



## PATENTS ACT 1977

APPLICANT                      Zebra Technologies Corporation

ISSUE                          Whether patent application GB2106050.4 complies  
with Section 1(2) of the Patents Act 1977

HEARING OFFICER              Peter Mason

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### DECISION

#### Introduction

1. This decision concerns application GB 2106050.4, published as GB 2592529 A on 01 September 2021 under the title “Method, system and apparatus for supply chain event reporting”, and whether the invention as defined in the claims is excluded from patentability under Section 1(2)(c) of the Patents Act 1977.

2. The application was filed 04 October 2019 and claims priority from international application PCT/US2019/054636 with an earliest priority date of 29 October 2018. The first exam was issued on 03 June 2021 and raised excluded matter under Section 1(2)(c). Completion of the search and consideration of other matters was deferred. There have been several rounds of correspondence, but the applicant has thus far been unable to persuade the examiner of the patentability of the claims. In their letter of 10 February 2022, the applicant requested a hearing to settle the issue.

3. The hearing took place on 28 April 2022 where the applicant was represented by Mr Peter Lucas of Lorenz & Kopf LLP. I am grateful to Mr Lucas for the skeleton arguments provided prior to the hearing which helped progress the discussions during the proceedings.

4. The only substantive matter before me is whether the invention is excluded from patentability under section 1(2)(c) of the Act as a method of doing business and/or a programme for a computer as such. The issue of exclusion is the only issue that has been fully considered so far. If I find that the claimed invention is not excluded from patentability, I will return the application to the examiner to conclude substantive examination.

5. At the outset of the hearing Mr Lucas thanked the examiner for the depth of reasoning provided in the examination reports, which have allowed the objections to be distilled to the critical point now before me.

## The invention

6. A supply chain typically comprises a number of discrete entities that interact with a product in the supply chain, these entities include component or subcomponent manufacturers, distributors, retail stores, as well as delivery providers. Each of these distinct entities may apply/receive information to/from a product transiting the supply chain. However, as each of these entities typically use their own independent enterprise resource planning (ERP) servers tracing the lifecycle of a product through the supply chain becomes complex as there is no central ledger that is updated with respect to the independent ERP data that may be applied to the product. The invention seeks to provide a solution by providing a central ledger that may be updated at various points throughout a supply chain. However, the invention finds application beyond supply chain tracing and is additionally applicable to other services including pipeline inspection as well as traffic management and public safety 'citations'.

7. The invention generally relates to a data capture device that is used to capture product related data in order to update a distributed ledger wherein the ledger is maintained and accessed at multiple entities throughout a supply chain. The invention is characterised by the application of a software flag to the captured product data which determines whether or not the data is recorded on the distributed ledger.

8. The claims have been amended since filing and are now presented, as filed on 29 July 2021. There are three independent claims (1, 17 and 34), each relating to a system for recording events on a distributed ledger for use with at least one entity data processing device. Throughout the examination process the examiner has primarily addressed the subject matter of claim 17, whilst asserting that the distinction between claim 17 and the remaining independent claims are immaterial for the purpose of any analysis of excluded matter. During the hearing Mr Lucas consented to this approach and therefore I will restrict my consideration to independent claim 17 wherein claims 1, 17 and 34 will stand or fall together. Claim 17 reads;

*Claim 17: A system for recording events on a distributed ledger for use with at least one entity data processing device, the system, comprising:*  
*a cloud server;*  
*a first terminal remote from the cloud server, the first terminal including at least one first terminal processor and an operating system (OS) executing on the at least one first terminal processor; and*  
*a data capture device including:*  
*a data capture device housing;*  
*a data capture assembly positioned at least partially within the data capture device housing, the data capture assembly configured to capture product data associated with products;*  
*a data capture device communication interface;*  
*a data capture device memory including at least one of a first driver and a data capture device firmware; and*  
*at least one data capture device processor configured to execute instructions stored in the data capture device memory, wherein:*

*the data capture device is communicatively coupled to the first terminal via the data capture device communication interface,  
the instructions stored in the data capture device memory of the data capture device include instructions to transmit the product data through the data capture device communication interface and to directly or indirectly transmit the product data to the at least one entity data processing device, wherein,  
the first terminal further includes a second driver configured to enable the OS to communicate with the data capture device and to accept the product data transmitted through the data capture device communication interface,*

*at least one of (i) the first driver, (ii) the second driver, and (iii) the data capture device firmware includes a recordation flag alternately changeable between an activated state and a deactivated state, the activated state causing at least some of the product data to be recorded to the distributed ledger.*

