IN THE HIGH COURT OF JUDICATURE AT MADRAS

Order Reserved on	**05.08.2025**
Order Pronounced on	**04.11.2025**

CORAM

HON'BLE MR. JUSTICE SENTHILKUMAR RAMAMOORTHY

(T)CMA(PT) No.58 of 2023

OA/57/2020/PT/CHN

AB INITIO TECHNOLOGY LLC
(Through its constituted power of attorney holders
Mr.Tanmay Joshi and Mr. Nipun Sangra)

A DELAWARE LIMITED LIABILITY COMPANY
201 Spring Street, Lexington,
MA 02421, UNITED STATES OF AMERICA.

Address for Service of India:

Remfry & Sagar
Remfry House at the Millennium Plaza
Sector 27, Gurgaon - 122009, NCR
Tel:91-124-280 6100 & 91-124-465 6100
Email:remfry-sagar@remfry.com ... Appellant

-vs-

1. The Controller of Patents & Designs
The Patent Office, Doudhik Sampada Bhawan,
Plot No.32, Sector-14
Dwarka, New Delhi-110 078.

2. The Controller of Patents
The Patent Office, Patent Office Intellectual
Property Building
G.S.T.Road, Guindy, Chennai-600 032. ... Respondents

PRAYER: Transfer Civil Miscellaneous Appeal (Patents) is filed under Section 117-A(2) of the Patents Act, 1970 praying that:

A. This Court may be pleased to call for the records of the patent application no.4693/CHENP/2010 relating to the Impugned Order;

B. This Court may issue an order setting aside and quashing the Impugned Order dated July 13, 2020, for being unjust, illegal and arbitrary;

C. Direct the Respondent to grant a patent on the patent application no.4693/CHENP/2010 allowing the present Appeal; and

D. The Appellant be allowed to amend, add or alter any ground of Appeal and also be permitted to place on record relevant material including evidence in the form of an affidavit, written submissions and synopsis of case law.

For Appellant : M/s.Vineet Rohilla & D. Subbin
for M/s. Remfry and Sagar
For Respondents : Mr. S. Diwakar, SPC
Raj Kumar, Assistant Controller of Patents
and Designs

JUDGMENT

2/68

Background:

The appellant assails an order dated July 13, 2020, which rejected its patent application No. 4693/CHENP/2010 dated July 27, 2010 in respect of its claimed invention titled "Graphic Representations of Data Relationship". The said application was filed as a national phase application of the Patent Co-operation Treaty (PCT) application number PCT/US2009/035293 dated February 26, 2009 claiming priority from US Patent Application no. 61/031,672 dated February 26, 2008.

2. Pursuant to the appellant's request for examination dated February 20, 2012, the First Examination Report (FER) was issued on January 30, 2018. In the FER, the respondent raised objections on the grounds of lack of novelty and inventive step under Section 2(1)(j) of the Patents Act, 1970 (Patents Act) in view of the cited prior arts D1 US2007214179A1 and D2 US6718319B1; non-patentability under Section 3(k); lack of sufficiency of disclosure; and lack of clarity and succinctness. The appellant filed a response to the FER along with amended claims on July 12, 2018.

3. Thereafter, the respondent issued hearing notices dated November 26, 2019 and December 11, 2019 raising objections on the grounds that: the amendments run beyond the scope of the application in violation of Section 10(4)(c); the claimed invention is not patentable under Sections 3(k) and 3(n) of the Patents Act; and the claimed invention lacks novelty and inventive step in view of the cited prior art D1 thereby failing the requirements of Section 2(1)(j) of the Patents Act. A hearing took place on January 07, 2020, and the appellant filed written submissions on January 21, 2020 by amending the claims in response to the objections raised during the hearing.

4. Against this backdrop, the respondent issued the impugned order dated July 13, 2020 rejecting the application by retaining objections in respect of lack of novelty and inventive step under Section 2(1)(j), and non-patentability under Section 3(k) of the Patents Act. The present appeal has been filed challenging the said order.

Counsel and their contentions:

5. Arguments on behalf of the appellant were advanced by Mr. Vineet Rohilla, learned counsel, assisted by Mr. D. Subbin. Mr. S. Diwakar, learned Special Panel Counsel, appeared and made submissions on behalf of the respondent, assisted by Mr. Raj Kumar, learned Assistant Controller of Patents and Designs. The appellant also filed written submissions.

6. Learned counsel for the appellant opened his submissions by stating that the claimed invention was developed in the aftermath of the 2008 financial crisis to address the problem of optimally tracing back or forward the flawed data item and identifying all computations that were affected by the flawed data during data processing, which traditionally involves a tedious step-by-step manual process. To this end, the claimed invention provides for a method whereby the user initiates a data relationship diagram generating process by selecting a data item on the user interface, such as the Graphic Development Environment (GDE). The diagram generator receives the request, searches the configuration file storage for a configuration file consisting of one or more selection specifications that corresponds to the request. An ad-hoc query is sent to the data management system,which retrieves related sets of data items.

7. Turning to the impugned order, learned counsel for the appellant submitted that it failed to construe the claims properly and is bereft of any reasoning as to how the claimed invention falls under 'algorithm' and 'computer programme *per se*'. He further submitted that the respondent incorrectly concluded that Section 3(k) was applicable by citing lack of a novel and specific hardware feature, and added that the correct standard to test a claimed invention under Section 3(k) is to analyze whether it demonstrates a 'technical effect' or 'technical contribution'.

8. Learned counsel proceeded to explain the claimed invention as follows. When data is collected from different sources, it undergoes transformation such as cleansing, integration, and extraction before it is stored in the central repository. There arose a need for keeping track of such transformation to detect flaws in computations, to trace how certain type of data are derived from different data sources (upstream data lineage tracing), usage of data items (downstream data lineage tracing), inter-relationship between data items, etc. To address these varieties of data relationship queries, the claimed invention provides for a method involving querying the metadata management system for identifying a first metadata item; retrieving a first

configuration information set that consists of selection specifications for executing queries from the computing system to select the metadata items in the metadata management system that are related to a given metadata of a pre-determined type.

9. He explained further that a data lineage diagram consisting of nodes that correspond to programmes and data represented by the metadata items, and edges that represent the data lineage relationship among programmes and data is generated. This improved graphical representation promotes efficient processing of data relationship queries involving data that represent several distributed, heterogeneous sources and enables the user to retrieve data, including lineage information, in a dynamic and user configurable manner.

10. Without prejudice to the contention that novel hardware is not mandatory for a computer-related invention (CRI), learned counsel submitted that the claimed invention is enabled by hardware components, including data storage devices, input/output devices, and processors. He also added that the claimed invention was granted patent in other jurisdictions, such as the US and Australia, thereby substantiating that it meets all requirements of an invention,

such as novelty, inventive step and capability of industrial application.

11. Furthermore, to buttress his submission that grant of patent for database management systems is not excluded by Section 3(k), learned counsel relied on the European Patent Office's 'Guidelines for Examination in the European Patent Office, March 2023' (EPO Guidelines) wherein it is specified that if a database management system uses technical means to perform the technical task of storing and retrieving data using different data structures for efficient data management; and involves technical considerations and the optimal execution of structured queries, it contributes to the technical character of the invention and is therefore not excluded from patentability under Articles 52(2) and 52(3) of the European Patent Convention, 1973 (the EPC).

12. As for the rejection under Section 2(1)(j) of the Patents Act, learned counsel submitted that the claimed invention is distinguishable from the cited prior art D1 in that it provides a window into the evolution of the data, i.e. data lineage, whereas D1 provides for a method that retrieves relationship between data entities but does not provide for data lineage tracing. He referred to paragraphs [002] and [006] in this regard. He also pointed out that the subjects

of data lineage relationships in the claimed invention are programmes and data, and the lineage diagram is generated with respect to related metadata in the claimed invention. On the other hand, he contended that such representation is absent in D1, and that it relates only to a type of metadata, i.e. "trust metadata," which is a set of "trust scores." Learned counsel further submitted that the impugned order does not speak about the relationship between the entity in Figure 2 of D1 and the trust score as stored in the hierarchy manager, as shown in Figure 3 of D1.

