



## PATENTS ACT 1977

APPLICANT	Spatialbuzz Limited
ISSUE	Whether GB2007214.6 complies with Section 1(2) of The Patents Act 1977
HEARING OFFICER	Dr Stephen Brown

---

## DECISION

### Introduction

- 1 Patent application GB2007214.6 was published as GB2594993 on 17<sup>th</sup> November 2021. Despite several rounds of correspondence, the applicant has been unable to convince the Examiner that the application is allowable under Section 1(2) of the Act. As a consequence, the applicant was offered a hearing before a senior officer of the IPO.
- 2 This hearing took place on 7<sup>th</sup> March 2024 at the IPO. The applicant was represented by Samuel Bateman and Chris Froud of Withers & Rogers. Peter Kennington of Spatialbuzz Ltd also attended. I was assisted by Nigel Hanley. I would like to take this opportunity to thank Mr Bateman for his skeleton arguments.

### The Application

- 3 The application concerns a method of fault monitoring, investigation and remediation in a cellular communications network. It achieves this aim by receiving user queries about possible problems with the cellular network in an area and associating them with user population data for that area. Based on that information it then outputs a priority to the network operator for fault investigation and remediation.
- 4 I am particularly grateful to Mr Kennington for his explanation of the issues involved and how the claimed invention ameliorated them. In particular, he highlighted that the lack of engineering personnel meant that not all faults could be investigated. An effective system of prioritising those faults, that takes into account the number of users likely to be affected, enabled the operator to better deploy their staff and thereby endeavour to maintain a suitable level of service.

- 5 Mr Kennington went onto explain that the claimed invention further allowed temporal issues to be considered. For example, he referred to a fault in a city cell that may not affect many users at 3am but if not resolved by 7am as commuters entered the city could lead to the level of service falling. Equally, an error could affect a number of autonomous users, such as CCTV cameras, in an area.

## **The Claims**

- 6 The current claims were filed on 13<sup>th</sup> June 2023. There are three independent claims. They are as follows:

### *Claim 1*

*A method of fault monitoring, investigation, and remediation in a cellular communications network, the cellular network comprising a plurality of cells, the method comprising:*

*Receiving user queries, each user query about a possible problem with the cellular network at a respective location;*

*Defining a region based on the locations specified in the received user queries, wherein the region corresponds to two or more adjacent cells of the plurality of cells;*

*Determining an estimate of the population in the region*

*According to the region, based on the estimate, a priority of one or more of fault investigation and remediation for the two or more adjacent cells of the cellular network corresponding to the region;*

*And*

*Outputting the priority for the region to a network operator so that one or more of fault investigation and remediation may be carried out in the two or more adjacent cells corresponding to the region.*

### *Claim 13*

*A computer program, which when executed by processing means, performs the method of claims 1-13.*

### *Claim 14*

*A system with data processing resources and memory, configured to perform the method of any of the claims 1–13.*

## The Law

- 7 The section of the Act concerning inventions excluded from patentability is Section 1(2). This reads:

“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 –

...

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

...

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.”

- 8 In order to decide whether an invention relates to subject matter excluded by Section 1(2), the Court of Appeal has said that the issue must be decided by answering the question of whether the invention reveals a technical contribution to the state of the art. The Court of Appeal in *Aerotel/Macrossan*<sup>1</sup> set out the following four-step approach to help decide the issue:

- 1) Properly 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.

- 9 The operation of the approach is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 47 adds that a contribution which consists solely of excluded matter will not count as a technical contribution.

- 10 The case law on computer implemented inventions has been further elaborated in *AT&T/CVON*<sup>2</sup> which provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In *HTC v Apple*<sup>3</sup>, Lewison LJ reconsidered the fourth of these signposts and felt that it had been expressed too restrictively. The revised signposts are:

---

<sup>1</sup> *Aerotel Ltd v Telco Holdings Ltd (and others) and Macrossan's Application* [2006] EWCA Civ 1371

<sup>2</sup> *AT&T Knowledge Ventures LP and CVON Innovations Limited v Comptroller General of Patents* [2009] EWHC 343

<sup>3</sup> *HTC v Apple* [2013] EWCA Civ 451

- i) whether the claimed 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; and
- v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

## **Analysis**

- 11 In coming to this decision, I will focus on claim 1 as any decision I come to regarding that claim will apply to claims 13 and 14 *mutatis mutandis*.

