



invention to be allowable then it will be necessary for me to return the application to the Examiner to update the search and complete the examination. In reaching my decision, I confirm that I have considered all of the relevant documentation on file.

### **Subject matter**

- 7 The claimed invention relates to a system for automatically selecting an additive manufacturing platform from a plurality of available additive manufacturing platforms to manufacture an item. Each of these additive manufacturing platforms may comprise a 3D printer, for example.
- 8 A user of the system selects an additive manufacturing model from a plurality of models available via a network and selects a plurality of manufacturing preferences including customisation of the particular model. The system then automatically selects a particular additive manufacturing platform from the plurality of platforms as a function of, at least in part, the plurality of manufacturing preferences. The selected additive manufacturing platform is then used to manufacture an item based on the model.
- 9 The manufacturing preferences may include a desired manufacturing material, a particular print resolution, a desired location to receive the item (including in-store pickup option), a performance timeline (e.g. item completion deadline), one or more size dimensions for the item, and an estimated target price for the item.
- 10 Customisation of the model may include the addition of text (such as the name of the user), symbols (such as a logo), images, and another additive manufacturing model (such as a pedestal being added to the bottom of a figurine, the figurine being the initially selected model). Customisation may further include one or more accoutrements to be added to the item, such as a fastener, a magnet, a pin, a mirror, a gemstone, a hat or sword for a figurine, etc.
- 11 The automatic selection of the additive manufacturing platform may take into account the availability of one or more manufacturing materials and retail operations considerations at the available platforms (e.g. staff availability).
- 12 The invention therefore provides a mechanism for selecting and utilising a particular additive manufacturing platform based on the preferences of a particular user. This greatly facilitates helping a user to employ an additive manufacturing process to manufacture a desired item without overburdening the user with numerous and arcane considerations. This may result in a straightforward process; for example when the user dictates use of a relatively unique material and only one of the additive manufacturing platforms is capable of using that material, then selection of that particular additive manufacturing platform is straightforward. In other cases, a number of additive manufacturing platforms may be suitable so the system may use prioritisation information provided by the user and/or intuited by the system based on the user's input to identify an appropriate platform for the particular operation.

## The claims

- 13 The claims under consideration are those most recently amended and filed on 6 May 2022. Claim 1 is the only independent claim pending and (following amendment) defines a system comprising platforms and apparatus. It reads as follows:

*A system comprising a plurality of additive manufacturing platforms and an apparatus to facilitate additive manufacturing, the apparatus comprising:*

*a memory having information stored there in regarding the plurality of additive manufacturing platforms;*

*a control circuit operably coupled to the memory and configured to:*

*receive an identification of a particular additive manufacturing model from a user, from a plurality of manufacturing models available to the user via a network;*

*receive from the user a plurality of manufacturing preferences, including receiving from the user information regarding customization of the particular additive manufacturing model;*

*automatically select a particular additive manufacturing platform from amongst the plurality of available additive manufacturing platforms as a function, at least in part, of the plurality of manufacturing preferences;*

*use the particular additive manufacturing platform to manufacture an item at the selected additive manufacturing platform based upon the particular additive manufacturing model.*

## The law

- 14 The Examiner raised an objection under section 1(2) of the Act that the invention is not patentable because it relates to a method for doing business and a program for a computer as such. The relevant provisions of this section of the Act are shown below:

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 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.*

15 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.*

16 The Court of Appeal in *Symbian* made it clear that the four-step test in *Aerotel* was not intended to be a new departure in domestic law; it was confirmed that the test is consistent with the previous requirement set out in case law that the invention must provide a “technical contribution”. It was further confirmed in *Symbian* that the question of whether the invention makes a technical contribution can take place at step 3 or 4.

17 Lewison J (as he then was) in *AT&T/CVON*<sup>3</sup> set out five signposts that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC/Apple*<sup>4</sup> the signposts were reformulated slightly in light of the decision in *Gemstar*<sup>5</sup>. 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.*

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<sup>1</sup> *Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1* [2007] RPC 7

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

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

<sup>4</sup> *HTC v Apple* [2013] RPC 30

<sup>5</sup> *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

- 18 There is no dispute concerning the relevant law and its application to the facts of this case.