13. In contrast to the claimed invention, he submitted further that D1 does not disclose querying a metadata management system and retrieving stored configuration information that includes a plurality of selection specifications, where each selection specification is associated with a different, respective predetermined type—programme or data. He relied on paragraphs [0044]- [0046] and [0049] and figure 2 of D1 for this purpose. Pointing out that the appellant failed to identify the common general knowledge in the relevant field at the priority date of the claimed invention, learned counsel submitted that, notwithstanding this, the impugned order does not establish that the teachings in D1 combined with the common general knowledge in the relevant

field would lead a person skilled in the art (PSITA) to arrive at the claimed invention.

14. Learned SPC submitted that the claimed invention relates to method claims, which help a user find answers to data relationship queries across distributed sources and is therefore non-technical in nature. It generates data lineage diagrams aided by processors, and the mere execution of method steps on a computer programme for presentation of data relationship diagrams is liable to be construed as a 'computer programme *per se*'. As for the rejection under Section 2(1)(j) of the Patents Act, learned counsel submitted that the claimed invention's object of presenting data lineage relationships by allowing the user to pose a query, retrieve configuration information sets pertaining to related metadata, and provide a graphical representation of the data lineage relationship is anticipated and made obvious by the disclosures in D1. In this respect, he relied on claims 1 and 33 in D1 and paragraphs [0034], [0035] [0054], [0058]-[0060], [0067], and figure 5A-F read with paragraph [0126] and figures 4 and 21 to contend that D1 discloses a method and system for searching and retrieving data on related entities and the specific inter se relationships from across multiple hierarchies in the repository, displaying a

unified graphical representation of the entities and relationships.

15. By way of rejoinder, learned counsel for the appellant rebutted the submissions of learned SPC by stating that the subject invention provides a technical solution to the technical problem of keeping track of data items, including transformations thereto, both upstream and downstream, by providing a graphical representation of data lineage, thereby surmounting the barrier of Section 3(k) of the Patents Act, 1970. Learned counsel further stated that the respondent's objection under Section 2(1)(j) in respect of lack of novelty is untenable as D1 fails to disclose all the features of the claimed invention, especially those pertaining to the data lineage diagram, and that the respondent has wrongly conflated 'querying the metadata management system' and 'displaying a unified view'. As for lack of inventive step, learned counsel argued that D1 operates on a repository of data hierarchies and each data hierarchy comprising data regarding plurality of entities and relationships between the entities but does not disclose the method of presenting a data lineage relationship diagram among data and programme by retrieving an information configuration set and querying the metadata management system using one or more selection specifications from the first configuration

information set to identify related metadata items.

16. Learned counsel relied on the following authorities in support of his contentions:

(i) Decision of the U.K. Supreme Court in *The General Tire & Rubber Company v. The Firestone Tyre and Rubber Company Limited and Ors., [1972]* R.P.C. *457 (General Tire),* particularly lines 13-15 at page 486, for the proposition that to anticipate the patentee's claim, the prior publication must contain clear and unmistakable directions to do what the patentee claims to have invented.

(ii) Decision of the Delhi High Court in *Lava International Limited v Telefonaktiebolaget LM Ericsson, 2024: DHC : 2698* (*Lava International)*, particularly paragraphs 69 and 70 thereof, for the proposition that an invention should not be deemed 'computer programme *per se*' merely because it incorporates algorithms and computer-executable instructions and that if it results in enhancement of the computer system's functionality and effectiveness, it is not excluded by Section 3(k).

(iii) Decision of the Delhi High Court in *Agfa NV v The Assistant Controller of Patents and Designs and Anr, 2023:DHC:4030,* particularly paragraphs

30-36, to contend that while citing common general knowledge in course of obviousness analysis, the source and the precise element of such common general knowledge should be identified.

(iv) Decision of the Delhi High Court in *Agriboard International LLC v Deputy Controller of Patents and Designs*, *2022:DHC:1206*, paragraphs 24-26, for the proposition that while conducting inventive step analysis, the Controller must consider a) the invention disclosed in the prior art, b) the invention disclosed in the application under consideration, c) the manner in which subject invention would be obvious to a PSITA.

(v) Guidelines for Examination of Computer Related Inventions, 2025 (the CRI Guidelines 2025), issued by the Office of the Controller General of Patents, Designs and Trade Marks, particularly pages 38-39 and illustrations at pages 6, 30 and 56 of Annex 1 thereof.

(vi) Paragraph 21 of the decision of the Delhi High Court in *Raytheon Co. v Controller General of Patents and Designs, 2023:DHC:6738,* for the proposition that in case of computer-related inventions, the Patent Office needs to examine if the invention generates a technical contribution or technical effect.

(vii) Decision of the Delhi High Court in *Ab Initio Technology LLC v. Assistant Controller of Patents and Design 2024:DHC:708*, particularly paragraph 38,

to contend that if a system or method enables a more efficient and faster output and communication, it results in a technical effect.

(viii) Decision of the Technical Board of Appeal of the European Patent Office (the EPO and EPO Board) dated 17.10.2019 in *T 0697/17* in re Microsoft Technology LLC's invention*(T 0697/17)* , particularly paragraph 5.2.2, to contend that the technical contribution of a non-technical feature can be established by analysing its effect once it is added to the other features of the invention and paragraph 5.3.1 wherein the Board held that implementation of a database management system involves technical considerations and is therefore not a computer programme as such.

(ix) Decision of the EPO Board dated 29.07.2019 in *T 1924/17* in re Accenture Global Services Limited's invention titled 'Data Consistency Management' (*T 1924/17*) for the proposition that a *per se* non-technical method (e.g. a mathematical method) contributes to the technical character of the invention as a whole if it is used in a technical process carried out on a physical entity by some technical means implementing the method and provides a change in that entity as a result.

Discussion, analysis and conclusion:

17. The subject application was rejected by the impugned order on grounds of lack of patentability under Section 3(k) of the Patents Act and lack of novelty and inventive step under Section 2(1)(j) thereof.

18. For determining the tenability of the impugned order, at the outset, it is apposite to set out independent claims 1 and 26 of the claimed invention:

> *1. A method for presenting a data lineage diagram indicating relationships among metadata items (302) stored in a metadata management system (340) accessible to a computing system, the method including:*
> *receiving a request (314) that identifies a first metadata item stored in the metadata management system (340) from a user interface (300);*
> *retrieving at least a first configuration information set from storage (360) that stores multiple configuration information sets, where each configuration information set includes a plurality of selection specifications for executing queries from the computing system to select metadata items in the metadata management system (340) that are related to a given metadata item of a predetermined type, where each configuration information set in the storage (360) includes different selection specifications, and where each selection*

specification from the first configuration information set is associated with a different respective predetermined type;

querying the metadata management system (340) using one or more selection specifications from the first configuration information set to identify a set of one or more metadata items that are related to the first metadata item;

where a first selection specification from the first configuration information set is associated with a type of the first metadata item; and

generating a data lineage diagram indicating data lineage relationships among programs and data represented by the metadata items identified using the first configuration information set, the data lineage diagram including nodes that correspond to the programs and data represented by the metadata items and edges that represent the data lineage relationships among the programs and data represented by the metadata items.

26. A system for presenting a data lineage diagram indicating relationships among metadata items stored in a metadata management system (340), the system including:

a metadata management system (340) storing metadata items;

a user interface (300) including an input interface configured to receive a request that identifies a first metadata item stored in the metadata management system (340);

a storage system (360) storing multiple configuration information sets including a first configuration information set received from the storage system, where each configuration information set includes a plurality of selection specifications for executing queries from the system to select metadata items in the metadata management system (340) that are related to a given metadata item of a predetermined type, where each configuration information set in the storage system includes different selection specifications, and where each selection specification from the first configuration information set is associated with a different respective predetermined type;

a metadata management system interface configured to query the metadata management system (340) using one or more selection specifications from the first configuration information set to identify a set of one or more metadata items that are related to the first metadata item, where a first selection specification from the first configuration information set that is associated with a type of the first metadata item; and a diagram generator (320) to generate a data lineage diagram indicating data lineage relationships among programs and data represented by the metadata items identified using the first configuration information set, the data lineage diagram including nodes that correspond to the programs and data represented by the metadata items and edges that represent the data lineage relationships among the programs and data

represented by the metadata items.

