

Royal Free London NHS Foundation Trust

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding ("MoU") is dated 28th January 2016 and is made between:

DeepMind Technologies Limited company incorporated in England and Wales (registered number 07386350) whose registered offices is at 5 New Street Square, London, EC4A 3TW ("**DeepMind**"); and

Royal Free London NHS Foundation Trust, whose registered office is Pond Street, London NW3 2QG ("**Trust**"),

each a "**Party**" and together the "**Parties**".

1 INTRODUCTION

- 1.1 DeepMind is a technology company, with a team known as DeepMind, which specialises in understanding and developing software and intelligent agents through the combination of cutting edge techniques from machine learning and systems neuroscience - artificial intelligence ("AI"), in order to build powerful general-purpose learning algorithms.
- 1.2 The Trust provides acute and specialist services across multiple hospital sites and community providers. Healthcare informatics and population challenges faced by the Trust are large and well-suited to the exploration of AI and big-data solutions.
- 1.3 This MOU sets out the principles under which the Parties intend to co-operate.

2 DEFINITIONS

- 2.1 **Affiliate** means, in relation to each of the Parties: (a) any parent company of that Party; and (b) any corporate body of which that Party directly or indirectly has control or which is directly or indirectly controlled by the same person or group of persons as that Party.
- 2.2 **Background IP** means any Intellectual Property (other than any Results) that is owned controlled or licensed by a Party and is introduced by that Party for the purpose of performing any collaborative project or activity.
- 2.3 **Confidential Information** has the meaning given in clause 10.8.
- 2.4 **FOIA** means the Freedom of Information Act 2000.
- 2.5 **Intellectual Property** means any and all patents, utility models, design rights, copyrights, moral rights, trade marks, domain names, database rights, rights in respect of confidential information (including know-how), and any other intellectual property rights (registered or unregistered) in any part of the world.
- 2.6 **Representative** has the meaning given to it in clause 10.6.
- 2.7 **Personal Data** has the meaning given to "personal data" under the Privacy Act 1998 (United Kingdom).



- 2.8 **Results** means and all inventions, discoveries, and know-how (together, with any Intellectual Property that may protect such items) that in each case are first conceived of or are first generated in whole or in substantial part in the course of undertaking the collaborative activities contemplated by the Parties in this MoU.

3 BACKGROUND

- 3.1 DeepMind has recently been interested in leveraging its technology by engaging in translational research and applying it with the aim of delivering positive clinical outcomes and cost benefits the Trust, and other NHS trusts.

- 3.2 Through initial engagement in relation to the proposed acute kidney injury project involving research for product development on anonymised and pseudonymised data under the National Research Ethics framework ("AKI Project"), the Parties initiated a proposed collaboration on developing a live-streaming, analytics-based clinical platform. This has formed the basis for: (i) wishing to finalise the terms of collaboration on that acute kidney injury project; and (ii) investigating future products of a similar spirit.

- 3.3 To date DeepMind has:

3.3.1 invested in commissioning a [REDACTED] high-security server farm, dedicated to running the application intended for use in AKI Project, and potentially other projects to be agreed between the Parties;

3.3.2 [REDACTED] and

3.3.3 assigned a large team of product managers, software engineers, research scientists and user interface designers on the AKI Project.

- 3.4 The Parties would like to form a strategic partnership exploring the intersection of technology and healthcare. The Parties wish to outline their intentions in this MoU regarding a wide-ranging collaborative relationship for the purposes of advancing knowledge in the fields of engineering and life and medical sciences through research and associated enterprise activities.

4 SCOPE OF THIS MOU

- 4.1 Unless otherwise expressly stated, the clauses of this MoU are not intended to legally bind the Parties.

- 4.2 This MoU relates to the relationship between the Parties only. Any input from or involvement with any third party [REDACTED] as well as any individuals acting in a personal capacity) is outside the scope of this MoU. If the Parties intend to involve or require inputs from any third party, separate terms will be agreed to cover such third party involvement and input.

- 4.3 The Parties recognise that their collaboration may involve a number of project-related transactions.

- 4.4 The Parties intend to agree separate terms to govern their collaboration on each project, including in relation to the AKI Project.