## The Law

9. The examiner raised an objection under Section 1(2) of the Act that the invention is not patentable because it relates to one or more categories of excluded matter. The relevant provisions of this section of the Act are shown with added emphasis below:

*1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the Act, that is to say, anything which consists of*  
*(a) .....*  
*(b) .....*  
*(c) a scheme, rule, or method for performing a mental act, playing a game or doing business, or a program for a computer;*  
*(d) .....*  
*but the foregoing provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.*

10. The assessment of patentability under Section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel*<sup>1</sup>, as further interpreted by the Court of Appeal in *Symbian*<sup>2</sup>. In *Aerotel*, the court reviewed the case law on the interpretation of Section 1(2) and set out a four-step test to decide whether a claimed invention is patentable:

*(1) Properly construe the claim;*  
*(2) identify the actual 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.*

11. The Court of Appeal in *Symbian* made it clear the four-step test in *Aerotel* was not intended to be a new departure in domestic law; it was confirmed that the test is

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<sup>1</sup> *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7

<sup>2</sup> *Symbian Ltd v Comptroller-General of Patents* [2009] RPC 1

consistent with the previous requirement set out in case law that the invention must provide a “technical contribution”. Paragraph 46 of *Aerotel* states that applying the fourth step of the test may not be necessary because the third step should have covered the question of whether the contribution is technical in nature. It was further confirmed in *Symbian* that the question of whether the invention makes a technical contribution can take place at step 3 or step 4.

12. The case law on computer implemented inventions has been further elaborated in *AT&T/CVON*<sup>3</sup> which provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In *HTC v Apple*, Lewison LJ reconsidered the fourth of these signposts and felt that it had been expressed too restrictively. The revised 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 make the computer a better computer in the sense of running more efficiently and effectively as a computer; and*
- v) *whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*

13. The relevance of the legislation and legal precedent above is not contested in the latest communications or at the hearing.

## **Arguments and analysis**

### *Step 1 – Properly construe the claim*

14. Despite the length of claim 17 I find no difficulty in construing it. Furthermore, the examiner has construed the claims in their letter 24 February 2022, and during the hearing the Mr. Lucas stated that they agreed with the examiner’s construction of the claims. As there is no contention over how the claim ought to be construed I see no reason to labour this point.

### *Step 2 – Identify the actual or alleged contribution*

16. In paragraphs 43 and 44 of *Aerotel*, Jacob LJ outlined some factors to consider when identifying the contribution made by the claims:

*The second step – identify the contribution – is said to be more problematical. How do you assess the contribution? Mr Birss submits*

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<sup>3</sup> *AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat), paragraph 8.

*the test is workable – it is an exercise in judgment 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.*

17. Additionally, while the contribution may be taken to be that alleged by the inventor, this cannot be conclusive: *“in the end the test must be what contribution has actually been made, not what the inventor says he has made”*. I note that the prior art search for the invention is incomplete, therefore in this application it is the alleged contribution the invention makes that I must consider.

18. In their skeleton arguments Mr Lucas acknowledged that the invention concerns tracing a lifespan of a product from production to retail, for example. But indicates that that this is an inherently difficult task as each entity that interacts with a product in a supply chain typically has a custom data processing device (ERP server). In their arguments, and as discussed throughout the application, the entity maintained ERP server is referred to as the application layer and the invention operates on a level distinct from this application level; this enables specific functionality related to solving a particular problem alleged to relate to:

- a. Data can be collected without having to modify each entity customer data processing device which, particularly if there are multiple different ERP servers belonging to different entities, would be time and labour intensive.
- b. Data recorded on the distributed ledger bypasses the ERP server which provides a layer of control and security thereby ensuring original transaction data is collected making it difficult to spoof transactional data at the entity access point.

19. The examiner alleges that the problem that the invention attempts to solve is one of accurately tracing a lifecycle of a product in a supply chain and I agree, to some extent, that this accurately reflects the general issue at hand. However I feel that the specific problem the invention is attempting to solve is a little more nuanced than the examiner suggests, and I find myself in agreement with Mr Lucas in this respect. Therefore, in my mind, the problem that the invention is attempting to solve is one of being able to provide a system that can securely record events during a lifecycle of a product transiting several distinct entities wherein the system ‘bolts onto’ an existing entity data processing device.

