Intellectual Property Office

BL O/0649/23

10 July 2023

PATENTS ACT 1977

APPLICANT	EMC IP Holding Company LLC
ISSUE	Whether patent application GB2110709.9 complies with section 1(2) of the Patents Act 1977
HEARING OFFICER	Ben Buchanan

DECISION

Background

1 This decision relates to whether patent application GB2110709.9 complies with section 1(2) of the Patents Act 1977 ("the Act").

2 Patent application GB2110709.9 is the GB national phase of PCT/US2019/053879 and has been republished as GB2594658A. The prescribed period for putting an application in order as referred to in section 20 of the Act, and as defined in rule 30 of the Patents Rules 2007 and Patents (Fees) Rules 2007, ends on 16 July 2023 and this period has not been extended under section 108 of the Act.

3 The first examination report was issued on 30 March 2022 and raised an objection under section 1(2) of the Act that the claims related to a program for a computer and a method for doing business. Amendments were filed on 30 May 2022 including arguments relating to the patentability of the amended claims. The examiner issued a further examination report on 19 August 2022 objecting again to patentability under section 1(2) and outlining the opportunity for the applicant to request a hearing. Further amendments to the claims and supporting arguments were filed on 19 December 2022 and, in this correspondence, this hearing was requested.

4 The International Search Authority performed a search on the international application on 21 November 2019. In light of the objections under section 1(2) of the Act the search has not been updated by the UK examiner.

5 Via correspondence from their representative on 5 May 2023 the applicant has requested a decision based on the documents on file. I confirm that I have considered all relevant documentation when coming to my decision and that my decision relates to whether the claims filed on 19 December 2022 comply with section 1(2) of the Act.

The invention

6 The invention relates to means for enabling audits of enterprise data management systems, for instance to prove compliance with regulations such as the European Union's General Data Protection Regulation (GDPR).

7 Figure 1 shows an enterprise blockchain network connecting storage, back-up and data management systems in an organisation; this provides a good general illustration of embodiments of the invention.