- 4.5 The Parties further acknowledge and agree that the separate terms governing each project and related transactions shall contain all relevant provisions, including without limitation those concerning:

4.5.1 the full proposal of the project including description, objectives and timescales;

- 4.5.2 the performance and management of such activities;
 - 4.5.3 financial and non-financial contributions by each party;
 - 4.5.4 any exclusivity arrangements (subject to compliance with all relevant competition laws);
 - 4.5.5 pricing and payments due
 - 4.5.6 ownership and usage rights in relation to any intellectual property utilised in or arising from such activities;
 - 4.5.7 confidentiality obligations;
 - 4.5.8 publication arrangements; and
 - 4.5.9 other matters, including freedom of information, data protection, dispute resolution, service of notices and governing law (which will be English law).
- 4.6 This clause 4.6 is intended to be legally binding. The Trust agrees DeepMind's Affiliates may be involved in the collaborative activity under this MOU, and the Trust acknowledges that if a DeepMind Affiliate is involved in any collaborative activity under this MOU, DeepMind will be responsible for its compliance by that Affiliate with the legally binding terms of this MOU.

5 AREAS OF MUTUAL INTEREST

- 5.1 Future potential areas of collaboration the Parties may be keen to explore include:
- 5.1.1 real-time prediction, from myriad data on comorbidities, blood tests and observations, risk of deterioration, death or (on discharge) readmission such that clinical teams may intervene;
 - 5.1.2 inclusion of Sepsis results;
 - 5.1.3 bed and demand management;
 - 5.1.4 financial control products, such as avoidance of unnecessary duplicate blood test orders, stock management or assistance with coding;
 - 5.1.5 reading of medical images;
 - 5.1.6 task management and junior doctor deployment/ private messaging;
 - 5.1.7 reading of CTG traces in labour; and
 - 5.1.8 predictive mapping of patient safety risks using Datix data.
- 5.2 DeepMind and the Trust will agree their priorities for any product development to form part of a project. The parties will aim to set these priorities through participation in a quarterly meeting of an oversight group for new product development, and then agree the relevant priorities and related terms of the project, as mentioned in clause 4.4 and 4.5 above. The formation of this oversight group will be separately agreed to between the Parties.



- 5.3 Agreed product development projects are likely to be deployed through continuous quality improvement approaches with rigorous evaluation or, in more transformational clinical products, formal clinical trials. Decision support will need to be deployed sensitively.

6 PRINCIPLES

- 6.1 The Parties are committed to establishing a broad ranging, mutually beneficial partnership, engaging in high levels of collaborative activity and maximising the potential to work on genuinely innovative and transformational projects.
- 6.2 The arrangements by which the Trust and DeepMind will seek to work together are intended to maximise the benefit of bringing together two parties who are centres of excellence in their respective fields, including improvements in clinical outcomes, patient safety, patient and staff experience as well as cost reductions.
- 6.3 DeepMind will hope to gain the following areas via the collaboration, subject to agreement on the terms for each project under clause 4.4 and 4.5 above:
- 6.3.1 A strong clinical and operational test-bed to optimise products for Trust use
 - 6.3.2 Strategic steer in product development
 - 6.3.3 Data for machine learning research under appropriate regulatory and ethical approvals, as agreed on a project by project basis
- 6.4 The Trust will hope to gain the following areas via the collaboration, subject to agreement on the terms for each project under clause 4.4 and 4.5 above:

6.4.1

[REDACTED]

(a)

[REDACTED]

(b)

[REDACTED]

- 6.4.2 Reputational gain from a strategic alliance with an unrivalled partner of the highest profile and expertise, focused on a highly impactful mission; and
- 6.4.3 A place at the vanguard of developments in what is widely viewed as one of the most promising technologies in healthcare, with the potential for great cost savings and improved patient outcomes.

7 STATUS

- 7.1 The Parties agree that, save as expressly set out herein, the signing of this MoU does not create any legally binding obligations between the Parties.
- 7.2 The intention of both Parties is to move from an MoU to working on a contractual basis at the right time on a per project basis, when both parties are sufficiently confident that the relevant project or area of collaboration will add value.
- 7.3 DeepMind wishes to position the Trust as an 'Anchor Partner'. There will be an ongoing discussion on what this will mean for both parties and the obligations to each other. Generally,



this means that RFL will be a key development site for future projects. On a project-by-project basis, both groups will agree to what resources, time commitment, and terms are required for successful project execution.