## ***Construing the Claim***

- 12 The first step in the Aerotel test is to construe the claim. In claim 1 I believe there are several terms that would benefit from further explanation:

### *“User Queries”*

- 13 It is tempting to consider that this is already clear but there is more to it according to the description and the comments made by Mr Kennington at the hearing. Whilst it does include user reports to a help desk or service centre (subjective data), it also takes into account reports from web interfaces and user devices such as the results of status checks (objective data). In terms of the claim this could mean any information about the level of service a user may be receiving from any source.

### *“Region” and “Population”*

It is helpful in understanding what is meant by a region and a population to view Fig 3 of the specification and the supporting description on Page 16 Line 23 to Page 17 Line 8.

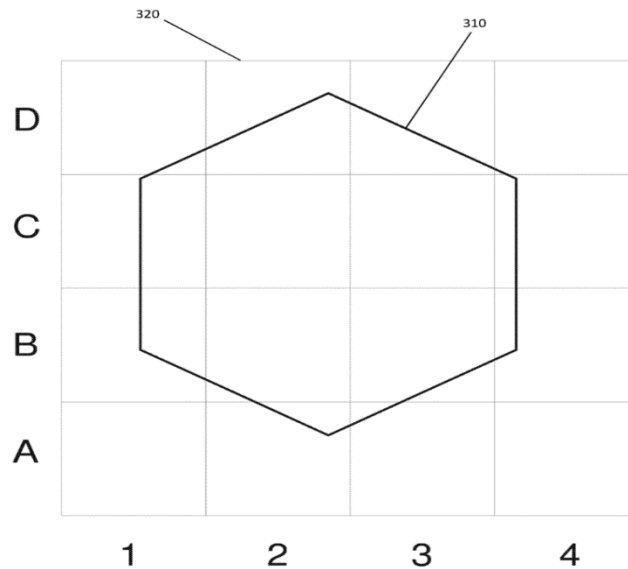


Figure 3

- 14 In this figure, the population is represented by the grid A1 through D4 with each area having its own population. This information can be drawn from external data sources such a population density database (230, Fig 2) as described on Page 16 Lines 12 - 18 of the description.
- 15 A region is defined by 310 in the drawing as a hexagon. As I understand it from both the specification and Mr Kennington's comments this is as a result of a cell in a telecoms network being considered hexagonal. A region can also be two, or more, adjacent cells. This was explained by Mr Kennington to be necessary to account for knock on effects where a fault in one cell causes users at the borders of that cell to be switched over in large numbers to adjacent cells impacting the service levels of those cells too.
- 16 Areas of population are apportioned to the region as a percentage of the population of an area. In the example used in the specification, 40% of C1 would be considered to fall into the "region".
- 17 A further consideration is required here and relates to adjusting the total population to reflect the market penetration of the operator. As shown in the description at page 17, Line 19 – 24, this may simply be a case of applying a weighting factor to the population of a region.
- 18 This gives me two definitions of population, one a broad one relating to the general population and a more nuanced one relating to the operator's customer base. On the basis that the application is focused on the provision of a priority for faults the operator can fix, I am inclined to take the latter, narrower, definition.

### *“Outputting the Priority”*

- 19 It is not actually clear from the description what the priority is other than a value ascribed to a situation. At page 17 line 28-30, this may be an indication of the number of users likely affected by a fault. Page 18 Line 3-6 provides a further clarification with the suggestion that a fault that affects a higher number of users may be of higher priority for investigation than a more serious one for fewer users. It is in effect an indicator that ranges from low to high. However, what is very clear is that it is nothing more than an indicator presented to the network operator.
- 20 When the above points are considered together, I take the claim to be directed at a system of aggregating user queries and status reports, associating them with a region, then taking into account the population of the region to determine a priority level. This priority level can then be used by the operator of the system to decide how best to deploy their limited number of engineers to investigate and rectify faults.

### **The Contribution**

- 21 The second step of the Aerotel test is to identify the contribution of the claim. The Examiner for his part sees it as:

*Prioritising regions for fault investigation or remediation in a communication network by defining a region of the network according to locations of received user queries about possible network problems, estimating a user population in the region and according that region, based on the population estimate, a priority for fault investigation or remediation by a network operator*

- 22 As might be expected, Mr Bateman offered a somewhat different initial contribution, namely:

*a method of fault monitoring, investigation and remediation in a cellular communications network, where such a method includes receiving user queries concerning respective locations, defining a region based on locations, determining an estimate of the user population in the region, and according a priority for the region for fault investigation and remediation to be carried out*

- 23 Mr Bateman also made several additional points that he felt were intrinsic in his contribution. Firstly, he argued that the user queries, when combined with population data, were technical information which was used in making an objective prioritisation of faults allowing the operator to make an intelligent decision about which faults to investigate first. This was essential as it allowed limited resources to be used effectively.
- 24 Secondly, he returned to the issue of knock on effects that I mentioned earlier. The examiner, for their part, expressly addressed this issue, stating that “knock-on effects are not mentioned at all in the specification”. They went further arguing that knock-on effects were not something the original application was seemingly designed to address either explicitly or implicitly.