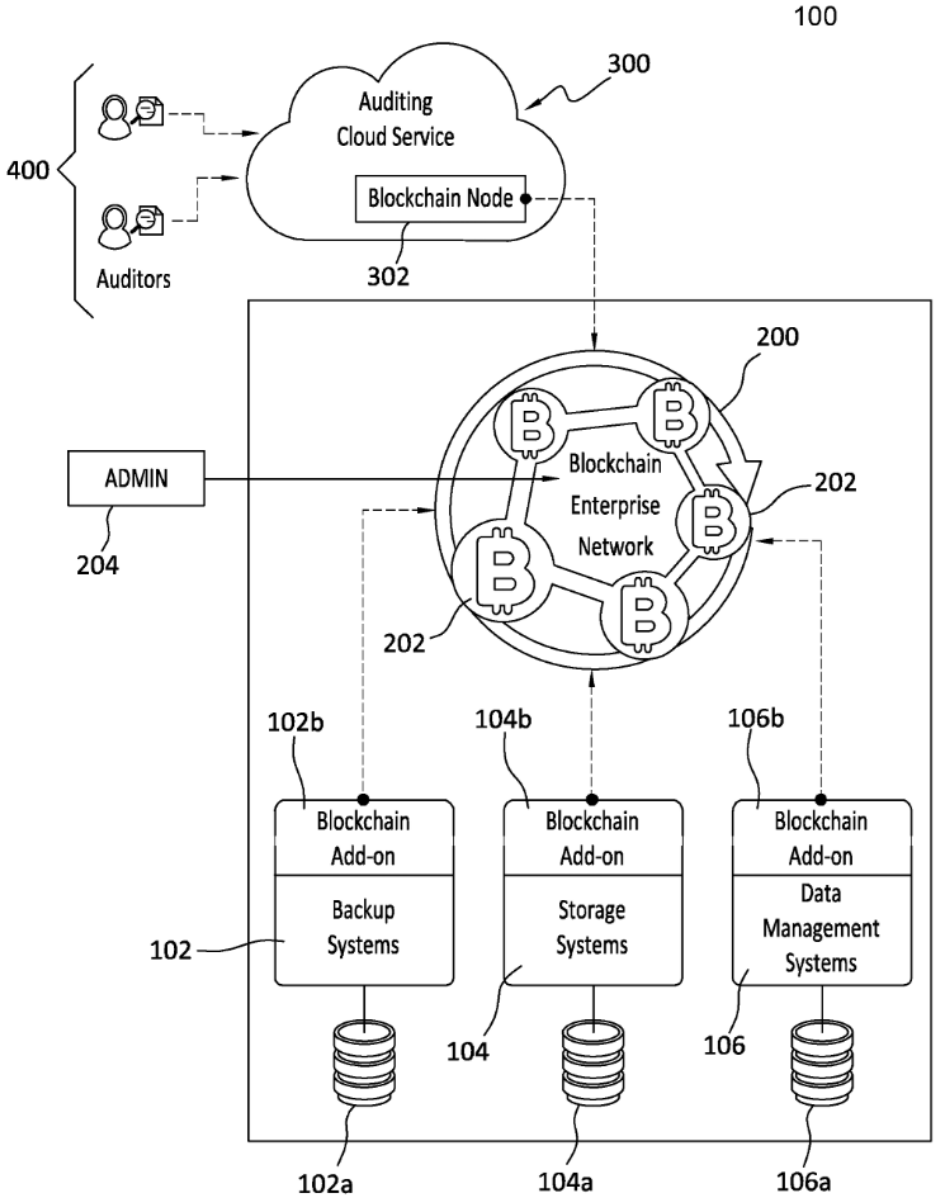

FIG. 1

8 Blockchain network 200 is preferably a private blockchain network but "the blockchain network 200 need not have any particular form or configuration" (application description, paragraph [0047]). The nodes 202 of the network define a ledger that holds information about all of the enterprise data transactions.

9 Blockchain extensions102b, 104b and 106b illustrate add-ons or plugins to data management elements 102, 104, 106 that enable the transactions of these elements to be registered on the blockchain network ledger.

10 The network includes an auditing node 302 which, being a node of the network, receives records of all the enterprise data transactions as part of the ledger. Node 302 can be accessed and used by an external auditing service for example for certification of compliance with data management regulations.

The claims

11 There are two independent claims. Claim 1 is for:

> *A method, comprising:*
>
> *receiving, at a blockchain node of an auditing cloud service, data protection transaction information concerning a regulated operation that was performed on data to protect that data,*
>
> *wherein the blockchain node of the auditing cloud service is a node of a blockchain enterprise network, and the data protection transaction information is received by the blockchain node of the auditing cloud service from a data protection system that performed the data protection transaction, and the data protection system is a node of the blockchain enterprise network, and respective storage system and data management nodes of the blockchain enterprise network also receive the data protection transaction information;*
>
> *registering, at all nodes of the blockchain enterprise network, the data protection transaction information received from the data protection system;*
>
> *receiving from an auditor, by the cloud auditing service, a request for access to the data protection transaction information registered at the blockchain node of the auditing cloud service; and*
>
> *upon receipt by the cloud auditing service of a credential from the auditor, granting, by the cloud auditing service to the auditor, access to the requested data protection transaction information.*

12 The further independent claim, claim 10, is directed to a non-transitory storage medium having computer executable instructions for carrying out the method steps defined in claim 1. For brevity it is not repeated here.

13 With respect to Figure 1 and the discussion above, it can be seen that claim 1 includes a blockchain network (200) that comprises a data protection system node (102b, 104b or 106b). The blockchain network (200) further includes a node (302) at a cloud auditing service (300). Data protection transaction information is sent to nodes of the blockchain network by the data protection system node. The cloud auditing service (300) has an access control system that requires a valid auditor credential at the auditing cloud service to access the blockchain ledger (transaction information) at the cloud auditing service node (302).

The law

14 The relevant provision is section 1(2)(c) of the Patents Act 1977, which says that certain things cannot be protected by a patent:

> *1(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;*
>
> ***(c) a scheme, rule or method for 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.*

15 The Court of Appeal in *Symbian*[1] stated that the question of whether a computer-implemented invention is patentable has to be resolved by answering the question whether it reveals a technical contribution to the state of the art. It proceeded to answer the question with the aid of the four-step test set out in its earlier judgment in *Aerotel*[2], namely:

(1) construe the claim;
(2) identify the actual (or alleged) contribution;
(3) ask whether it falls solely within the excluded subject matter;
(4) check whether the actual or alleged contribution is actually technical in nature.

16 The fourth step of the test is to check whether the contribution is technical in nature. In paragraph 46 of *Aerotel* it is stated that applying this fourth step may not be necessary because the third step should have covered the question. This is because a contribution which consists solely of excluded matter will not count as being a "technical contribution" and thus will not, as the fourth step puts it, be "technical in nature". Similarly, a contribution which consists of more than excluded matter will be a "technical contribution" and so will be "technical in nature". In the present case, which concerns a computer-implemented invention, I shall consider whether the contribution falls solely within the excluded subject matter alongside the question of whether the contribution is technical in nature, i.e. I will consider the third and fourth steps of *Aerotel* together.