- 7.4 This clause 7.4 is intended to be legally binding. Nothing in this MoU is intended to, nor shall be deemed to, establish any partnership or joint venture between the Trust and DeepMind, constitute either party as an agent of the other party, nor authorise either party to make or enter into any commitment for or on behalf of the other party.

8 DURATION AND TERMINATION

- 8.1 This MoU shall come into effect on the date that the last party signs this MoU and shall remain in full force and effect for five years from the date of this MoU, unless terminated earlier in accordance with clause 8.3.
- 8.2 This MoU shall be reviewed after 12 months based against DeepMind and the Trust objectives.
- 8.3 Each party shall be entitled to terminate this MoU for any reason by giving ninety 90 days' written notice.

9 INTELLECTUAL PROPERTY

- 9.1 This clause 9 is intended to be legally binding.
- 9.2 Use of name. Neither Party to this MOU shall do anything to represent or imply that is sponsored by or affiliated with the other Party. Any agreement regarding sponsorship or similar activities in connection with the collaborative activities contemplated under this MoU shall be dealt with by appropriate written agreements at the relevant time. Neither Party shall use the other party's logo or any other trade names, trademarks, or other distinctive brand features of the other Party without the prior written consent of that other Party.
- 9.3 Background IP. Nothing in this MOU shall affect the ownership of either Party's Background IP or any other inventions, discoveries, know-how, or Intellectual Property used by a Party in connection with any collaborative activity pursuant to this MOU.
- 9.4 General. The Parties agree that:
- 9.4.1 licences for use of Background IP;
 - 9.4.2 any ownership and usage rights in respect of any Intellectual Property arising from the collaborative activities contemplated hereunder (including Results); and
 - 9.4.3 extensions of the term of any such rights, and applications for and the right to apply for any registered Intellectual Property Rights,

shall be dealt with by appropriate written agreements at the relevant time.

10 DATA PROTECTION AND CONFIDENTIALITY

- 10.1 This clause 10 is intended to be legally binding.
- 10.2 The Parties agree that the Parties' obligations in respect of any Personal Data, including without limitation any data sourced from patients, used or generated as a result of the collaborative activities contemplated hereunder, shall be dealt with by appropriate written agreements at the relevant time.



- 10.3 Without limiting clause 10.2, neither Party shall disclose to the other Party, nor any third party, any Personal Data or patient information under this MoU.
- 10.4 Subject to clause 10.3, either the Trust or DeepMind may as part of the activities under this MoU disclose to the other party and its Representatives Confidential Information. The parties to this MoU wishes to ensure that the other party maintain the confidentiality of their Confidential Information.
- 10.5 Neither party may transfer any of the receiving party's Confidential Information outside of the EEA, without the receiving party's prior written consent.
- 10.6 The receiving party shall keep the disclosing party's Confidential Information confidential and, except with the prior written consent of the disclosing party or any law, regulation or professional requirement shall, and shall procure that its Affiliates, directors, employees, officers, agents, internal and external auditors or advisers (**Representatives**) shall,
- 10.6.1 not use or exploit the Confidential Information for any purpose other than envisaged under this MoU;
- 10.6.2 not disclose or make available Confidential Information in whole or in part to any third party (other than its Affiliates and Representatives who need to know the Confidential Information for the purposes envisaged under this MoU);
- 10.6.3 not copy, reduce to writing or otherwise record the Confidential Information except as strictly necessary for the purposes envisaged under this MoU;
- 10.6.4 apply the same security measures and degree of care to the Confidential Information as the receiving party applies to its own confidential information, which the receiving party warrants as providing adequate protection from unauthorised disclosure, copying or use.
- 10.7 Nothing in this agreement will prevent the receiving party from disclosing confidential information if the disclosure is required by law, regulation or professional requirements.
- 10.8 "**Confidential Information**" in this MoU means information (including scientific, technical, and/or commercial information) that one Party discloses to the other Party under this MoU, and which is marked as confidential or would normally be considered as confidential, including but not limited to:
- 10.8.1 the nature, content or substance of any discussions and negotiations taking place concerning the purpose and the status of those discussions and negotiations and existence of this MoU;
- 10.8.2 any information that would be reasonably regarded as confidential relating to:
- (a) the business, affairs, assets, customers, staff, healthcare data, suppliers, plans, intentions, or market opportunities of the disclosing Party or its Affiliates; and
- (b) the operations, processes, product information, know-how, designs, trade secrets or software of the disclosing Party or its Affiliates;
- 10.8.3 any information or analysis derived from confidential information;
- 10.8.4 but not including any information that:
- (a) is or becomes generally available to the public other than as a result of its disclosure by the receiving party or its Representatives in breach of this



agreement or of any other undertaking of confidentiality addressed to the party to whom the information relates (except that any compilation of otherwise public information in a form not publicly known shall nevertheless be treated as confidential information); or

