

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)**

To:

see form PCT/ISA/220

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/IB2017/050821

International filing date (day/month/year)  
14.02.2017

Priority date (day/month/year)  
23.02.2016

International Patent Classification (IPC) or both national classification and IPC  
INV. G06Q20/06 G06N7/00

Applicant  
NCHAIN HOLDINGS LIMITED

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA:



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Date of completion of this opinion

see form  
PCT/ISA/210

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**Box No. I Basis of the opinion**

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1. With regard to the **language**, this opinion has been established on the basis of:
  - the international application in the language in which it was filed.
  - a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1 (b)).
2.  This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))
3.  With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing:
  - a.  forming part of the international application as filed:
    - in the form of an Annex C/ST.25 text file.
    - on paper or in the form of an image file.
  - b.  furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
  - c.  furnished subsequent to the international filing date for the purposes of international search only:
    - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
    - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
4.  In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	<u>4, 10, 11, 14-17, 25-30</u>
	No: Claims	<u>1-3, 5-9, 12, 13, 18-24</u>
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-30</u>
Industrial applicability (IA)	Yes: Claims	<u>1-30</u>
	No: Claims	

2. Citations and explanations

see separate sheet

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**Item V**

**1 Prior art**

Reference is made to the following document:

D1 US 2015/120567 A1 (VAN ROOYEN GERT-JAN [ZA] ET AL) 30  
April 2015 (2015-04-30)

**2 Independent claims 1 and 18**

The present application does not meet the criteria of Art. 33(1) PCT, because the subject-matter of independent claims 1 and 18 is not new in the sense of Art. 33(2) PCT.

2.1 Document D1 is regarded as being the prior art closest to the subject-matter of claim 1 and discloses:

- a method of using a blockchain to control a process executing on a computing resource (method of monitoring third party access to a restricted item using a transaction ledger, in D1:[0010]-[0013]; the transaction ledger is a publicly visible shared transaction ledger, commonly referred to as a "block chain", in D1:[0077]), the method comprising the step:

- executing a loop on the computing resource (monitoring the transaction ledger to determine whether a transaction against the store value has occurred, in D1:[0012],[0064],[0079],[0087]);

- using the state of the blockchain to influence the execution of the loop (designating the restricted item as accessed by a third party in the event that a transaction against the store value has occurred, in D1:[0013],[0064],[0088]).

2.2 The subject-matter of claim 18 corresponds to a computer-based system arranged to perform the method of claim 1. Consequently, the lack of novelty objection raised for claim 1 applies mutatis mutandis to claim 18.

**3 Dependent claims 2 - 17 and 19 - 30**

Dependent claims 2-17 and 19-30 do not appear to contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step.

3.1 Dependent claims 2, 3, 5-9, 12, 13, 19-24 are known from the prior art document D1. See relevant passages cited in the International Search Report.

3.2 Dependent claims 4, 10, 11, 14-17, 25-30 are directly derivable by a person skilled in the art from the prior art document D1. See relevant passages cited in the International Search Report.

**Item VIII**

**4 Clarity**

The present application does not meet the requirements of Art. 6 PCT, because claims 1 and 18 are not clear.

4.1 In claims 1 and 18, the concept of *using the state of the blockchain* is not clear to a skilled person.

A definition of said concept is however provided in claim 5: *monitor the state of the blockchain for a transaction comprising a cryptographic hash code relating to the loop* or in the description at page 14 lines 12-17: *monitor the current state of the blockchain for transactions matching a start or triggering condition, a repeat condition, or a stop condition.*

The Applicant should have formulated claims 1 and 18 using one of the two above definitions of *using the state of the blockchain*.