17 Lewison J (as he then was) in *AT&T/CVON*[3] set out five signposts that he considered to be helpful when considering whether a computer program makes a

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[1] Symbian Ltd. V Comptroller -General or Patents [2008] EWCA Civ 1066
[2] Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application [2006] EWCA Civ 1371
[3] AT&T Knowledge Ventures/Cvon Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat)

technical contribution. In *HTC/Apple*[4] the signposts were reformulated slightly in light of the decision in *Gemstar*[5]. The signposts are:

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 the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer
v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

Application of the Aerotel test

Step (1): construe the claim

18 I will consider claim 1, and because they are equivalent in substance my analysis will apply *mutatis mutandis* to claim 10.

19 In claim 1 it is not immediately clear how the "respective storage system and data management nodes" relate to the "data protection system" (the latter itself being described as a node of the blockchain enterprise system, along with the storage system and data management nodes). In the description (see e.g. paragraphs [0036] & [0046]) - these nodes are specific nodes (104, 106) that are part of the blockchain network (communicating via blockchain add-ons 104b, 106b), and the term "data protection system" is a collective term for any one of a number of data processing components, "such as backup system 102, storage system 104, and data management system 106" (paragraph [0034) which may perform data protection processing to be added to the blockchain. In light of the description, I will construe the claim such that the blockchain network comprises at least a node associated with a data storage system (the storage system node) and a node associated with a data management system (the data management node), and the data protection system node can be one of these nodes, or another node associated with some element of the data protection system such as backup.

20 Furthermore, in claim 1, data protection transaction information is only explicitly received at the blockchain node of the auditing cloud service and at the storage system and data management nodes of the blockchain network. However, the step of "registering, at all nodes of the blockchain enterprise network, the data protection transaction information received from the data protection system" is construed to imply that it is implicit that the data protection transaction information is received at all nodes of the blockchain network. Paragraph [0047] of the description states "…all of the data management transactions are registered on all of the nodes of the network, including node 302." I think what is important is that every data protection

[4] HTC Europe Co Ltd v Apple Inc [2013] RPC 30
[5] Gemstar-TV Guide International Inc v Virgin Media Ltd [2010] RPC 10

transaction is added to the blockchain, and even if the blockchain network is private, is accessible via the cloud auditing service in exchange for a credential.

21 Whilst these points are included for completeness to clearly construe the scope and nature of the claim, I note that the contribution (presented in the next section) does not turn on these points.

Step (2): identify the actual (or alleged) contribution

22 Paragraph 43 of *Aerotel* explains what is meant by the actual contribution and sets out that it corresponds to what the invention has added to human knowledge, the problem it solves and the advantages it offers.

23 The process of identifying the contribution was summarised in paragraph 43 of *Aerotel* as follows:

> *… it is an exercise in judgement probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form—which is surely what the legislator intended.*

24 Following this guidance, in their letter of 5 April 2023 at section 20 the examiner identified the contribution as:

> *A computer-implemented method, and blockchain system for use with said method, for retaining and providing data for auditing, the method comprising:*
>
> - *receiving and registering information associated with regulated data protection transactions in a blockchain of an auditing cloud service;*
> - *wherein the transaction information is received from a data protection system that performed the protection transaction; and*
> - *enabling access to the registered information upon receipt, by the cloud auditing service, of a credential from an auditor.*

25 In their letter of 19 December 2022, on page 3, the applicant has provided a reasonable summary of the advantages of the invention, the problems being addressed and what is alleged to have been added to human knowledge:

> *The contribution provided by the invention as defined in the claims is that it provides means for configuring an enterprise network having multiple nodes to operate as a blockchain network, with respect to data management operations. This approach is an improvement in functionality and operation over conventional computing systems and processes that do not employ a secure, encrypted, and non-editable, legal proof-of-record ledger for recording data management transactions.*
>
> *Further it provides for an auditing functionality in which a third party is able to access and evaluate, by way of an auditing cloud service of an enterprise, data management transactions effected by the enterprise and registered in a blockchain network. This approach is advantageous inasmuch as the enterprise that has generated the data management transactions is prevented from*

modifying the transactional information in any way, thus ensuring that an auditor is able to access a true and complete record of the data management transaction as it actually occurred. Thus, the data management transactions are highly transparent.

Another advantage is that it enables new processes for verifying customer compliance with applicable regulations, while also improving a customer experience at the enterprise, and for auditors. Thus, auditors and/or other third parties are able to access enterprise information that was not readily available before. As well, the accuracy, usefulness, and timeliness, of data management transaction audit results are improved by embodiments of the invention."