Thus, the claimed invention provides for a method and system and consists of a metadata management system; a storage system containing multiple configuration information sets with each configuration information set including different selection specifications; and a diagram generator. Upon receipt of a request, the first metadata item relating to the request is retrieved from the metadata management system. Using the selection specification from the storage system, the metadata mangement system is queried by the metadata management system interface to identify one or more metadata items related to the first metadata item. The diagram generator generates a data lineage diagram representing the relationship between data and programme by representing the programmes and data as nodes and the data lineage relationship between programmes and data represented by the metadata items as edges. In the factual context of the monopoly claims, I turn next to Section 3(k).

19. Section 3(k) reads as follows:

> ***3. What are not inventions***.—*The following are not inventions within the meaning of this Act,— (k) a mathematical or business method or a computer programme per se or algorithms;*

As is self-evident, Section 3(k) of the Patents Act excludes patentability of a mathematical or business method or a computer programme *per se* or algorithms.

20. Against this backdrop, the relevant portion pertaining to rejection under Section 3(k) is reproduced below:

> *"Subject matter of claims 1-26 is related to help a user find answers to data relationship queries spanning distributed sources, whereas this method is carried out by means of a computer program. Subject matter of claims does not disclose any technical feature of data usage and data retrieval. It simply discloses the manner in which data items are managed. Hence, the subject matter of claims 1-26 represent a set of computer executable instructions on a general purpose computer/computing device and an program to execute the said instructions through software. It is therefore understood that the actual contribution of the invention solely lies in computer program and there is no specific hardware available in the claimed invention. All the steps of the invention are carried out by computer program only. The only hardware which is disclosed is the processor that executes program in a conventional or normal manner. Further, these computer*

programs do not have technical effect going beyond the "normal" interactions between the program and the hardware. Hence, all the above method steps are done with the help of computer programs in terms of an algorithm and performed on a computing device/ system claimed in claims 26 and it is apparent that the proposed algorithmic change has no technical motivation and that its implementation is trivial in form of an algorithm. Hence, subject matter of claims 1-26 relates to "computer algorithm" and falls within scope of section 3(k) of The Patents Act, 1970 (as amended).”

From the impugned order, it follows that the subject application was rejected for the following reasons: that the claimed invention relates to “computer algorithms” as the claims represent a set of computer-executable instructions; customised or novel hardware is not deployed in the claimed invention; the method steps are implemented with the aid of computer programmes driven by algorithms; and the proposed algorithmic change has no technical motivation.

Interpreting Section 3(k) :

21. Before examining Indian law on the interpretation of Section 3(k) particularly in the context of computer programmes and algorithms, it is

profitable to examine the interpretation placed on corresponding provisions in the European Patent Convention, 1973 (the EPC) and the UK Patents Act, 1977 (the UK Patents Act). I begin with the text of the relevant provision of the EPC because several European nations, including the UK, enacted domestic legislations to give effect to the EPC. Just as Section 3(k) uses the qualifier "*per se*" in relation to computer programmes, Article 52(3) of the EPC uses the qualifier "as such" for all exclusions under Article 52(2). Article 52 reads as under:

> *"(1) European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.*
>
> *(2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:*
>
> *(a) discoveries, scientific theories and mathematical methods;*
>
> *(b) aesthetic creations;*
>
> *(c) schemes, rules and methods for performing mental acts, playing games or doing business, and* ***programs for computers****;*
>
> *(d) presentations of information.*
>
> *(3) The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in*

that provision ***only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such****."*

(emphasis added)

UK law

22. The UK Patents Act deals with patent exclusions in Section 1(2) thereof, which reads as under:

" (2) It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of -

(a) a discovery, scientific theory or mathematical method;

(b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;

(c) a scheme, rule or method of performing a mental act, playing a game, or doing business, or ***a program for a computer****;*

(d) the presentation of information;

but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act ***only to the extent that a patent or application for a patent relates to that thing as such****"*

(emphasis added)

23. In *Aerotel Limited v. Telco Holdings Limited and others (Aerotel); and Macrossan's Application (Macrossan), [2006] EWCA Civ 1371,* the Court of Appeal held, as regards *Aerotel,* that a method and system for making telephone calls through a special exchange was not within the "computer program as such" exclusion, whereas, as regards *Macrossan*, it was held that there was no technical contribution other than running a computer programme. While interpreting Article 52(2) and (3) of the EPC, as enacted in Article 1(2) of UK Patents Act, in this factual context, the Court of Appeal laid down the following steps to decide if the claimed invention is patent eligible: construe the claims, identify actual contribution, examine whether the identified contribution falls exclusively within the excluded subject matter and if the contribution is technical in nature.

24. The Court of Appeal then proceeded to survey precedents from the UK and the EPO Board. The Court traced the technical contribution approach to *Merrill Lynch's Application [1989] RPC 561* and *Vicom (1986) T208/84*. While discussing *Gale's Application [1991] RPC 191,* which pertained to a new and better algorithm for finding square roots, the Court of Appeal quoted from the

judgment of Nicholls LJ rejecting the application as a computer programme as such, and recorded, in relevant part, as under:

> *" 92. So what Gale decides is that the computer program exclusion extends not merely to the code constituting a program, but that code as embodied on a physical medium which causes a computer to operate in accordance with that code. More is needed before one is outside the exclusion – as for instance a change in the speed with which the computer works...."*

I will return to this formulation later while discussing the position of the EPO in this regard. At this juncture, it should be noticed, however, that the Court of Appeal noticed that the EPO Board had departed from the UK position in decisions such as *Microsoft/Data transfer with expanded clipboard formats (2006) T 0424/03*. Indeed, the Court of Appeal even formulated questions that could be considered by the Enlarged Board of the EPO to resolve the inconsistency in approach.

25. *Symbian Limited v. Comptroller General of Patents [2008] EWCA Civ 1966 (Symbian)* was the next judgment of the Court of Appeal on this issue. This case pertained to an application for mapping dynamic link libraries in a

computing device. While a dynamic link library is not system software, it is often fundamental to the functionality of an operating system and has the effect of reducing memory requirements. The judgment was authored by Lord Neuberger, who was a member of the panel in *Aerotel*. In paragraph 48, it was recorded, in relevant part, as under:

> *"48. ....The mere fact that what is sought to be registered is a computer program is plainly not determinative. Given that the Application seeks to register a computer program, the issue has to be resolved by answering the question whether it reveals a "technical" contribution to the state of the art...."*

After noticing that the boundary line between what is and what is not technical contribution is imprecise, the Court concluded as under:

> *" 56. Putting it another way, a computer with this program operates better than a similar prior art computer. To say "oh but that is only because it is a better program – the computer itself is unchanged" gives no credit to the practical reality of what is achieved by the program. As a matter of such reality there is more than just a "better program", there is a faster and more reliable computer."*

26. In *AT&T Knowledge Ventures/CVON Innovations v. Comptroller General of Patents [2009] EWHC 343 (Pat) (AT&T)*, which is a decision of the Chancery Division of the High Court, the following signposts were formulated to determine whether a computer-implemented invention is patent eligible:

> *"i. whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;*
> *ii. whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;*
> *iii. whether the claimed technical effect results in the computer being made to operate in a new way;*
> *iv. whether there is an increase in the speed or reliability of the computer;*
> *v. whether the percieved problem is overcome by the claimed invention as opposed to merely being circumvented."*

Later, in *Gemstar-TV Guide International Inc. v. Virgin Media Limited, [2009] EWHC 3068 (Ch),* the fourth signpost was refined as under:

> *" It would be a relevant technical effect if the programme made the computer a better computer in*

the sense of running more efficiently and effectively as a computer."