- 25 In response to these points, Mr Bateman argued that while the contribution should be derived from the claims, there is no requirement that the contribution should be the same as that framed in the description as filed. He based this view on paragraph 25 of the decision in *Oneida Indian Nation*<sup>4</sup>.
- 26 His argument was that it is recognised that a fault in a high population area carries a higher risk of neighbouring cells experiencing an increased load as they compensate. This means the initial fault generates a heightened risk of knock-on effects in those neighbouring cells. Prioritising a fault in such a region will ultimately lead to a greater degree of functionality of the network.
- 27 Mr Bateman's third line of argument was around the "satisfaction of the user". It could be argued that the faults reported by users are subjective in that they reflect the views and expectations of that user. Mr Bateman however, argued that this was not quite the case, preferring a view that it is more about their motivation to submit queries regarding network performance when there is a perceived problem. He accepts that the user may be unhappy but urged me to focus on the query itself and its role in the determination of an objective conclusion which will "enable the network to function more properly".
- 28 Taking his arguments together, Mr Bateman offered a second contribution for consideration, namely:
- "To monitor, investigate and prioritise the remediation of faults in a cellular communications network in regions where there is a risk of further knock-on effects or faults occurring as a consequence of high network usage in cells neighbouring cells where a fault may be present."*
- 29 I shall now take each point in turn. I am willing to accept that user queries, taken en masse and combined with population data, constitute technical information and that this is being used to generate an objective measure of priority. However, I am very aware that the output "priority" may or may not be used by the operator, but I will park this point until the next step of the Aerotel test.
- 30 The second argument is the "knock-on effects" argument. On the face of it this is quite a compelling argument bar one small problem. At no point in the specification are "knock on" effects mentioned. I fully understand the viewpoint that an effect does not necessarily have to be in the claim, but I take the view that it should at least be alluded to in the specification. As it isn't then I do not think that I can consider it to form part of the contribution.
- 31 Mr Bateman's final argument concerned the satisfaction of the user. On balance, I am not sure this helps or hinders the contribution. What really matters is that the user submits queries to the system. These are subjective and are amalgamated with objective information. I acknowledge the argument, but I do not think that I need to consider it further in arriving at a contribution.
- 32 Taking all of the above into account, I consider the contribution to be:

---

<sup>4</sup> *Oneida Indian Nation* [2007] EWHC 0954

*an algorithm that receives user queries, matches them to a region based on a location and, using an estimate of population for the region, generates a priority indicator that may be useful in fault investigation or remediation for the network operator*

***Does the contribution lie in an excluded area?***

- 33 The next step is to ask whether the identified contribution lies in an excluded area. Prima facie, I believe that it does as it is clearly a computer program.
- 34 Mr Bateman directed me to the decisions of the courts in *Protecting Kids the World Over (PKTWO)*<sup>5</sup> and in *Haliburton*<sup>6</sup> in support of his view that the invention was not excluded. He argued that the generation of a priority indicator for fault identification or remediation was akin to the alert in PKTWO and the drill bit design in Haliburton. However, I am not so sure that this is the case.
- 35 Taking PKTWO first, the alert was issued by the system and there was a resultant action in controlling the computer. It was, as Floyd J said in paragraph 34 of his decision, “an improved system of monitoring content”. Equally, in the same paragraph he made the point that the “generation and transmission of an alert notification” is not always a relevant technical effect referring himself to the decision of Mann J in the first two patents in *Gemstar*<sup>7</sup>. There is no transmission in this case. The effect of the system is merely the production of a priority indicator. For that reason, I believe that Mr Bateman’s argument fails on this case.
- 36 In Haliburton, Birss J, as he then was, decided that the design of a drill bit was technical and so, as a consequence, the method of producing the design was allowable even if the drill bit itself was not manufactured. There is nothing manufactured in this case, least of all a drill bit. Neither is the case a method of designing a technical object. On these grounds alone, I do not think Mr Bateman can rely on Haliburton to support his argument that this application provides a relevant technical effect.
- 37 I will now turn to the AT&T/Cvon signposts. Concerning the first signpost, Mr Bateman argued that there is a technical effect on a process outside the computer, since the faults occur externally to the system of the claims and the maintenance undertaken following its priority results in a better functioning network. Furthermore, it results in a network that avoids “knock on” effects, as discussed above.
- 38 Once again, I’m afraid I disagree with Mr Bateman’s arguments. The only output of the claimed invention is a suggested priority which may or may not be used by the operator. I can see no direct link between this output and improved network performance. The latter depends on whether or not the operator decides to use the suggested priority and the availability and competence of the engineers deployed. I do not believe that merely outputting a suggestion to a user is enough to meet the first signpost. My opinion on this does not change simply because the output is