26 Taking this into account, I will expand upon the examiner's helpful formulation to include some more context about the blockchain enterprise network. Thus, I formulate the contribution as:

Configuring an enterprise network to record data management transactions to provide a secure, encrypted, and non-editable, legal proof-of-record of data transactions by having data processing nodes in the network operating as nodes of a blockchain network, where the blockchain network also includes a node in an auditing cloud service that allows a user with the correct security credentials to access the data encrypted in the blockchain to enable auditing of the data management transactions of the enterprise network.

27 This reflects several important features of the claimed invention that define how the invention works and what the advantages are, which are not immediately apparent from the examiner's formulation:

a. The blockchain network is an enterprise network

b. The ledger cannot be changed by the enterprise (or any other party)

c. The cloud service includes a node of the blockchain network, thereby allowing access to the data management transactions

Steps (3) and (4): ask whether it falls solely within the excluded subject matter; check whether the actual or alleged contribution is actually technical in nature

28 The Examiner has objected to the invention as relating to a program for a computer and a method for doing business. I will deal with each of these categories in turn.

Program for a computer

29 As the invention is embodied as a network of computers suitably programmed to operate as a blockchain network, the examiner has considered the five *AT&T/CVON* signposts (as reformulated in *HTC/Apple*) to look for indications that the contribution is technical, and I will follow this approach.

30 Regarding the first signpost, if the contribution has an effect on a process outside of the computer, then that process is the auditing of data transactions. The applicant argues that the contribution has a technical effect on the auditing process as the data is ensured to be of the highest integrity by virtue of the features of the invention.

31 The signpost makes reference to ‘the computer’’, but this does not mean that any effect taking place outside a single computing device meets the signpost – systems operating as a network can be considered as “the computer” for the purposes of this signpost, as emphasised by Birss J in paragraph 30 of *Lantana*[6]. Thus “the computer” of signpost one may be read as a computer system or, by extension, a system of computers.

32 Whilst I acknowledge that there are aspects of the computer system that facilitate the auditing process (the blockchain network providing a secure, encrypted, and non-editable, legal proof-of-record to provide data integrity, and the auditing cloud service providing secure access to data in the computer system), the auditing process itself is non-technical. As such, the contribution cannot acquire technical character merely via its application to an auditing service and the consequent effect on the attendant process. Furthermore, the maintenance of data integrity for the auditing process is achieved via that programming or configuration of the computer system as a blockchain network. The inherent benefits of using a blockchain network are not a consequence of the invention. Rather, those benefits are realised in a specific field of endeavour; namely auditing. I will consider whether this is technical when I consider the business method exclusion below.

33 It is also notable that the provision of a node of the blockchain enterprise network at the cloud auditing service enables secure access to data protection transaction information on the blockchain network. This configuration of the enterprise network as a secure, accessible blockchain might attractively be argued as an effect outside the computer. Again, however, the secure access control and the realisation of the enterprise network as a blockchain network are inherent features of the blockchain implementation and as a consequence of the invention are manifest only in the field of auditing, as opposed to more generally. In other words, they give rise to the contribution, but they are not the contribution. As such the invention does not provide a technical effect outside the computer.

34 Regarding signpost two, the applicant argues that the signpost indicates a technical effect as the system will always maintain data integrity, regardless of the data being processed. However, the signpost assists to identify technical effects arising from computer architecture in the sense of internal components such as memory and processors and how these components operate and interact. If the contribution applies to all data and applications, it likely exists at the architectural level and the signpost may be deemed to be met. In the present invention, the contribution relates to how network nodes are programmed to communicate to form an auditable blockchain network; there is no contribution in terms of how internal architectural components work or interrelate. The effect is specific to the implementation of blockchain and its application to auditing. The effect is produced only for data stored in the blockchain and the auditing application. Thus, the second signpost is contraindicated.

35 Signpost three requires that the computer itself is made to operate differently as a computer as a result of the contribution. As Lewison J (as he then was) noted in paragraph 31 of *AT&T/CVON* this signpost “points towards some generally

[6] Lantana v Comptroller-General of Patents [2013] EWHC 2673 (Pat). The relevant parts quoted and discussed here are included in the Manual of Patent Practice, section 1.38.1.

applicable method of operating a computer rather than a way of handling particular types of information". Signpost four requires the computer to run more efficiently or effectively *as a computer*. As discussed above with regard to signpost two, the contribution does not fundamentally change how the computer network operates in a general sense; thus, signposts three and four do not indicate a technical effect.