### **Application of the *Aerotel* approach**

#### Step (1): Properly construe the claim

- 19 I do not think claim 1 presents any issues of construction and it may be construed as read in light of the description. It is nevertheless useful to elaborate on the meaning of the terms used in the claim.
- 20 “Additive manufacturing”, often referred to as 3D printing, is the construction of three-dimensional objects by adding constituent raw materials in a successive manner, typically layer by layer.
- 21 It follows that an “additive manufacturing platform” is a hardware assembly, such as a 3D printer, for carrying out the additive manufacturing process, and that an “additive manufacturing model” is a model of a desired item, typically expressed by modelling software, to be manufactured by the additive manufacturing process. In other words, the “model” is a representation of the item to be produced.
- 22 The “manufacturing preferences” include a desired manufacturing material, a particular print resolution, a desired location to receive the item (including in-store pickup option), a performance timeline (e.g., item completion deadline), one or more size dimensions for the item, and an estimated target price for the item (as described in paragraphs [0010] and [0029] of the description).
- 23 “User information regarding customization of the model” encompasses the addition of text (such as the name of the user), symbols (such as a logo), images, and another additive manufacturing model (such as a pedestal being added to the bottom of a figurine, the figurine being the initially selected model). Customisation may further include one or more accoutrements to be added to the item, such as a fastener, a magnet, a pin, a mirror, a gemstone, a hat or sword for a figurine, etc., selected from a library of accoutrements (as described in paragraphs [0026]-[0028] of the description).
- 24 “Automatically select a particular additive manufacturing platform ... as a function, at least in part, of the ... manufacturing preferences” means that the selection of the particular platform is based on the user manufacturing preferences, but can also take into account other factors such as the availability of one or more manufacturing materials and retail operations considerations at the available platforms (e.g., staff availability), as described in paragraph [0012] of the description.
- 25 It is worth noting that the claim is directed to a system, the system comprising a number of additive manufacturing platforms and “an apparatus to facilitate additive manufacturing”. The said apparatus is defined as comprising a memory and a control circuit configured to perform the steps of the claim. It is therefore clear that said apparatus encompasses a suitably programmed computer, as is reflected in paragraph [0016] of the description.

Step (2): Identify the actual contribution

- 26 Jacob LJ outlined the considerations to be applied when identifying the contribution made by the claims in paragraph 43 of *Aerotel*:

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

- 27 The Examiner has identified the contribution over the course of the progress of the application and has revised it several times in light of amendments, to reflect the essential features of the claims. In their most recent correspondence the contribution was identified as:

*A computer program which performs the following tasks:  
The selection of a particular additive manufacturing platform from a plurality of available platforms as a function of a plurality of received user manufacturing preferences and an identification of a particular additive manufacturing model available via a network, these preferences including user information regarding customisation of a user identified additive manufacturing model. This provides an inexpensive yet effective mechanism for selecting a platform that suits a user, whilst not overburdening the user with numerous arcane considerations by automatically selecting the platform for the user’s taste.*

- 28 The above formulation takes into account the problem said to be solved by the invention and what its advantages are, as discussed in the specification at paragraphs [0004], [0014], and [0039].

- 29 The Examiner considers that the hardware does not contribute towards the contribution because it is a known arrangement. In the pre-hearing report, the Examiner points to the document cited in the IPRP to demonstrate the apparatus is entirely conventional. At first glance this would appear to be acknowledged by the description, which states that the invention can be readily implemented using known means (paragraphs [0016] and [0039]), although I note these paragraphs relate specifically to the apparatus to facilitate additive manufacturing (i.e. the memory and control circuit) and the Internet, as opposed to the whole system (which specifically includes the additive manufacturing platforms).

- 30 A little caution is needed here. The Examiner’s formulation of the contribution reflects only the “apparatus” and not the whole system which is defined by the present claim. Was the Examiner right to dismiss the other hardware and the network itself from the contribution? On the one hand the Examiner has the benefit of having closely considered the application as a whole and the evolution of the claims to define the features of the present invention. On the other hand, when considering what has been added to human knowledge, the courts have repeatedly cautioned against

dismissing what is known and considering only what is left<sup>6</sup>. It is to the Examiner's credit that the contribution they have identified has been updated to reflect amendment to the claims, however I wonder whether someone reading the application and latest claims afresh would immediately conclude that all the hardware plays no part in the identified contribution.