---

<sup>5</sup> *Protecting Kids the World Over (PKWTO)* [2011] EWHC 2720

<sup>6</sup> *Haliburton* [2011] EWHC 2508

<sup>7</sup> *Gemstar* [2010] RPC 10

based on 'objective technical data' and the user is making 'technical' decisions. There must be something more.

- 39 Mr Bateman argued that the contribution was similar to the situation in *Fisher Rosemount Systems*<sup>8</sup> where the hearing officer found that a "better control system" was allowable. However, I am not convinced of this similarity. The current invention produces nothing other than the "priority indicator". In my view, that is clearly different from a cached value that is used in a control system.
- 40 Mr Bateman did not address me on the remaining signposts and I agree that they are not relevant. I will, however, make a brief observation regarding the fifth signpost. This signpost asks whether a perceived problem is overcome. In this instance, it is quite clearly not. The problem being addressed is network faults and an algorithm that suggests a better priority for remediation does not itself actually fix any of them. On this basis, I find that claim 1 is excluded as a program for a computer, as such.
- 41 The examiner also raised the issue of whether, or not, the application was excluded as a method of doing business. Having decided that the application is a computer program there is no real need for me to also make a decision on this matter. However, the use of a priority indicator to influence the dispatch of maintenance staff to remediate faults does appear to me, prima facie, to be an administrative method. It would therefore appear, following the dicta in *Merrill Lynch*<sup>9</sup>, that it is also excluded as a business method.

### ***Is the contribution technical in nature?***

- 42 The final step of the *Aerotel* test is to check whether the contribution is technical in nature. Since I have decided that the claims do not make a technical contribution beyond those of a program running on a computer, they also fail this step. I thus decide that the independent claims are excluded under section 1(2) of the Act.

### **The Auxiliary Request.**

- 43 Auxiliary claims were filed on 29<sup>th</sup> February 2024. Of these, only claim 1 was changed, as follows (amended text highlighted by me):

#### *Claim 1*

*A method of fault monitoring, investigation, and remediation in a cellular communications network, the cellular network comprising a plurality of cells, the method comprising:*

---

<sup>8</sup> *Fisher Rosemount Systems BL 0/390/12*

<sup>9</sup> *Merrill Lynch [1989] RPC 561*

*Receiving user queries, each user query about a possible problem with the cellular network at a respective location;*

*Defining a region based on the locations specified in the received user queries, wherein the region corresponds to two or more adjacent cells of the plurality of cells;*

*Determining an estimate of the population in the region*

*According the region, based on the estimate, a priority of one or more of fault investigation and remediation for the two or more adjacent cells of the cellular network corresponding to the region **in order to reduce the risk of reduced performance of the cellular communications network in the two or more adjacent cells corresponding to the region;***

*And*

*Outputting the priority for the region to a network operator so that one or more of fault investigation and remediation may be carried out in the two or more adjacent cells corresponding to the region.*

- 44 As I have reasoned above, I do not consider the possible reduction of "knock on effects" to be part of the contribution. Similarly, considering all of the points made above, I do not believe that the contribution has changed in any meaningful way. In my view, the invention remains an algorithm for prioritising a region, where a cell may require fault remediation. All the amended text has added is to categorise that priority in terms of "reducing the risk of reduced performance of the ...network". At best that is a subjective interpretation of the priority. There is still no direct link between the output priority and the actual performance of the network. It remains merely information that the operator may act on.
- 45 As such, I find the auxiliary claims also excluded under Section 1(2)(c) of the Act as a program for a computer and a method of doing business.

### **Conclusion**

- 46 I have decided that the invention as defined in the independent claims falls solely within matter excluded under Section 1(2) as a program for a computer and a method of doing business as such. Furthermore, I have decided that the auxiliary claims are also excluded for exactly the same reasons. Having reviewed the application, I do not consider that any saving amendments are possible. I therefore refuse the application under section 18(3).

### **Appeal**

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

**Dr Stephen Brown**

D1 group head, acting for the Comptroller