27. The third criteria formulated in *Aerotel,* i.e. whether the identified subject matter falls exclusively within the excluded subject matter, is, in my view, the primary reason for the formulation of signposts in *AT&T* involving either impact outside the computer system or impact on the architecture or internal working of hardware. But, as is noticeable from *Symbian*, the sequitur is not that any patent application for a computer programme would be rejected. Starting from *Aerotel,* courts in the UK appear to have proceeded on the basis that a claimed computer-implemented invention for software would be a computer programme "as such" unless it has an effect outside the computer system or has an impact on the computer by way of making the computer work faster or more effectively or efficiently.

28. The Court of Appeal revisited the "computer program .... as such" exclusion in *HTC Europe Co Ltd v. Apple Inc. [2013] EWCA Civ 451 (Apple)*. The two Apple patents involved in these cases were the '948 patent that related to computer devices with touch screen devices which are capable of responding

to more than one touch at a time by using a graphical user interface (GUI); and the '022 patent that related to ways of unlocking computer devices with touch sensitive screens. In this context, after recording that the Enlarged Board of the EPO refused to answer the reference on perceived inconsistencies between the decisions of the EPO Board, the Court of Appeal held that raising the following question helps decide if there is a technical contribution:

> *" 48. Fourth, it follows that it is helpful to ask: what does the invention contribute to the art as a matter of practical reality over and above the fact that it relates to a computer? If the only contribution lies in excluded matter then it is not patentable."*

29. In the factual context of the system software of the '948 patent, the Court concluded, in relevant part, as under:

> *"57. Second, the solution to this problem lies in a method of dividing up the screen of such a device into views and configuring each view as a multi-touch view or a single-touch view using flags with a specific functionality in the manner I have described. This is a method which concerns the basic internal operation of the device and applies irrespective of the particular application for which the device is being used and the application software which it is running for that purpose. It causes the device to operate in a new and improved way and*

it presents an improved interface to application software writers. Now it is fair to say that this solution is embodied in software but, as I have explained, an invention which is patentable in accordance with conventional patentability criteria does not become unpatentable because a computer program is used to implement it...."

Impact on computer speed and efficiency

30. Before proceeding to examine EPO law, a small digression on the factors that impact the speed, efficiency and effectiveness of a computer, including with reference to types of software is in order. Typically, the factors that have a direct impact on hardware by making the computer work faster or more efficiently are the installation of a more powerful processor or an increase in memory (by, for instance, installing a higher capacity RAM) or storage (by, for instance, installing a higher capacity solid state drive). Put differently, hardware components have a direct or strong link to increase in speed, efficiency and effectiveness of the computer. As regards software, as will be evident from the following discussion, the impact, except in the context of system software (illustrated by *Apple*) or software impacting system software, would be by enabling the computer to perform tasks that cannot be performed or, at a minimum, cannot be performed effectively or efficiently without such

software.

31. Every computer programme is software, as opposed to hardware, and comprises a set of instructions, typically in code, that enables the computer to perform a set of tasks or functions. In that broad sense, every computer programme has an effect on the hardware it is embedded in. Software may be classified *inter alia* as system software, application software, programming software, enterprise software and database management systems. System software, in turn, consists of operating systems, device drivers and utility software. By way of illustration of operating systems, reference may be made to Windows OS, Mac OS, Android and iOS. Device drivers are software that enable communication with hardware such as printers or graphics cards. Application software is of several types *inter alia* : word processing software, presentation software, spreadsheet software, web browsers and email software. Progamming software includes text editors and compilers and translators. Enterprise software covers software used in Enterprise Resource Planning (ERP), such as SAP and Oracle ERP, and Customer Relationship Management, such as Salesforce or Zoho CRM.

32. Operating systems (OS) are a system software that manage all the resources of a computing device. An OS acts as an interface between the software and different parts of the computer and, thus, has a strong impact on the manner in which the computer functions. Therefore, it is likely that a patent application for an operating system would pass muster under the *AT&T* signposts. Device drivers, also being system software, clearly have an impact on hardware such as printers. Software embedded in motor vehicles or electrical equipment, such as washing machines or airconditioners, would probably meet the criteria because they have an impact outside the computer system. As regards application software, be it word processing software or web browsers, while they often have a profound impact on the user experience, they do not have a direct impact on the hardware. The same is the case with enterprise software, which often have a transformative impact on businesses, but may not have a direct impact on hardware unless combined with novel hardware. Bearing in mind the practical fall-out of the strict application of the *AT&T* signposts, it is profitable to examine whether the same yardsticks were adopted by the EPO in its guidelines and in decisions of the EPO Board.

EPO law

33. As extracted earlier, the EPC contains exclusions from patent eligibility in Article 52(2), one of which is "programs for computers", and Article 52(3) thereof carves out an exception thereto. The Guidelines for Examination in the EPO, April 2025 (the EPO Guidelines) refer to a two-hurdle approach to the assessment of a patent application. The first hurdle is described as under:

> *" The first hurdle, also known as the "patent eligibility hurdle", requires that the claimed subject-matter as a whole not fall under the "non-inventions" listed in Art. 52(2) and (3). Art. 52(3) limits the exclusion from patentability of the subject-matter and activities listed in Art.52(2) to ones that are claimed "as such". This limitation is a bar to a broad interpretation of the non-inventions. It implies that one technical feature is sufficient for eligibility: if the claimed subject-matter is directed to or uses technical means, it is an invention within the meaning of Art. 52(1). This is assessed without reference to the prior art."*

34. Regarding computer programmes, it is provided in the EPO Guidelines that the exclusion does not apply to computer programmes with technical character. Interestingly, reference is made in this context to a "further technical effect", which is defined as "a technical effect going beyond the

"normal" physical interactions between the program (software) and the computer (hardware) on which it is run. The normal physical effects of running a program, e.g. the circulation of electrical currents in the computer, are not in themselves sufficient to confer technical character on a computer program." As examples of further technical effect, reference is made in the EPO Guidelines to a computer programme that specifies a method of controlling an anti-lock braking system in a car and a method of determining emissions in an x-ray device.

35. After defining a computer-implemented invention as covering claims involving computers, computer networks or other programmable apparatus wherein at least one feature is realised by means of a computer programme, a distinction is drawn as follows between a computer programme and a computer-implemented method:

> *" A computer program and a corresponding computer-implemented method are distinct from each other. The former refers to a sequence of computer-executable instructions specifying a method while the latter refers to a method actually performed on a computer."*

This distinction, if carried to its logical conclusion, would mean that computer-implemented computer programmes do not fall within the "computer program ... as such" exclusion. As is noticeable from paragraph 92 *supra* of *Aerotel,* such distinction is not recognised and, in any event, is not material under UK law in deciding whether a patent application falls within the "computer program .... as such" exclusion. An intermediate approach would be to use the theoretical distinction in the EPO Guidelines as the platform to test a computer-implemented programme for technical contribution and, subject to an affirmative finding, conclude that it is not a computer programme as such, whether or not there is a direct impact on the internal working of the computer. As will be evident as we journey further, this is the approach that the EPO and the EPO Board have taken.

36. Given the field of the claimed invention, it is profitable to examine the EPO Guidelines in relation to database management systems. Database management systems are defined as "technical systems implemented on computers to perform the technical tasks of storing and retrieving data using various data structures for efficient management." After stating that the optimisation of structured queries with respect to the computer resources

contributes to the invention's technical character because it involves technical considerations relating to the efficient exploitation of the computer system, the following distinction is made between what is patent-eligible and what is not in this context:

> *" A distinction is made between executing structured queries by a database management system and information retrieval. The latter includes searching for information in a document, searching for documents themselves, and also searching for metadata that describe data, such as texts, images or sounds. The query may be formulated by the user in need of information, typically informally using natural language without a precise format: the user may enter search terms as a query in internet search engines to find relevant documents or submit an exemplary document to find similar documents. If the method of estimating relevance or similarity relies solely on non-technical considerations, such as the cognitive content of the items to be retrieved, purely linguistic rules or other subjective criteria (e.g. items found relevant by friends in social networks), it does not make a technical contribution."*

37. Keeping in mind the EPO Guidelines, an examination of key decisions of the EPO Board on database management systems is in order. In *T 1924/17, Accenture Global Services,* the EPO Board considered an appeal against

the Examining Division's decision rejecting a patent application relating to data consistency management. Various earlier decisions were reviewed in this decision. By way of illustration, *T 963/09* was discussed wherein selective auditing of accesses to tables of a relational database system was considered to be technical. *T 1965/11* was also discussed wherein query optimisation in relational database management systems (RDMS) was held to contribute to the technical character of the invention. By contrast, in *T 1563/05*, an information retrieval system for retrieving images using textual descriptions of the images as searchable metadata was held to be not of a technical character. Likewise, in *T 598/14*, a method for selecting a word replaceability matrix defining semantic similarity was considered non-technical. These two precedents indicate that the word "technical" has been applied in the sense of knowledge and methods of practical application in the physical and natural sciences. Consequently, when the computer programme operated on linguistic or semantic parameters it was considered non-technical. Upon surveying precedents, the EPO Board concluded that improving the efficiency of executing structured queries in a relational database management system by automatically managing the data in various data stores and exploiting the different performance characteristics of these data stores for enhanced query processing solves a technical problem.