- 31 For example, the claims originally defined (i) a method, including a manufacturing step; and (ii) an apparatus to facilitate additive manufacturing (comprising the memory and control circuit). Amendments have resulted in the claims now being directed to *a system comprising additive manufacturing platforms and an apparatus comprising a memory and control circuit*. The method claim has been deleted.
- 32 I mention this because a reader who construed the present claims afresh could be forgiven for asking "how can a system comprising multiple manufacturing facilities with different capabilities, for producing a physical item according to a specific model and customised preferences not be technical?". They might argue that a claim to the system is in effect a claim to a factory (or at least a manufacturing facility) and notwithstanding its novelty or inventiveness, is nonetheless technical.
- 33 To resolve this, in identifying the contribution, I must consider it in the context of the invention as a whole. I must not cut the claim into pieces with no regard to their interaction. That said, it is the *actual contribution* to the art which I must identify. In other words, I must position myself to view the wood so that I can see both old and new trees, and be mindful that from some angles my view may be obscured.
- 34 With this in mind, I must carefully scrutinise the Examiner's formulation as it stands. The description is clear that the manufacturing preferences received from the user may include the material (e.g. metal or plastic), print resolution (paragraph [0022]) and the finish (e.g. polishing or painting – paragraph [0034]). These, to my mind, are clearly physical aspects of the preferred model specification and the selection of a particular additive manufacturing platform may require consideration of its technical capabilities as a result. So should the contribution include the platforms themselves?
- 35 Whether or not the system hardware, including additive manufacturing platforms, and the consideration of how the technical capabilities of the hardware can best meet the model specification requested is so ubiquitous as to not form a part of the contribution is not immediately clear to me. It is clear to me that the "apparatus" component of the system may be implemented by programming a conventional computer, but not that the system as a whole is thus inherently technically conventional. The cited prior art does not seem to me to go that far.
- 36 The Applicant has not provided a definitive statement setting out the contribution. However, in their letter dated 17 September 2021, they stated that they disagreed with the Examiner's identified contribution (which was in relation to the original claims). Specifically, they argued that the contribution is more than the selection of a manufacturing platform as the invention explicitly includes the step of manufacturing the item.

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<sup>6</sup> Manual of Patent Practice at section 1.21

- 37 The Examiner subsequently pointed (in their examination report of 6 October 2021) to the judgment of *Macrossan*<sup>7</sup>, which found that adding a production step onto an otherwise excluded claim was not enough to render it patentable. The Examiner further stated in their examination report of 17 February 2022 that the manufacturing of the item using the selected platform is consequential to the method of selecting the platform and is not part of the contribution *per se*.
- 38 I agree with the Examiner on this point. It is acknowledged in the description that manufacturing items by additive manufacturing platforms is well known in the art. There is no assertion in the application that there is any advance in the manufacturing step itself whatsoever. That is, the particular additive manufacturing platform that is selected to manufacture the item manufactures the item exactly as it would have done in the prior art. The invention lies in the selection of a particular additive manufacturing platform, not in the operation of the platform or the manufacture of the item itself. The selection of a particular additive manufacturing platform is therefore what has really been added to human knowledge, and this is therefore what should form the contribution following the guidance of *Aerotel*.
- 39 I note the contribution identified by the Examiner has been formulated as a program for a computer despite the claim being directed to a system comprising hardware. Whilst this is entirely in keeping with the guidance of *Aerotel*, which states that the formulation of the contribution involves looking at substance not form, as noted above it excludes the additive manufacturing platforms from the contribution itself and therefore their technical capabilities – on the basis of which they may at least in part be selected. It thus seems to assume that the system as a whole is technically conventional (as opposed to just the “apparatus”). However, as acknowledged, the platforms themselves are unchanged in the way they manufacture an item. It is the manner of their selection (which may be on the basis of technical characteristics, given the physical requirements for the model) which is influenced by the invention.
- 40 I have given the matter much thought and concluded that what is important is indeed the manner of the selection and the nature of the user manufacturing preferences. Doing so takes into account the potential capabilities of each platform, but not the actual functioning of those capabilities (i.e. their operation). In these respects, the Examiner’s formulation of the contribution is a suitable assessment which recognises the problem and advantages of the invention, and which takes into account the substance not the form. In so far as the manufacturing platforms have different technical capabilities, which may be relevant to their selection for a given user’s preferences, the identified contribution reflects the invention. As noted above, their operation is unchanged in itself and the manufacturing step is also not relevant, so these are rightly not included.

