Intellectual Property Office

BL O/079/19

11 February 2019

PATENTS ACT 1977

APPLICANT	Bizagi Group Ltd
ISSUE	Whether patent application GB1602260.0 complies with the requirements of Section 1(2)
HEARING OFFICER	P Mason

DECISION

Introduction

1 Patent application GB1602260.0 ("the Application") entitled 'Natural language workflow construction' was filed on 8 February 2016 in the name of Bizagi Group Ltd. The Application was published on 6 September 2017 as GB2547888.

2 The examiner found the invention defined in the claims to be excluded under Section 1(2) of the Patents Act 1977 ("the Act") as relating to a computer program and a method for doing business as such. He decided that a search would serve no useful purpose and issued a combined search report under Section 17(5)(b) and an abbreviated examination report under Section 18(3) on 29 June 2017.

3 Despite a number of rounds of amendment and argument, an agreement could not be reached. The matter came before me at a hearing on 11 December 2018. The applicant was represented by Mr Paul Roberts and Ms Aroosha Laghaee of Slingsby Partners LLP.

4 The Application has not been searched and the examiner has also deferred many aspects of the examination. The only issue for me to decide is whether the claimed invention is excluded from being patented under Section 1(2) of the Act.

5 An amended set of claims was filed on 3 September 2018. It was agreed that these claims should be the ones considered at the hearing and therefore in this decision. I am grateful for the applicant's skeleton arguments that were filed before the hearing on 4 December 2018.

The invention

6 The invention is concerned with designing a workflow for use in workflow management software. Many businesses for example in service industries such as insurance and banking use workflow management systems to ensure that processes are consistently and efficiently performed throughout the business. In many systems

the steps of the processes are pre-defined so that staff can only follow very rigid routes through the workflow designed for them. In the current invention, complex workflows can be enforced without every possible permutation being predefined. Here, stakeholders involved in the workflow are defined along with actions those stakeholders may perform and the data over which those stakeholders have ownership and on which they can run their actions. The actions are not linked together so as to perform pre-defined workflows. Instead, the stakeholders are given autonomy to select and perform actions according to the definitions of the actions, data and rules governing when the actions and data are available to the stakeholders permitted to run them. This is a so-called stakeholder-centric approach.

7 The Application employs a hospital example to illustrate the invention. Here, a workflow representing a possible sequence of actions is described to manage a patient from admission to discharge. A stakeholder here could be a triage nurse or doctor. They are able to carry out actions such as 'Assess Patient' or 'Examine Patient' on admission record and patient record data objects. For example, when the patient's admission record reaches the top of the queue displayed at the user interface of the doctor's computer terminal, the doctor is able to select the patient's admission record and is provided with the action 'examine patient' which the doctor also selects. Following examination, the doctor is free to determine the investigations to be performed and so may for example choose action 'X-ray required'. Therefore, the workflow is not pre-defined; the doctor and nurse can select various future actions using their professional judgment. However, not all actions are allowed by each stakeholder and these must be defined previously.

8 A key part of the invention as claimed is designing such a stakeholder-centric workflow particularly for designers with limited technical ability. A computer system is provided to enable a designer to define stakeholder objects, data objects and appropriate actions and then link them together. To make things simpler, a non-technical designer is able to enter a natural language phrase such as 'Book an X-Ray'. The workflow system then parses the phrase to identify the verb and noun in the phrase using known computer algorithms. The workflow system checks whether a data object already exists in the workflow database for the noun. If not the system will automatically create a new data object using a predefined data object. Similarly a new action may be created for the identified verb. The designer specifies the stakeholder(s) who are permitted to perform the action. The new data object, the new action and the stakeholder are then linked in the workflow database.

9 The Application currently has 16 claims including an independent method claim (claim 1) and a corresponding system claim (claim 14). It was agreed that I need only consider claim 1 which reads:

> 1. A computer-implemented method for designing a workflow for use in a computer system comprising a workflow database that includes one or more data objects, one or more actions for operation on the one or more data objects, and a plurality of stakeholder objects each associated with (a) one or more of the data objects and (b) one of more of the actions, the method comprising:
>
> receiving at a user interface of the computer system a natural language input and an indication of a stakeholder represented in the workflow database by a stakeholder object;
>
> at a processor of the computer system:
>
> parsing the natural language input so as to identify a verb and a noun in the natural language input;

verifying whether a data object corresponding to the noun exists in the workflow database; and if the data object corresponding to the noun does not exist in the workflow database;

using a predefined data object, creating in the workflow database a new data object for the identified noun;

using a predefined process definition, creating and storing in the workflow database a new action for the identified verb; and

linking in the workflow database the new data object, the new action for the identified verb, and the stakeholder object such that, when the computer system is in use by the stakeholder, the stakeholder is permitted to operate the new action on an instance of the new data object associated with the stakeholder.