38. *T 0697/17, Microsoft Technology Licensing, LLC*, related to an invention concerning a relational database management system and a corresponding method for updating values in a complex-structured-type column. After considering earlier decisions, it was held as under:

> *" 5.3.1 ....A database management system uses data structures, software components and processing techniques for storing, controlling and processing data, and for providing an interface to let the user create, read, update and delete data. The internal data structures, such as an index and a query tree, and components, e.g. a parser, a query optimiser and a query execution engine, are used purposively for storing data from the medium. As explained above, the established case law considers these to be technical effects (G 3/08, reasons 10.8.5; T 1569/05 of 26 June 2008, reasons 3.6). The data structures used for providing access to data and for optimising and processing queries are functional data structures since they purposively control the operation of the database management system and of the computer system to perform those technical tasks. While a database system is used to store non-technical information and database design usually involves information-modelling aspects which do not*

contribute to solving a technical problem, the implementation of a database management system involves technical considerations. Therefore, a database management system is not a computer program as such but rather a technical system (see also decision T 1924/17, reasons 9,13 and 14).”

Indian law

39. I now turn to Indian law on the subject. In *Ferid Allani v. Union of India and others, 2019:DHC:6944*, the Delhi High Court held as under:

“ 14. Across the world, patent offices have tested patent applications in this field of innovation, on the fulcrum of 'technical effect' and 'technical contribution'. If the invention demonstrates a 'technical effect' or 'technical contribution', it is
patentable even though it may be based on a computer program.”

In *Lava International*, the Delhi High Court concluded in paragraph 69 that an algorithm is not patentable, but a smart thermostat algorithm that dynamically adjusts the heating or cooling of a room in a building based on real time weather, occupancy patterns and energy prices would be patentable even if implemented on a general purpose computer. In paragraph 70, it was held in relevant part as under:

> *" 70. It is clear that an invention should not be deemed a 'computer programme per se' merely because it incorporates algorithms and computer-executable instructions. In fact, the patentability should be assessed based on its practical application in solving technical problems and the technical advancements it offers. Furthermore, if the subject matter is implemented on a general-purpose computer, but results in a further technical effect that improves the computer system's functionality and effectiveness, the claimed invention cannot be rejected as non-patentable for being a computer programme per se'...."*

In *Microsoft Technology Licensing, LLC v. Assistant Controller of Patents and Designs 2023 SCC OnLine Del 2772,* in the context of an user authentication system in a network, the Delhi High Court held that the two-tier authentication solves a technical problem. In the post-script, the Court concluded that an invention should not be deemed to be a computer programme *per se* merely because it involves algorithms and computer-executable instructions, and that it should be assessed based on the technical advancements it offers and its practical application in solving real-world problems.

40. In *Microsoft Licensing Technology LLC v. Assistant Controller of Patents,*

2024:MHC: 2537 (Microsoft MHC), in course of holding that the claimed invention therein had a technical effect, I had analysed the different exclusions in Section 3(k) as under:

> *"23. The Patents Act does not contain a definition of the terms used in any of the four exclusions, i.e. mathematical method, business method, computer programme or algorithms. The first two exclusions deal with methods and are intended to form a common sub-set, as indicated by the text "a mathematical or business method" and not 'a mathematical method or business method' or even 'a mathematical or a business method'(i.e. determiners such as 'a' are not used to separate the elements). A mathematical method is a specific approach to resolve a mathematical problem or question and would typically involve a series of steps. Consequently, at the idea or concept level, it would be ineligible for any kind of intellectual property protection. The CRI Guidelines 2017 suggest - and, in my view, correctly - that the mathematical method exclusion is intended to exclude the mere expression of an intellectual exercise, such as a method of calculation, the formulation of equations and the like. By way of illustration, Brent's method in numerical analysis to find the root or the Adams' method of solving differential equations would be excluded. Said Guidelines also clarify - again, correctly - that the mere presence of a mathematical formula in a claim would*

not necessarily render it 'a mathematical method' claim. What about business method, which is part of the same sub-set? A business method is a method of operating a business enterprise or part thereof. Put differently, it is a specific approach to the conduct of business. As in the case of mathematical method, the exclusion is intended to deny patent protection to the expression of an idea. By way of illustration, multi-level marketing or direct marketing would be business methods and the expression of such method in a series of steps in language or code would not be patent-eligible. Subject to being original, as per the Copyright Act, 1957 (the Copyright Act), the form of expression would, however, be entitled to copyright protection. What if a computer related invention (CRI) is used in a business method? In my view, it would not fall within the business method exclusion because the monopoly claim is being sought for the CRI and not for the business method. The patent eligibility of such CRI may, nonetheless, be tested against the computer programme per se or algorithms exclusions, and I turn to these exclusions next.

24. Unlike the other exclusions, while computer programme is not defined in the Patents Act, both computer and computer programme are defined in the Copyright Act, 1957 in Sections 2(ffb) and 2(ffc), respectively, as under:

"2. Interpretation.—In this Act, unless the context otherwise

requires, —

(ffb) "computer" includes any electronic or similar device having information processing capabilities"

(ffc) "computer programme" means a set of instructions expressed in words, codes, schemes or in any other form, including a machine readable medium, capable of causing a computer to perform a particular task or achieve a particular result;"

Like typical definition sections in statutes, the Copyright Act specifies that the definitions are for purposes of that Act. Nonetheless, by taking into account the following: the Patents Act does not define the expression "computer programme"; both statutes deal with intellectual property and, in particular, with computer programmes; the Copyright Act provides for copyright protection for computer programmes; and there is nothing in the Patents Act that indicates that the above definition is inappropriate, I conclude that this definition is applicable in the context of the Patents Act, including for appreciating what computer programme per se means.

25. The last exclusion is of algorithms. An algorithm may be defined as a set of rules or instructions for solving a problem, typically through a sequence of steps or operations. Devising an algorithm would also, therefore, be an intellectual exercise and intellectual property protection would be limited

> *to copyright protection, subject to originality, for the form of expression. While the expression is commonly used in the context of software-based routines in computers, as is evident from the above, it can be used in other contexts. Perhaps on account of the use of this expression most commonly in the context of computers, these two exclusions, i.e. "a computer programme per se or algorithms" form a sub-set in Section 3(k). It bears repetition that, out of the four exclusions, the qualifier "per se" is appended only to computer programme. The self-evident follow-on question is: what does the word "per se" mean and what are the implications of appending this to computer programme? After examining the dictionary meaning of the word, it is instructive to turn to legislative history for guidance as to object and purpose. Black's Law Dictionary (Thomson Reuters, 11th ed., 2019, p. 1378) defines 'per se' as follows:*
>
> *"of, in, or by itself; standing alone, without reference to additional facts; this phrase denotes that something is being considered alone, and not with other collected things."*

41. Learned counsel for the appellant had relied on the CRI Guidelines 2025 of the Indian Patent Office, which includes Tables 1 and 2. Table 1 contains a non-exhaustive list of the aspects of an invention due to which it may not fall within the 'computer programme *per se*' exclusion. Table 2, on the

other hand, contains a non-exhaustive list of the aspects of an invention due to which it may fall within the 'computer programme *per se*' exclusion. Considering the field of invention in this case, it is pertinent that Table 1 includes: technical implementation of efficient searching, indexing, or retrieving data from databases that improve overall system performance; creating more efficient data compression techniques using advanced technologies for lossless or lossy data compression/expansion offering better rates or speeds; and implementation of technically optimizing data synchronization, consistency, or fault tolerance in distributed systems or cloud environments. Likewise, pertinently, Table 2 includes: simple conversion of manual tasks (like record keeping, scheduling) to computer execution without additional technical gain beyond inherent computer speed/efficiency; and a claimed invention whose main function is presenting data visually or textually (e.g. generating standard business reports, dashboards) without a technical solution in data handling or display.