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

- 41 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

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<sup>7</sup> *Macrossan’s Patent Application* [2006] EWHC 705 (Pat)



together because whether the contribution is technical in nature will have a direct impact on whether it falls solely within excluded matter.

- 42 Throughout the prosecution of this application, the objection that the claims are excluded as a method for doing business was considered before the computer program exclusion. I see no reason to depart from that order here.

#### Method for doing business

- 43 The Examiner argues that the selection of a particular additive manufacturing platform based on a user's manufacturing preferences is a purely business consideration that is administrative in nature. They also argue that improving the user experience and cost is merely a business advantage and that there is no technical improvement to the underlying computer system or additive manufacturing process itself. With regards to the business method being performed by a computer, the Examiner points to *Merrill Lynch*<sup>8</sup> and *Halliburton*<sup>9</sup> to argue that the mere use of a computer does not confer patentability and that even if the invention can be considered an improvement on previous business methods it will still be excluded because the prohibition in section 1(2)(c) is generic.
- 44 The Applicant argues that the invention is more than just the selection of a manufacturing platform because it enables the optimal manufacturing platform to be used and therefore ensures the best manufacturing method. They argue this leads to an improved technical performance of the overall manufacturing method.
- 45 I have considered the Examiner's and the Applicant's positions. According to the claim, the automatic selection of a particular additive manufacturing platform is based, at least in part, on a plurality of manufacturing preferences received from the user. If those manufacturing preferences are related solely to physical details of the specified model and correspond to technical characteristics of the manufacturing platform (such as the material, the print resolution or the required finish), then it is conceivable that the selection process would be technical in nature. In this case I would agree with the Applicant that this could be more than a mere business concern as it may well point to an improved additive manufacturing process overall, a better use of overall technical resources or a better manufactured product given requirements and constraints.
- 46 However, it is clear from the specification that the manufacturing preferences may include technical or non-technical aspects, including only non-technical aspects. These include a desired location to receive the manufactured item (for example, a postal address or an in-store pickup option), a completion deadline, and target price point for the item. The information regarding customisation of the model may also relate to non-technical aspects such as incorporation of text, logos, brands and trade marks. It is within the scope of the invention defined by the claim that the preferences and customisation relate solely to non-technical aspects. There is nothing in the claim to specify that any consideration of the physical preferences for the model, or the technical capability of the manufacturing platforms is essentially made. For this reason, I agree with the Examiner that the claim defines a process

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<sup>8</sup> *Merril Lynch's Application* [1989] RPC 561

<sup>9</sup> *Halliburton Energy Services Inc's Application* [2012] RPC 12

which is administrative in nature and lacks any technicality. The selection of a platform within the scope of the claim is simply a function of business requirements in this case. There is no technical effect on the additive manufacturing process and so it is nothing more than a method for doing business.

47 As stated in the Manual of Patent Practice at section 1.15:

as Floyd J observed in paragraph 23 of *Kapur v Comptroller-General of Patents* [2008] EWHC 649 (Pat), if there are embodiments of a claim that fall within excluded subject matter, the fact that the claim is wide enough to encompass embodiments that are not excluded under s. 1(2) will not be sufficient to save it. The exclusion “will still bite to the extent that excluded subject matter is claimed”.

48 For the avoidance of doubt, I make no formal finding as to whether the contribution would be technical in nature if the claim were to essentially specify physical preferences or customisation (such as material or resolution). I need not because the claim encompasses excluded embodiments and even if it did specify “physical” preferences, their analysis and processing may well be conventional and not contribute a technical effect.

49 The claimed invention is therefore considered to be excluded from patentability as a method for doing business as such.

#### Program for a computer

50 Notwithstanding that the invention is excluded as a method for doing business, given the claimed invention is implemented by means of a computer program I will consider whether the invention is any more than a program for a computer as such.

51 Although the contribution is implemented using a computer program, that does not mean that it should immediately be excluded as a computer program as such. In *Symbian*, 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 make use of the *AT&T* signposts.

#### *First signpost – whether the claimed technical effect has a technical effect on a process which is carried on outside the computer*

52 The Applicant argues that the invention enables a user to make a selection from a plurality of models over a network and therefore implies that the use of a network leads to an effect outside the computer. The Applicant also highlights that the claim explicitly requires the step of manufacturing an item.