20. The examiner, in their report dated 24/02/2022 asserts the alleged contribution resides in;

*A computer program which transmits product data received from a data capture device to an entity data processing device (such as an ERP server) and includes a flag alternately changeable between an activated state and a deactivated state, wherein when the flag is in the activated state at least some of the product data received from a the data capture device is also recorded in a distributed ledger. [sic]*

21. During the hearing Mr Lucas was unable to provide a succinct statement of contribution, and instead reflected on the first AT&T/CVON<sup>4</sup> signposts to convey his interpretation arguing that the contribution resided in the additional functionality that may be achieved through use of the data recorded to the distributed ledger. However, Mr Lucas acknowledged that this functionality is not explicitly set out in the claims.

22. The application primarily discusses tracking products throughout a supply chain but also discloses additional embodiments relating to tracking safety inspections, traffic violations and similar offences. In each embodiment the 'product' data intended to be recorded on the distributed ledger is labelling data, timestamping data, safety inspection data, metadata, or infraction data. In relation to the safety inspection the invention can apparently be used to confirm a pipeline inspection occurrence, and in relation to violations/offences the invention may be used to record a unique identifier on a citation receipt. The application does not, however, go into any depth with regard to the significance of the data recorded or how the recorded data may be implemented, therefore it is difficult for me to assign any inventive significance to the implied functionality achieved in relation to the collected data. Consequently, this functionality cannot contribute to the overarching inventive concept.

23. Mr Lucas went on to claim that the contribution additionally resides in the architecture of the network wherein data is forked at a layer of the system external to the application layer and therefore solves the problem that I have set out above in paragraph 19, wherein:

- a. There is no need to modify the individual application layer of user devices, and
- b. There is no risk of the data in the ledger being modified by an application layer input.

24. This second contributory aspect relates to the network architecture, and how this network architecture attempts to solve the aforementioned problem wherein it apparently negates the necessity to modify an application layer of a user device, and provides, in some respect, a potentially closed channel for recording events. In their arguments the examiner acknowledges that the claims recite the necessary hardware, including computing hardware and data capture hardware needed to implement the invention in some detail, however he then goes on to conclude that this hardware is merely typical and therefore cannot be included in the contribution, stating:

*Neither the contribution made by claim 17, nor the additional contributions made by claims 1 and 34, represent a fundamental technical improvement to the underlying computer system.*

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<sup>4</sup> AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat), paragraph 8.

25. The examiner additionally, with respect to their later arguments relating to signpost (i), considers the networked communication between the various integers of the claims and alludes to the fact that this interconnectivity is known despite the absence of any prior art or alternative evidence, stating;

*‘the computer’ in this analysis encompasses each of these known systems which communicate with each other, such as over a known bus or network.*

26. The examiner has previously been cautioned against falling into the trap of “Falconer reasoning” or “salami slicing” the claims by eliminating all the known features and determining that the contribution must be equal to whatever remains, thus ignoring the proper context and effects of the proposed invention.

27. I am mindful, not least from AT&T<sup>5</sup>, that consideration of the prior art will play a role in assessing the contribution, I also note that it is not a formal necessity to conduct a prior art search with respect to assessing the contribution, and I have already commented that the prior art search has yet to be concluded. It therefore seems that the examiner has made a judgment based on their understanding of the art and their specialist knowledge, which is entirely permissible.

28. Whilst considering the contribution it is typically helpful to consider what makes an invention novel or inventive, however it is not right to disregard everything in the claim that is known to arrive at the contribution being the new part of the claim. I am therefore required to place these known integers, namely the distributed ledger, data capture device, first terminal and entity data processing device in their proper context to ensure the effects of the invention are taken into account.

29. The courts have consistently found that, where claims recite standard hardware, such conventional apparatus does not form part of the contribution. This is often the case in computer program implemented inventions such as the that being considered here. The examiner helpfully directs me to paragraph 44 of the Aerotel judgment where Jacob LJ makes clear that a mere recitation, no matter how detailed, of such known hardware elements in a claim does not aid in identifying the substance of the proposed invention, and thus the contribution:

*If an inventor claims a computer when programmed with his new program, it will not assist him if he alleges wrongly that he has invented the computer itself, even if he specifies all the detailed elements of a computer in his claim.*

30. The importance of considering the proper context of the invention when assessing the contribution was outlined in Lantana<sup>6</sup> where Kitchin LJ accepted the appellants argument; *“that it is the claim as a whole which must be considered when assessing the contribution which the invention has made, and that it is not permissible simply to cut the claim into pieces and then consider those pieces separately and without regard to the way they interact with each other.”*

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<sup>5</sup> AT&T Knowledge Ventures/Cvon Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat).