The Law

10 The examiner raised an objection under Section 1(2) of the Act that the invention is not patentable because it relates *inter-alia* to one or more categories of excluded matter. The relevant provisions of this section of the Act, with highlighting relevant to this case, 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) a discovery, scientific theory or mathematical method;*
>
> *(b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;*
>
> *(c) a scheme, rule, or **method 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 provisions 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.*

11 The assessment of patentability under Section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel*[1], as further interpreted by the Court of Appeal in *Symbian*[2] . 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 (although at the application stage this might have to be the 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.*

12 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". Paragraph 46 of *Aerotel* states that applying the

[1] Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1 [2007] RPC 7
[2] Symbian Ltd v Comptroller General of Patents [2009] RPC 1

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 4.

13 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 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*

Argument & analysis

14 I will now consider each of the *Aerotel* steps in turn.

Step (1): Properly construe the claim

15 It was common ground at the hearing that there is no difficulty in construing claim 1. Therefore nothing further need be said about the first step.

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

16 As noted above, the Application has not been searched. Therefore, for this decision I will consider the *alleged* contribution. The examiner did refer to some prior art in the form of a webpage illustrating a 'drag and drop workflow designer'. At the hearing both the examiner and Mr Roberts agreed that this prior art is not sufficient to anticipate claim 1 of the Application. I agree with Mr Roberts that this disclosure is not helpful in assessing the contribution. Mr Roberts also confirmed, and I agree, that although the claim is defined in terms of the design of the workflow, the output is the useful computer system.

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[3] *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)
[4] HTC v Apple [2013] EWCA Civ 451
[5] *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

17 The examiner set out what he regards to be the contribution in his letter dated 10 October 2018 as: “a computer-implemented method of analysing natural language input to identify a noun and a verb; adding an object representing the noun and an action representing the verb to a workflow database; linking the added object and action to a stakeholder object which permits a stakeholder to perform the action on the object in a workflow.”

18 At the hearing Mr Roberts explained that the particular style of input defined in the claim, namely parsing a natural language input so as to identify a verb and a noun, is not part of the technical contribution of the claim. He explained that the natural language input could be replaced with any input depending on the application. I am happy to accept that the natural language input lies outside the contribution.

19 According to *Aerotel* paragraph 43, the second *Aerotel* step raises the question: “what has the inventor really added to human knowledge?” To answer, this involves (quoting from Jacob LJ) “*an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are”.* It is useful to consider these three factors.

20 Mr Roberts in his skeleton arguments explained that the problem being solved by this invention is how to avoid excessive processing overhead, high storage requirements and subsequently poor performance in a computer system comprising a workflow database for designing a workflow. The Application explains that in the prior art, actions are typically linked together to form predefined workflows involving different permutations. This approach works well for low-skilled workers repetitively performing a limited number of tasks. However, for example in a hospital scenario with skilled workers having a high degree of decision-making ability, such complex workflows cannot be achieved without excessive storage requirements and excessive processing overhead because the number of possible investigations and treatments is enormous.

21 Mr Roberts explained that the invention of the application deals with this problem by providing the computer system with a workflow database which has a novel configuration of data structures. Again using the hospital example, all the possible steps a doctor (stakeholder) may perform are defined such that when the doctor is using the computer system they can operate all the steps available to them without a complex workflow being predefined.

22 The advantages of the invention are that workflows need not be exhaustively predefined, more complex workflows can be enforced, and the amount of processing and computer storage required to define a workflow is reduced.

23 At the hearing Mr Roberts asserted that the contribution is: “the creation of the data at the computer system having a specific configuration as defined in the last three integers of the claim [from ‘using a predefined data object’] such that at a given point in the workflow … a given stakeholder can perform that new action on the newly created data object as a step in the workflow.” Mr Roberts emphasized that by imagining this happening lots of times for that given stakeholder for given data objects there is going to be a set of actions defined so that at any given point in a workflow the stakeholder is going to be able to perform the available set of actions

on the data objects. The model is therefore stakeholder-centric and does not rely on links between pre-defined steps in a process. I do not dispute this assessment.

24 It is clear that the method of claim 1 is implemented in software and is run using conventional hardware.

25 To summarize, from all of these considerations I regard the contribution to be: a computer implemented method of designing a workflow for use in workflow management software by creating new data objects and actions using predefined data objects and process definitions and linking a new data object, a new action and a stakeholder object such that when the workflow management software is in use by the stakeholder, the stakeholder is permitted to operate the action on an instance of the new data object associated with the stakeholder; the resulting workflow is stakeholder-centric and does not rely on predefining every possible step of the process.

26 Steps (3) & (4): Does the contribution fall solely within the excluded subject matter; Check if the contribution is actually technical.

27 I will consider steps 3 and 4 together. In other words, I must now decide whether the contribution is technical or whether it falls solely within excluded subject matter.