Meaning of technical

42. These precedents from the UK, EPO and India are replete with the expressions “technical contribution”, “technical character”, “technical effect”,

"further technical effect", "technical nature", "technical advance" and the like which do not find place in the statute. Because of the use of the above expressions interchangeably, as also the use of the expression 'technical advance' in Section 2(1)(ja) in relation to inventive step, there is considerable confusion warranting clarification.

43. I first deal with the expression 'technical advance', as used in Section 2(1)(ja) of the Patents Act. Section 2(1(ja) reads as follows:

> *"Inventive step" means* ***a feature of an invention that involves technical advance as compared to the existing knowledge*** *or having economic significance or both and that makes the invention not obvious to a person skilled in the art* (emphasis added)

From the text of Section 2(1)(ja), the following is discernible:

Inventive step is a feature of an invention:

(i) involving technical advance over existing knowledge; or

(ii)having economic significance; or

(ii)involving both technical advance over existing knowledge and economic significance; and

(iv)that makes the invention not obvious to a PSITA.

44. The use of the phrase 'technical advance over existing knowledge' in Section 2(1)(ja) underscores the necessity to test the existence of technical advance with reference to the knowledge existing on the priority date. Consequently, the need for examination of prior art. As a result of the use of the disjunctive 'or' before 'having economic significance', it is evident that 'technical advance over existing knowledge' is not an essential pre-requisite and that economic significance may be established instead; subject, however, to the overarching requirement of the feature of the invention not being obvious to a PSITA. By contrast, for purposes of establishing that the claimed invention is not excluded from grant by Section 3(k), including for purposes of verifying if there is a technical contribution, it is not necessary to draw a comparison with existing knowledge although such comparison becomes necessary thereafter to satisfy the requirements of Section 2(1)(j). Reference may also be made to the two-hurdle approach of the EPO in this regard.

45. I will next endeavour to clarify the meaning of the expression 'technical' as often used in relation to the qualifier in Section 3(k) and the

corresponding provisions of the EPC and the UK Patents Act. Towards that end, I first look at dictionary meanings of the word "technical". The Merriam Webster Dictionary defines "technical" as follows:

> *" Having special and usually practical knowledge especially of a mechanical or scientific subject"*
> *" of or relating to a practical subject organised on scientific principles"*

The Cambridge Dictionary defines "technical" as under:

> *" relating to the knowledge, machines, or methods used in science and industry"*
> *" relating to practical skills and methods that are used in a particular activity"*
> *" relating to the knowledge and methods of a particular subject or job"*

While both the definitions from Merriam Webster are limited to practical knowledge, methods and skills in physical and natural sciences like physics, chemistry and biology, the last two definitions from the Cambridge Dictionary would apply across subjects and disciplines. By way of illustration, in the field of law, we would commonly refer to a contention grounded in the text of the statute or an interpretation thereof as technical. Likewise, a chartered accountant, who is well-versed with accounting principles, may be described as

technically sound. In stock market parlance, almost counter-intuitively, the expression technical analyst is used for a person who predicts future stock prices on the basis of historical stock price movement patterns rather than the performance of the company concerned.

46. The survey of precedents, in my view, provides a clear answer regarding the sense in which the word "technical" is used in the context of patent exclusions. Whether qualified by contribution, character, nature or effect, the word "technical" is always used in the sense of practical methods and skills used in the physical and natural sciences. Illustratively, it is useful to recall the decisions of the EPO Board rejecting patent applications for information retrieval systems that worked on linguistic or semantic parameters. It is also pertinent to recall the dynamic thermostat algorithm illustration in *Lava International* as clarifying that technical contribution and technical effect are used in the sense of having practical application in science and industry and not in the broad sense that the word 'technical' can be used in relation to knowledge or methods of any discipline. As between the expressions contribution, effect, character and nature, there are variations in focus. While technical contribution focuses on whether one or more features of the claimed

invention adds technically to the field, technical effect is focused on the technical impact or outcome, if any, thereof. Technical character and nature focus on the intrinsic qualities of the feature. Obviously, much of the time, there would be considerable, if not complete, overlap and the use of any one of these words instead of another would have no material impact.

Conclusions on the interpretation of Section 3(k)

47. The conclusion that follows is that, under Indian law, patent applications in relation to a CRI, even *de hors* novel hardware or impact on the internal working thereof, would not be excluded under Section 3(k) if such CRI makes a technical contribution or has a technical effect. The theoretical distinction incorporated in the EPO Guidelines between a computer programme and the implementation thereof on a computer is worth recalling insamuch as it provides a jurisprudential, albeit technical (note that I use the word in a different sense here), justification for such interpretation. Such theoretical distinction is, however, not the sole plank because any CRI that makes a technical contribution or has a technical effect has such effect on the computer or the device in which the software is embedded, thereby justifying

the conclusion that it is more than a computer programme. Indian law, thus, does not adopt either the extreme position that every computer-related or computer-implemented invention makes a technical contribution or the exacting standard adopted by the UK courts requiring a direct and transformative impact on the internal working of the computer or outside the computer system. In *Microsoft MHC*, I had conflated one of the *AT&T* signposts, as correctly critiqued in *Ramanujan's Patent Law*. On revisiting the subject, I find that the Indian approach is substantially in line with the EPO Board's jurisprudence but not with that of courts in the UK.

48. Adopting the UK approach would aid administrative ease at the Indian Patent Office while testing applications under Section 3(k) to the extent that a number of applications would be rejected on grounds of not impacting the internal working of a computer or having an effect outside the computer system, but it has the effect of excluding several categories of software even where there is significant technical value addition. It also deviates from the EPO Board's approach while interpreting the EPC. Given the consistent approach of courts in India and the incorporation of these principles in the CRI Guidelines 2025, departure therefrom is not warranted in the interest of

administrative ease. I recognise that this entails a tricky case-by-case analysis of whether there is a technical as opposed to non-technical contribution. Even so, it is a price worth paying to strike an appropriate balance. As the survey of UK law shows, the requirement of determining whether the claimed invention makes a technical contribution is, in any case, not obviated under the UK approach. Applying these principles to the case at hand, in order to arrive at a rational decision on whether there is a technical contribution or technical effect in the claimed invention, it becomes necessary to examine the complete specification on the working of the claimed invention closely.

Working of the claimed invention:

49. The claimed invention, in attempting to provide optimal search options for tracing data lineage and relationship of a deeply embedded data item, provides for a method and system that allows the user to initiate a data item lineage search either on upstream or downstream basis and to depict the realtionship of data items diagrammatically. The user first selects a data item D1 on the user interface (300). The diagram generator (320) then interacts with a data management system interface, searches in the configuration file storage (360) for a configuration file corresponding to the request (314). There might

be one or more selection specifications (382, 384) in a configuration file (380) each associated with a data item type. The selection specification specifies a selection action or a series of selection actions, which navigates from one data item to another stored in the metadata system, filters and determines which data items to be returned. The diagram generator then retrieves the configuration file corresponding to the request from the configuration file storage, and uses the file to issue a query to the data management system. D1, is, thus, used as a starting point for the first query interaction and a series of such query interactions take place between the diagram generator and the data management system in this manner. This is best illustrated by Figure 3 of the complete specification:

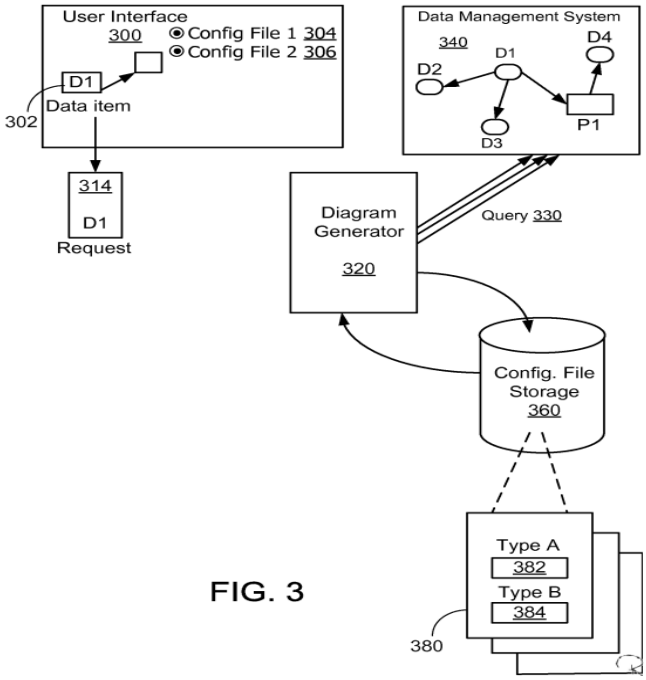

FIG. 3

50. The query result includes additional data items from the selection specification that are returned to the data management system. The retrieved set of data items from the query interaction may belong to the same type or of different type. In the example given above in Figure 3, D2, D3 are the same type as D1, type B, and their corresponding selection specification is 384; and data item P1 is of a different type, type A, and its corresponding selection specification is 382. Figure 4A, which is set out below, shows the data items retrieved in each iteration of the process. D1 is the starting data item (iteration

i0). From D1, the first set of data items D2, D3, and P1 (iteration i1) is retrieved using the selection selection specifications 384 and 382. From D2, only one data item was retrieved, D4. From D3, no data item was retrieved. From P1, two data items, P2 and D5, were retrieved. This completes iteration (i2) consisting of D4, P2 and D5. The looping process continues in this manner as exemplified by Figure 4A:

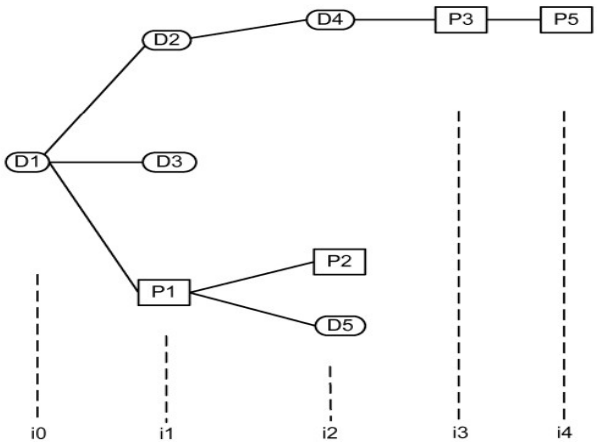

FIG. 4A

51. A data relationship diagram is then generated by the diagram generator. Rectangles and rounded rectangles in Figure 5 are nodes that

represent data items representing the types graph and fields respectively. Data items of the type graph are applications that act on input from the previous data item in the first field positioned to the left and provide an output data item in the second field positioned to the right. This figure is representative of downstream data lineage:

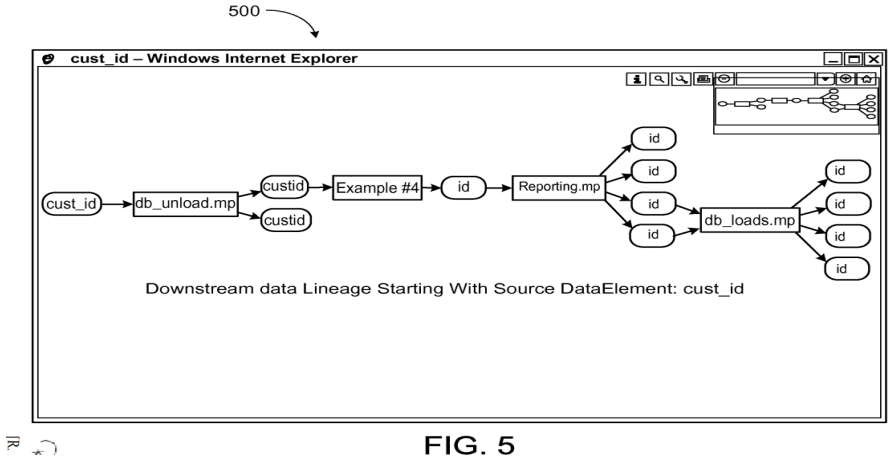

FIG. 5

52. Although the claimed invention sets out to address the need to track data lineage, both upstream and downstream, including data transformation and evolution, by finding the relationship amongst data items, a use-case which may be characterized as cognitive, i.e. conveying information to the user,[1] the above narration illustrates that the claimed invention involves technical considerations of reduction of query response time by eliminating the resort to

1 *See* EPO Guidelines, Part G- Chapter II-21

a tedious and time-consuming step-by-step manual process and allowing the user to pose multiple ad-hoc queries related to data lineage or type of data relationship simulataneously, and enabling retrieval of such information in a user-configurable manner (lines 18-30, page 9 of the complete specification). These technical considerations relating to the internal functioning of the system are effected by technical features viz., diagram generator, data management system, configuration file storage. Figure 4B embodies the technical contribution of retrieving the data items (step 410) by identifying associated selection specifications (step 412), and triggering selection actions (step 414) resulting in retrieval of related data items (step 416):

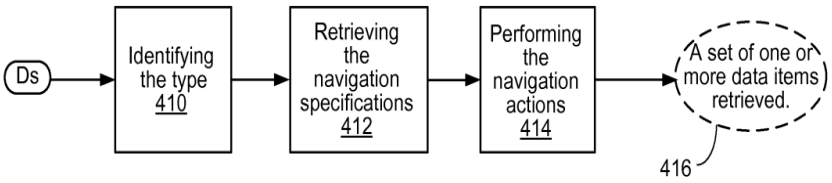

FIG. 4B

53. The selection action includes navigation action that involves filtering and identifying related data items from the configuration files that are returned

to the diagram generator which then formulates the query to retrieve additional data items to generate the data relationship diagram. Figure 6 illustrates this dynamic and user configurable process:

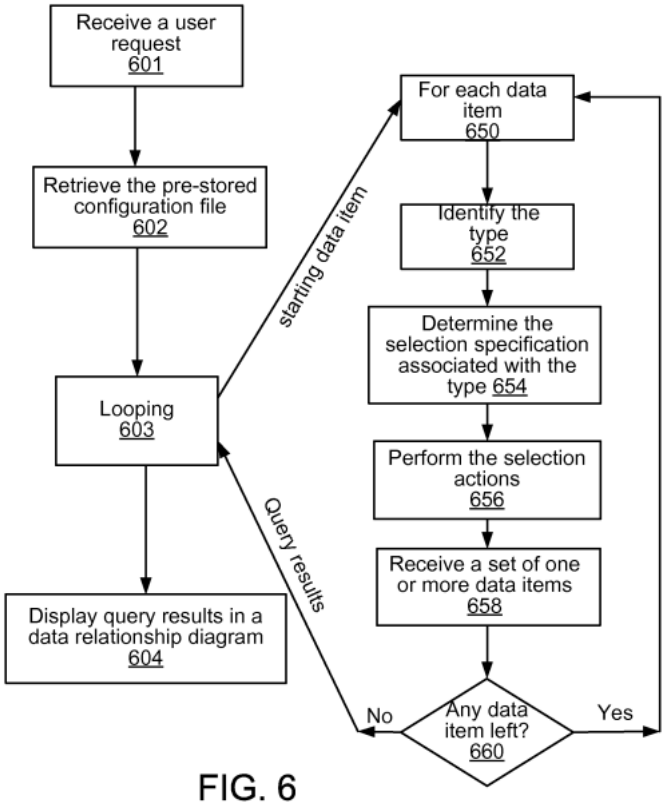

FIG. 6

54. The conclusion that follows from this discussion is that the claimed invention uses algorithms and computer programmes, but such use results in

the technical contribution and effect of reducing query response time, allowing users to pose multiple ad-hoc queries at a time to generate data lineage diagrams by allowing the user to select a data item, determine the associated selection configuration file, initiate a selection action that identifies related data items of different iterations, feed the query results to the diagram generator, and follow a looping process that generates further related data items. These contribute to the technical character of the claimed invention resulting in a data relationship diagram representing data lineage consisting of graph and input and output field. In light of this, I find that the claimed invention is not excluded from patentability under Section 3(k) of the Patents Act.