36 Signpost five indicates a technical effect if the contribution directly solves a technical problem. The applicant argues that the problem being solved is how to maintain data integrity. Paragraph [0005] of the description states that "…certification of management systems is a complex, lengthy and costly process as it involves manual inspection of large amounts of data… Organisations are thus faced with the challenge…of providing a unified, reliable data source that will serve as legal proof-of-record for data management regulatory compliance certification."

37 It is the latter part of the above paragraph which reflects the problem addressed by the invention. The problem of providing a unified, reliable data source that will serve as legal proof-of-record *for data management regulatory compliance certification* is addressed by a blockchain implementation. As noted previously, the invention is not blockchain itself. The problem, in effect, is how to use blockchain to improve an auditing service. The answer, provided by the claimed invention, is to implement a blockchain network and derive the inherent benefits, applied to the field of auditing. As noted previously, neither the field of endeavour, nor the programmatic implementation appear to impart any technical character to the contribution. It is not evident that the problem itself is technical, nor, therefore, is the solution. Signpost five is not met.

Business method

38 In the foregoing analysis I have variously identified the problem to be solved, how the invention works and what the advantages are. In summary, the contribution is to the field of auditing and the benefits arise as a result of the implementation of a blockchain enterprise network, accessible via a cloud service. There is no doubt in my mind that the problem is solved, and that a better way of accessing data protection transaction information results, with benefits addressing complexity, time and cost. In other words, a better auditing service.

39 In *Halliburton*[7], Birss J (as he then was) at paragraph 35 noted that the use of a computer to implement a better business method did not confer patentability:

> *"The business method cases can be tricky to analyse by just asking whether the invention has a technical effect or makes a technical contribution. The reason is that computers are self evidently technical in nature. Thus when a business method is implemented on a computer, the patentee has a rich vein of arguments to deploy in seeking to contend that his invention gives rise to a technical effect or makes a technical contribution. For example the computer is said to be a faster, more efficient computerized book keeper than before and surely, says the patentee, that is a technical effect or technical advance. And so*

[7] Halliburton Energy Services Inc's Applications [2012] RPC 129. The relevant parts quoted and discussed here are included in the Manual of Patent Practice at section 1.34.

it is, in a way, but the law has resolutely sought to hold the line at excluding such things from patents."

The improvements to auditing that the claimed invention provides fall wholly within a method for doing business. The fact that it may be a better method for doing business, or implemented on a computer, does not remedy the exclusion, because no technical contribution is evident though either of these attributes.

Other points

40 To consider the other arguments on file, the applicant argues that the system comprises unconventional, technical features of the blockchain itself. Furthermore, they argue that an unusual or new use of conventional technology is a clear basis for patentability. I disagree with both of these points. Whilst the actual configuration and function of the nodes in the blockchain network (i.e. the presence of a node as part of an auditing cloud service, or the use of blockchain to provide a secure ledger for data auditing) might be new, this does not make the system technical. In *Lantana*[8], the Court of Appeal reiterated that the requirements of s.1(1) and s.1(2) are separate, and that claims to novel and inventive subject matter may still be excluded. In paragraph 19 of the judgment Arden LJ held: "I see no mandate in section 1 of the PA 77 [the Act] for holding that it is sufficient that there is an inventive step. It is deliberate legislative policy to exclude certain matters from patentability even if they would otherwise be patentable". This was reaffirmed in paragraph 70 by Kitchin LJ, who stated that "[t]here is no inconsistency between an acceptance that an invention [...] is new and inventive and a finding that the contribution it makes falls solely within excluded subject matter". The judge continued by remarking that "the former requires [...] an assessment of whether it forms part of the state of the art or is merely an obvious step away from it", while exclusion relates to assessing whether the contribution falls solely within excluded categories.

41 As discussed above, the contribution arises in the form of a program running on networked computers that allows for them to share data using the inherent benefits of blockchain algorithms. The high-level contribution is a method for doing business, and I have found nothing to persuade me that the effects implemented by the computer are more than a program for a computer as such.

42 Having considered the relevant law and the arguments on file, I am not persuaded that the contribution is technical, and find that it relates solely to a program for a computer and/or a method for doing business as such.

Conclusion

43 I have considered the independent claims and found that both are excluded under section 1(2)(c) for the reasons set out above. The dependent claims, falling within the scope of the independent claims, similarly fail to provide a technical contribution and these claims are also excluded.

44 The application is refused under section 18(3).

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[8] Lantana v Comptroller-General of Patents [2014] EWCA Civ 1463. The relevant parts quoted and discussed here are included in the Manual of Patent Practice at section 1.17.2.

Appeal

45 Any appeal must be lodged within 28 days after the date of this decision.

Ben Buchanan

Deputy Director, acting for the Comptroller