting trader-broker communications.

- 2.5 The appellant's arguments do not persuade the Board. The Board rather agrees with the examining division's assessment.

The Board agrees with the examining division that assessing the execution quality of an order or a plurality of orders and providing this information to the trader is not technical. The requirement that the information be provided in real time, *or at least as soon as possible*, is, in the Board's view, not technical either, as it merely amounts to the abstract wish to have the information available as quickly as possible. In any case, the real time provision of information is, like the examining division said, a mere consequence of the computer automation and not a further technical effect that goes beyond the normal and inevitable effects of using a computer.

The assessment of the execution quality requires information about the order and its execution, as well as relevant market data. This is also part of the non-technical requirements which are given to the skilled person as part of the framework of the technical problem to be solved.

The non-technical requirements need not have been known or obvious at the priority date. If this were a consideration, non-technical features would contribute

to inventive step, contrary to the principles of the Comvik approach.

- 2.6 Starting from a conventional trading system such as the one shown in Figure 1 of the published application, and given the task of implementing the non-technical requirements defined above, the skilled person would have had to provide means for calculating the execution quality, means for obtaining the order and execution information as well as market data, and means for providing the result to the trader. Claim 1 provides little detail on the technical implementation. There is an "execution calculation module" that calculates the execution quality and a "message interceptor" that somehow intercepts the communication between the trader and the broker "without interfering with the data communication". The Board considers that, at this level of detail, the claim does not provide anything more than a straightforward implementation of the non-technical requirements using well known technical means.

Furthermore, document D1 discloses selective recording of elements of a data stream. The data recording system in D1 (see Figure 3a) is a message interceptor which intercepts data without interfering with the data communication. The recording can be used for authenticating and auditing a transaction or transmission (page 5, lines 5-9). The appellant argued that this was a different purpose than the calculation of execution quality, but the Board considers that the skilled person would have used the technical teachings in D1 to acquire the required order and execution data required for the calculation which is itself part of the non-technical requirements to be implemented.



2.7 In the Board's view, the appellant has not demonstrated that there was a widely held prejudice in the art against modifying existing trading systems in a way that could potentially cause latency. The documents submitted by the appellant state that low latency was important in trading networks, but that does not necessarily mean that there was a prejudice against modifying them.

In any case, the Board considers that the skilled person would have arrived at the invention even if such a prejudice existed. Given the requirement of providing the execution quality information as quickly as possible, the Board judges that the skilled person would have modified the existing electronic trading system so as to provide such information. At the priority date, there was a strong tendency to automate processes that had previously been performed manually. In the Board's view, this tendency towards automation would have overridden any latency concern.

Moreover, claim 1 does not include any positive technical features which actually overcome the problem of latency. Claim 1 merely includes a *desiderata* that the message interceptor operates "without interfering with the data transmission". The mere desire to overcome a problem is not sufficient to establish an inventive step.

2.8 The appellant argued that the "generally favourable approach" to computer-implemented inventions taken in G 1/19 supported the grant of a patent on the basis of present main request.

The Board does not share this view. In G 1/19 the Enlarged Board of Appeal considered the Comvik approach

to be a suitable approach for assessing computer implemented inventions (point 136). Following the Comvik approach, a feature was only considered for inventive step if and to the extent that it contributed to the technical character of the claimed subject matter (point 84).

The Enlarged Board of Appeal held that a technical contribution did not require a direct link with physical reality and that technical effects could occur within the computer-implemented process and at the input and output of this process (point 88). The Enlarged Board however refrained from defining "technical". Moreover, it was not considered possible to define general criteria for assessing whether a computer-implemented invention solved a problem by providing a technical effect that went beyond the implementation of the process on a computer.

Thus, the Enlarged Board of Appeal did not give a generally favourable view on computer-implemented inventions. It rather confirmed the long standing Comvik approach and left the assessment of what is and what is not technical to the technical Boards deciding on the individual cases.

In the present case, this Board does not see any technical effect, whether inside or outside the computer, that goes beyond the implementation of a business method.