Lack of novelty and inventive step:

55. The relevant portion of the impugned order with respect to Section 2(1)(j) is as under:

> *D1 discloses method and system for searching, filtering, creating, displaying, and managing entity relationships from a repository of data hierarchies through a user interface is provided. Relationships of a primary entity and its related secondary entities are retrieved and displayed in a unified view in graphical or text view. The unified view may indicate a*

"cross" relationship between first and second entities through another entity that connects the first and second entities, the first and second entities originating from different data hierarchies and/or data sources. Relationships of a selected secondary entity may be displayed in a unified view and entities or relationships may be updated or stored to a separate storage area. The method and system may be used within an enterprise for implementing Master Data Management or Customer Data Integration for managing data hierarchies containing customer information, human capital information, supplier information, asset information, product information, or financial information. The hierarchy manager is implemented by software or hardware configured to perform the various steps of the methods described herein. FIG. 21 presents a computer system 2100 with which some embodiments are implemented. The computer system 2100 includes a bus 2105, a processor 2110, a system memory 2115, a read-only memory 2120, a permanent storage device 2125, input devices 2130, and output devices 2135. (Para [0126], Figure 21). Thus, in the view of features described in prior art documents D1. ***The subject matter of claims 1-26 is not novel as D1 discloses all alleged technical feature of claimed invention and subject matter of claims 1-26 is not inventive as by combining the teachings of prior art***

> ***document D1 and knowledge of person skilled in art in the same field, it would have been obvious for person skilled in the art to arrive at claimed invention****. Hence, alleged invention does not constitute an invention under section 2(1)(j) of The Patents Act, 1970(as amended).*
>
> (emphasis added)

The subject application was thus rejected by the impugned order for lack of novelty and inventive step in view of disclosures in D1.

56. The problem that D1 set out to resolve is clear from paragraph [0005] of the complete specification thereof, which is as under:

> *" [0005] Conventionally, enterprises have been unable to properly leverage available customer data stored in multiple data source locations and can only obtain a fragmented view of a customer and the customer's relationships with various enterprises. As such, there is a need for a method for leveraging all of the available customer data to create and maintain a unified and comprehensive view of a customer across multiple disparate data sources."*

D1 resolved the above problem by way of a method and apparatus for searching, filtering, creating, displaying, and managing entity relationships across multiple data hierarchies. Independent claims 1 and 3 of D1 read as

under:

1. A graphical user interface for viewing and managing a plurality of data hierarchies comprising enterprise information, ***each hierarchy comprising entity data*** *regarding a* ***plurality of entities*** *and relationship data regarding a plurality of relationships between the* ***entities****, wherein a first hierarchy comprises data regarding a first relationship between a* ***first entity*** *and a* ***second entity****, and a second hierarchy comprises data regarding a second relationship between the* ***first entity*** *and* ***a third entity****, the interface comprising:*

a view pane displaying a unified view indicating the first, second, and third entities, the first relationship between the first entity and the second entity, and the second relationship between the first entity and the third entity.

33. A method for viewing and managing a plurality of data hierarchies comprising enterprise information, each hierarchy comprising entity data regarding a plurality of entities and relationship data regarding a plurality of relationships between the entities, wherein a first hierarchy comprises data regarding a first relationship between a first entity and a second entity, and a second hierarchy comprises data regarding a second relationship between the first entity and a third entity, the interface comprising:

displaying a unified view indicating the first relationship

between the first entity and the second entity, the second relationship between the first entity and the third entity, and a third relationship between the second entity and the third entity that is established through the first entity.

57. The independent claims of D1 reveal that this prior art is focussed on entities. Paragraph [0042] of the complete specification throws light on the meaning of entity and is set out below:

" [0042] Data regarding an entity is sometimes referred to herein as "entity data" or "reference data" and includes any data and/or meta-data that describes or identifies an entity. As used herein, an entity refers to anything that can be related to another thing and can be described with associated data. Although this list is non-exhaustive, examples of entities are orgainzations, enterprises, companies, customers, individuals, services, accounts, products, etc. Types of captured entity data/information vary depending on the entity type. For example, entity data/information for an individual may comprise the name, residence address, date of birth, social security number, and/or residence telephone number of the individual. If an entity is an orgainsation, entity data/information may comprise, for example, the name, business address, state of incorporation, and/or the business telephone number of the organization."

58. The manner in which D1 works is exemplified in Figure 2, which illustrates a use case in relation to three individuals with savings accounts. For instance, Alice Lewis (an entity) has a savings account and her service advisor is James Stuart, another entity. In turn, James Stuart's supervisor is David Caldwell, another entity albeit linked to Alice Lewis through an intermediary James Stuart. Data relating to each of these entities, including the relationship between them, can be accessed. In the same example, data relating to other individuals with savings accounts for which James Stuart is the advisor may also be accessed and retrieved easily. Thus, D1 involves a method and apparatus for viewing and managing a plurality of data hierarchies with each hierarchy comprising entity data relating to a plurality of entities and data regarding the relationship amongst those entities. A unified view displaying the entities and the relationships inter se entities is also provided for.

59. By contrast, the claimed invention, as discussed earlier, is focussed on data lineage. For instance, if one wants to track and retrieve the first data item (i.e. the source data) relating to a data set or the last data item or any data item on the chain or sequence of data items, the claimed invention can retrieve

and provide such data, whereas D1 is not designed or programmed to provide this information. Therefore, all features of the claimed invention are not present in D1. Hence, the claimed invention satisfies the requirements of novelty. Whether the delta between the claimed invention and D1 would be obvious to PSITA is, however, a distinct matter that I consider next.

60. A careful perusal of D1 shows that "data hierarchy" refers to a set of entity data and a set of relationship data, and the hierarchical structure in which the sets of data are organized relative to each other. Paragraph [0046] thereof recites that the identifier/name of hierarchy typically comprises the identifier/name of the data source in which the hierarchy was initially stored and from which the hierarchy originates. This is also referred to as the originating data source and bears some resemblance to the tracing of upstream data in the claimed invention. To that extent, D1 is reasonably pertinent and qualifies as analogous prior art.

61. Having said that, D1 is not designed or programmed to trace and retrieve every upstream or downstream data item in the data set and, for instance, identify the modified data item or the problematic data item in the

data set. As discussed earlier, the focal point of D1 is entity and in capturing the relationship between entities, whereas the focus of the claimed invention is tracking upstream and downstream data lineage and thereby identifying data items in data sets. Indeed, in view of the problem that D1 set out to resolve *vis-a-vis* the problem that the claimed invention sets out to resolve, notwithstanding that both deal with data management, in my view, PSITA armed with D1 and even common general knowledge would not be able to arrive at the claimed invention absent ingenuity. Therefore, I conclude that the claimed invention satisfies the novelty and inventive step requirements under Section 2(1)(j). As a corollary, the impugned order cannot be sustained and is hereby set aside.

62. Consequently, (T)CMA(PT) No.58 of 2023 is allowed without any order as to costs by directing that Patent Application no.4693/CHENP/2010 shall proceed to grant on the basis of the last submitted claims.

04.11.2025

Index : Yes
Internet : Yes
Neutral Citation : Yes

kal

1. The Controller of Patents & Designs
The Patent Office, Doudhik Sampada Bhawan,
Plot No.32, Sector-14
Dwarka, New Delhi-110 078.

2. The Controller of Patents
The Patent Office, Patent Office Intellectual
Property Building
G.S.T.Road, Guindy, Chennai-600 032.

SENTHILKUMAR RAMAMOORTHY J.

kal

(T)CMA(PT) No.58 of 2023

OA/57/2020/PT/CHN

04.11.2025