(b) was available to the receiving party on a non-confidential basis prior to disclosure by the disclosing party; or

(c) was lawfully in the possession of the receiving party before the information was disclosed to it by the disclosing party; or

(d) was, is or becomes available to the receiving party on a non-confidential basis from a person who, to the receiving party's knowledge, is not bound by a confidentiality agreement with the disclosing party or otherwise prohibited from disclosing the information to the receiving party; or

(e) the parties agree in writing is not confidential or may be disclosed.

10.9 At the request of the disclosing party, the receiving party shall:

10.9.1 destroy or return to the disclosing party all documents and materials (and any copies) containing, reflecting, incorporating, or based on the disclosing party's Confidential Information;

10.9.2 erase all the disclosing party's Confidential Information from its computer systems or which is stored in electronic form (to the extent possible); and

10.9.3 certify in writing to the disclosing party that it has complied with the requirements of this clause 10, provided that the receiving party may retain documents and materials containing, reflecting, incorporating, or based on the disclosing party's Confidential Information to the extent required by law or any applicable governmental or regulatory authority and to the extent reasonable to permit the receiving party to keep evidence that it has performed its obligations under this MoU. The provisions of this clause 10 shall continue to apply to any such documents and materials retained by the receiving party, subject to clause 8.1.

10.10 If the Recipient develops or uses a product or a process which, in the reasonable opinion of the Disclosing Party, might have involved the use of any of the Disclosing Party's Confidential Information, the Recipient shall, at the request of the Disclosing Party, supply to the Disclosing Party information reasonably necessary to establish that the Disclosing Party's Confidential Information has not been used or disclosed.

11 FREEDOM OF INFORMATION

11.1 This clause 11.1 is intended to be legally binding. DeepMind acknowledges that the Trust are subject to the requirements of the FOIA. DeepMind must assist and co-operate with the Trust to enable it to comply with its disclosure obligations under the FOIA. DeepMind agrees:

11.1.1 that this MoU and any other recorded information held by DeepMind for the purposes envisaged under this MoU are subject to the obligations and commitments of the Trust under FOIA;

11.1.2 that the decision on whether any exemption to the general obligations of public access to information applies to any request for information received under FOIA is a decision solely for the Trust to whom the request is addressed;



11.1.3 that where DeepMind receives a request for information under FOIA, it will not respond to that request (unless directed to do so by the Trust) and will promptly (and in any event within 2 working days) transfer the request to the Trust; and

11.1.4 the Trust, acting in accordance with the codes of practice issued and revised from time to time under both section 45 of FOIA, and regulation 16 of the Environmental Information Regulations 2004, may disclose information concerning DeepMind and this MoU either without consulting with DeepMind, or following consultation with DeepMind and having taken its views into account.

12 COSTS

This clause 11 is intended to be legally binding. The Parties shall each be solely responsible for their own costs in relation to the preparation and establishment of this MOU and any subsequent agreement(s) relating to the collaborative activity.

13 VARIATION

This clause 13 is intended to be legally binding. This MoU may only be varied by written agreement of the Trust and DeepMind.

14 THIRD PARTY RIGHTS

This clause 14 is intended to be legally binding. A person who is not a party to this MoU shall have no rights pursuant to the Contracts (Rights of Third Parties) Act 1999 or otherwise to enforce any of the terms of this MoU.

15 GOVERNING LAW AND JURISDICTION

This clause 15 is intended to be legally binding. This MoU shall be governed by and construed in accordance with English law and, the Trust and DeepMind agree to submit to the exclusive jurisdiction of the courts of England.



EXECUTED AS A MEMORANDUM OF UNDERSTANDING

Signed on behalf of DeepMind Technologies Limited by:

Signature:



Name:

ROMAN HARRIS

Title:

DIRECTOR

Signed on behalf of Royal Free London NHS Foundation Trust by:

Signature:



Name:

PROFESSOR STEPHEN POWIS

Title:

MEDICAL DIRECTOR

THE ROYAL FREE LONDON NHS FOUNDATION TRUST