53 In response, the Examiner has argued that a known arrangement of networked devices is considered “the computer” for the purposes of this signpost. Therefore, the fact that the invention is carried out on a network does not point to a technical effect outside the computer. They state this is consistent with the High Court judgment of *Lantana*<sup>10</sup>. The Examiner further argues that the manufacturing of the

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<sup>10</sup> *Lantana v Comptroller-General of Patents* [2013] EWHC 2673 (Pat)

item is not part of the contribution *per se*, and points to the judgment of *Macrossan* to show that adding the step of physically manufacturing the item is not enough to render patentable an otherwise excluded claim.

- 54 I agree with the Examiner. As noted above when assessing the contribution, the arrangement of hardware is not part of the contribution. Likewise, the manufacturing step has already been found not to form part of the contribution. The signposts have to be applied by looking at the contribution of the invention defined by the claim. The contribution lies in the program and what the effect is when it is run, not in the arrangement of hardware or the manufacturing step.
- 55 The Applicant further argues that the automatic selection of the platform enables the optimal platform to be selected. This optimisation ensures the best manufacturing method and is therefore an improved technical performance of the manufacturing method.
- 56 On this point, the Examiner argues that the invention is simply processing user manufacturing preferences regarding an item to be produced based on a model in order to select a standard additive manufacturing platform to manufacture the item and so has no technical effect on the system itself.
- 57 As I have already discussed above, where the selection is made on the basis of user manufacturing preferences that relate solely to the physical specification of the model then there may indeed be a technical effect on the manufacturing process. However, this is moot because the claim clearly encompasses embodiments where the selection is made solely on the basis of non-technical considerations such as location and price. In these cases, there is no technical effect on the manufacturing process. This signpost therefore does not indicate a technical effect for the claimed invention as a whole.
- 58 No arguments were made that concern the second, third and fourth signposts, so I shall consider them only briefly:

*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*

*Third signpost - whether the claimed technical effect results in the computer being made to operate in a new way*

*Fourth signpost - whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer*

- 59 These signposts are all directed to determining whether or not an invention makes a computer a better computer to the extent that the invention is not just a program for a computer as such.
- 60 No suggestion has been made that the program implemented by the claimed invention makes the computer running it a better computer. The invention is clearly application specific with no effect at the architectural level of the computer and with

no effect on the way the computer itself operates. None of these signposts point to a technical effect in the application.

*Fifth signpost - whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented*

- 61 The fifth signpost deals with whether or not the invention overcomes a problem or merely circumvents it. A solution may derive technical character from a technical problem<sup>11</sup>.
- 62 The Applicant asserts that the technical problem addressed by the present invention includes enabling a user to make a selection from a plurality of additive models for manufacturing an item over a network. The Applicant argues that the present invention therefore provides a solution to enabling a distributed manufacturing system to operate to a user's required specifications to select an appropriate additive manufacturing model for an item and to thereby manufacture that item.
- 63 The Examiner disagrees and states that the problem concerns implementing the specific task of automatically selecting a particular additive manufacturing platform from amongst a plurality of platforms based at least in part on user preferences. This is not considered to be a technical problem by the Examiner.
- 64 Having considered both positions, and having reviewed the specification, I agree with the Examiner. The problem does not relate to the manufacturing of the item *per se*. Instead, the problem is evidently related to the automatic selection of a particular additive manufacturing platform based on user preferences. The user preferences may include the price and pick-up location of the item, and the automatic selection may take into account retail operational considerations such as staff availability. This problem cannot be considered technical and so whether or not it has been overcome is not relevant. I conclude that this signpost is also of no help to the Applicant.
- 65 Since I can find no technical effect in the contribution of claim 1, the invention is considered to fall wholly within the field of a method for doing business and a program for a computer as such. I do not find any technical effect in any of the remaining claims nor has any been brought to my attention. Accordingly, the invention is excluded from patentability under section 1(2)(c) of the Act.

## **Conclusion**

- 66 The invention fails to comply with section 1(2)(c) of the Act because it relates to a method for doing business and a program for a computer as such. The application is therefore refused under section 18(3) of the Act.

## **Appeal**

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

## **Ben Buchanan**

Deputy Director, acting for the Comptroller

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<sup>11</sup> Manual or Patent Practice section 1.38.5