<sup>6</sup> Lantana v Comptroller-General of Patents [2014] EWCA Civ 1463

31. The invention requires a cloud server, a distributed ledger, a data capture device, and a first terminal wherein the data capture device is provided with first driver and data capture firmware, and the first terminal includes a second driver as well as an OS system. In the aforementioned Aerotel judgment Jacob LJ commented that where hardware is standard then it does not form part of the contribution. I find myself in agreement with the examiner in so much as each hardware component recited in the claim appears to be standard, however I find difficulty in establishing that their specific interconnectivity is similarly standard, particularly in light of the lack of evidence demonstrating that this interconnectivity is well known or otherwise trivial.

32. In considering the hardware, particularly in light of the problem to be solved as set out at paragraph 19, it is clear to me that the interconnectivity between the hardware provides a secure data recording network that operates independently from an application layer. As this network provides the solution to the particular problem at hand it is unavoidable that the network, or the interconnectivity between the hardware integers, ought to be included in the contribution.

33. Therefore, in agreement with Mr Lucas' argument I consider the contribution to be; a computer implemented method for securely recording events on a distributed ledger wherein the ledger may be used with an end user application, the method comprising a networked data capture device, first terminal and distributed ledger, wherein one of the first terminal or data capture device is configured to apply a recordation flag to captured product data causing the product data to be recorded on a distributed ledger.

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

34. The third and fourth steps of the Aerotel test involve considering whether the contribution falls solely within excluded categories, and then checking whether the contribution is technical in nature. It is appropriate to consider these two steps together because whether the contribution is technical in nature will have a direct impact on whether it falls solely within excluded matter.

35. Although the contribution is implemented using a computer program running on a network of computers, that does not mean that it should immediately be excluded as a computer program as such. In *Symbian*<sup>7</sup>, the Court of Appeal stated that a computer program may not be excluded if it makes a technical contribution. In order to determine if the contribution is technical in nature I will consider the AT&T signposts.

*The first signpost - whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;*

36. The examiner alleges the computer includes the cloud server, the first terminal and the data capture device which communicate with one another over a network. In *Lantana*<sup>8</sup>, the Court directed that the "computer" may be a system of

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<sup>7</sup> *Symbian Ltd v Comptroller-General of Patents* [2009] RPC 1

<sup>8</sup> *Lantana v Comptroller-General of Patents* [2014] EWCA Civ 1463



computers; a network computer. Mr Lucas' argument with respect to the first signpost found basis in the implied functionality achieved in the use of the recorded data. However, as I have previously decided that this does not provide a contribution then the argument falls. The effect, which is technical or otherwise, is not carried out outside the computer. The invention fails to meet the first signpost.

*The second signpost - 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;*

37. *The claimed effect is achieved by the networked components of the computer as previously defined with respect to the first signpost, as well as the access point for the entity data processing device to that network. The product data being captured by the data capture assembly or processed in the data capture assembly and /or the first terminal influences what data is being recorded to the ledger, but this does not have any bearing on the network architecture. That is to say, regardless of the data being processed, the specific connectivity between the data capture assembly, first terminal and distributed ledger remains unchanged. Therefore, the invention meets the second signpost.*

38. I do not think the third or fourth signpost is applicable here, and in the absence of any argument from the applicant in respect to these signposts I do not think it is necessary to labour them.

*Signpost five - whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*

39. In *Lantana Birss J* stated "[i]t makes sense to think of something which is a solution to a technical problem as itself having technical character because it takes that character from the technical nature of the problem to be solved. But if a thing is not solving the technical problem but only circumventing it, then that thing cannot be said to have taken any technical character from the problem." therefore whilst providing a solution to a technical problem may confer some technicality to that solution, if the invention merely circumvents the problem the same cannot be said.

40. I therefore consider this to be a solution to the problem of providing a secure data acquisition and transmission network that is integrated with an existing data processing system. Does this relate to a technical problem? in as much as it relates to several physical devices and their particular interconnectivity, I believe it is. Therefore the invention meets the fifth signpost.

41. In view of the fact that both the first and fifth signposts point to the contribution being technical, I consider that the contribution is technical in nature and the invention does not solely consist of a program for a computer as such

42. I therefore find that the claimed invention satisfies the requirements of section 1(2).

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43. I find that the claimed invention provides a technical contribution and does not define subject matter excluded from patentability by section 1(2). Consequently, I remit the application to the examiner for final preparations to ensure compliance with section 18(3) and grant.

### **Appeal**

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

**Peter Mason**

Deputy Director, acting for the Comptroller