2.9 The granted patents in the field of transaction monitoring do not assist the appellant's case, because the decision to grant a patent is based on a particular set of facts. It is not possible to draw general conclusions from such granted patents, e.g. that all

inventions in a particular field provide a technical contribution.

2.10 For these reasons, the Board judges that the subject-matter of claim 1 of the main request lacks an inventive step (Article 56 EPC) in view of the conventional trading system shown in Figure 1 of the published application, either taken alone, or in combination with the disclosure of D1.

3. *First auxiliary request*

3.1 Claim 1 of the first auxiliary request specifies that the trader and the broker communicate using the FIX protocol. It is not disputed that trading systems using the FIX protocol were known at the priority date (see for example the application at page 5). Thus, since the auxiliary request does not add any novel features over the main request, the same reasons apply.

4. *Second auxiliary request*

4.1 The second auxiliary request was filed after notification of the summons to oral proceedings. According to Article 13(2) RPBA 2020, which applies to the present case (Article 25 RPBA 2020), amendments made after notification of a summons to oral proceedings shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

4.2 The reasons given for the late amendment was that a patent with claims corresponding to those of the second auxiliary request had been granted in the US. The US patent was issued in October 2020 after a long

prosecution including proceedings before the Patent Trial and Appeal Board (PTAB) of the USPTO. Since the appellant could not have known the outcome of those proceedings before October 2020, there were exceptional reasons for admitting the second auxiliary request at a late stage of the appeal proceedings.

4.3 The appellant's arguments do not persuade the Board.

The outcome of US grant proceedings does not have any direct relevance to the proceedings before the EPO, and in any case, the appellant could have filed the request earlier as a precaution.

The additional features of claim 1 of the second auxiliary request relate to the display of execution qualities in a graphical format including selectable lists and overlays. Those features have not previously been claimed, and, moreover, they do not relate to the interception of network data and real time execution that were given weight in the previous requests. Thus, the second auxiliary request requires a new discussion and assessment of the prior art. In the Board's view, admitting the second auxiliary request would be detrimental to procedural economy and go against the purpose of the appeal proceedings which are primarily a review of the appealed decision. There is no first instance decision on this issue that could be reviewed.

For these reasons, the second auxiliary request is not admitted.

5. *The request for a telephone discussion with the rapporteur and/or a further written communication*

5.1 The appellant requested a telephone discussion with the rapporteur to resolve outstanding issues and avoid the need for a formal hearing. The Board rejected the appellant's request.

Under the EPC, there is no right to a telephone interview or informal discussion with the rapporteur in appeal proceedings (see The Case Law of the Boards of Appeal, 9th edition, III-C 2.1.3). Furthermore, in the present case, the Board considers that such an interview or discussion would not have been appropriate.

The Board's decision is a collective one. Allowing an informal discussion to take place between the appellant and a single member goes against the principle of collective decision making. The issues in this case, i.e. technical character and inventive step, are complex and not easily overcome by straightforward amendments. In such a case, an informal discussion with the rapporteur before the hearing is neither helpful, nor appropriate.

5.2 The appellant also requested that the Board issue a second written communication in advance of the oral proceedings. The appellant pointed out that the Rules of Procedure of the Boards of Appeal 2020 identified no basis for refusal to provide a further communication, and that the references to "communications" in Article 5(4) and (6) RPBA 2020 indicated that more than one communication in an appeal was expressly contemplated. In the appellant's view, a further communication was

necessary in view of the publication of G 1/19.

6. The Board does not agree with the appellant that the Rules of Procedure oblige the Board to issue a further written communication at the appellant's request.

According to Article 15(1) RPBA 2020 the Board shall issue a communication drawing attention to matters that seem to be of particular significance for the decision to be taken in order to help concentration on essentials during the oral proceedings.

Article 5(4) and (6) RPBA 2020 define the work of the rapporteur, which is to draft "communications" and "decisions". That does not mean that the rapporteur must draft more than one communication or decision in a given appeal case. The Board may issue a further communication if it considers such a communication to be necessary. However, in the present case, no further communication was considered necessary.

## **Order**

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:



T. Buschek

M. Höhn

Decision electronically authenticated