28 At the hearing, Mr Roberts based his arguments around the assertion that the contribution meets the fourth *AT&T* signpost namely whether the program of the invention makes the computer a better computer in the sense of running more efficiently and effectively as a computer. Mr Roberts also referred to *Symbian* and the interpretation of the signposts in *HTC/Apple* to support his reasoning. In particular in his skeleton arguments Mr Roberts states that, “a computer system generated in accordance with the claimed computer-implemented method will, as a matter of practical reality, perform any specified workflows with lower storage requirements and a reduced processing overhead than conventional workflow systems”.

29 Mr Roberts emphasized that from *Symbian* to meet the fourth signpost, you do not have to have an effect that lies outside the computer itself. He also asserted that from *Symbian* you do not need to change how the memory works or improve the clock speed of the computer. Mr Roberts stressed that the teaching in *Symbian* suggests that you can program the computer to make better, i.e. more efficient, use of the resources that are there. Mr Roberts referred specifically to paragraph 56 of *Symbian* that states, “As a matter of such reality there is more than just a ‘better program’, there is a faster and more reliable computer”. Similarly he referred to paragraph 19b which states, “A program which improves the performance of a computer would not be excluded any more than a program which improved the performance of any other machine.”

30 Mr Roberts explained that by defining the data structures in the manner of the invention the system of the invention will run more efficiently than prior art systems. Specifically in the invention data structures which exhaustively define complete workflows and every possible sequence of steps within each workflow do not need to be stored. This reduces the size of the workflow database and the amount of processing required to perform a workflow. This is particularly true he explained for a

hospital system with a huge number of stakeholders and available actions. The computer-implemented method therefore provides a computer system that requires considerably less processing and storage requirements and is therefore inherently more efficient. This is irrespective of what kind of process a workflow relates to.

31 In response to these arguments, I accept that in the alleged invention a new type of data structure is created so that data structures which exhaustively define complete workflows and every possible sequence of steps within each workflow do not need to be stored at the workflow database. This reduces the size of the workflow database compared with those of other non-stakeholder-centric systems. I also accept that this will also reduce the amount of processing required to perform a workflow using the stored data structures. Further, in *Symbian* (paragraph 48) it is made clear that the mere fact that what is sought to be patented is a computer program is not determinative; the issue has to be resolved by answering the question whether it reveals a technical contribution to the state of the art.

32 However, I see a clear distinction between the invention discussed in *Symbian* and the alleged invention here. In *Symbian* the invention concerns a method of accessing data in a dynamic link library (DLL) in a computing device where DLLs are a means of storing functions common to a number of different applications. It was submitted that the invention in *Symbian* has application to a wide range of electrical devices including any form of computer, various forms of cameras, mobile phones etc. and enables such devices to work faster and more reliably. In the current Application, the alleged invention relates to a new class of stakeholder-centric workflow management software which requires a smaller database and reduced processing facilities to run it. The contribution here is in improving the efficiency of the workflow model by requiring fewer pre-defined steps rather than improving the efficiency of the computer. The computer processes the workflow steps and accesses the data as efficiently as it did previously. Although a smaller database is faster to process and requires less storage space that is the case whenever a smaller database is chosen. The way the computer processes and stores the smaller database is the same. Moreover, the benefits of the alleged invention will only be gained when this particular software is being run, implementing the stakeholder-centric model. Once the computer runs a different application or software the benefits will disappear. I do not find that anything has been done to change the underlying computer; it has not been made to be more efficient and effective itself. Returning to *Symbian,* the alleged invention may be a better program but it is not a faster or more reliable computer. I find that the fourth signpost is not met. Similarly, I find that none of the other signposts is satisfied.

33 Having carefully considered all the arguments presented to me, I do not consider the contribution to be technical in nature. The invention is implemented by software running on an entirely conventional computing arrangement. I therefore consider the contribution to relate to a computer program as such.

34 The invention is directed to designing a workflow for workflow management software for use in businesses and organisations such as insurance, banking or in a hospital management system as described in the embodiments of the Application. The invention therefore has a clear business objective. The workflow management system may well be a faster and more efficient computerized system. However, for the reasons given above I do not consider the alleged invention to give rise to a

technical effect. Therefore I consider the contribution to relate also to a method for doing business as such.

35 The remaining independent claim, claim 14, is directed to similar subject matter having the same underlying inventive concept. I therefore consider this claim to relate to the same excluded categories for the same reasons. Moreover, none of the dependent claims provides the required technical contribution.

Decision

36 I find the invention claimed in GB1602260.0 to fall solely within matter excluded under Section 1(2) as a program for a computer and a method for doing business as such. I can find no possible amendment in the specification that will render the claims patentable. I therefore refuse the application under Section 18(3).

Appeal

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

P MASON
Deputy Director, acting for the Comptroller