

**FGAI4H-O-037-A01**

Berlin, 31 May – 2 June 2022

<b>Source:</b>	Cognetivity (UK)	
<b>Title:</b>	New TG or subtopic proposal: Scalable digital platform for proactive brain health - Att.1 Presentation	
<b>Purpose:</b>	Discussion	
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<b>Abstract:</b>	This PPT contains a presentation of O-037.	



Powering proactive  
brain health

Dr Seyed Khaligh-Razavi,  
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Opportunities for utilising innovative  
technology to support dementia  
patients



# Our Vision



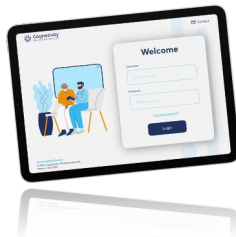
To establish a new global  
standard for brain health

# About us



## Cambridge University Spin-out 2013

Formed by a team of world  
class scientists and business  
leaders



## Advanced Technology

Platform combines the latest  
neuroscience with cutting  
edge Artificial Intelligence



## Market Ready

Ready for scaled clinical  
use in the world's largest  
healthcare markets, the  
USA and EU



## Established Partnerships

Already engaged with  
charities, governments and  
best-in-class strategic  
technology partners

Cognitive impairment is a symptom of a wide range of **brain health** issues, such as:

- ✓ Dementia 55m patients<sup>1</sup>
- ✓ Depression 300m patients<sup>1</sup>
- ✓ Anxiety 40m patients<sup>1</sup>
- ✓ Brain injury 75m patients annually<sup>1</sup>
- ✓ Other neurological disorder

Early detection leads to far better patient outcomes and a dramatically reduced cost of care (dementia alone saves **\$7.9 trillion<sup>2</sup>**)

1. World Health Organisation 2020, global prevalence

2. Alzheimer's Association 2018



# There is a major problem with detecting cognitive impairment

Existing assessment methods suffer from:



Lack of  
Precision



Impracticality



Language  
Dependence

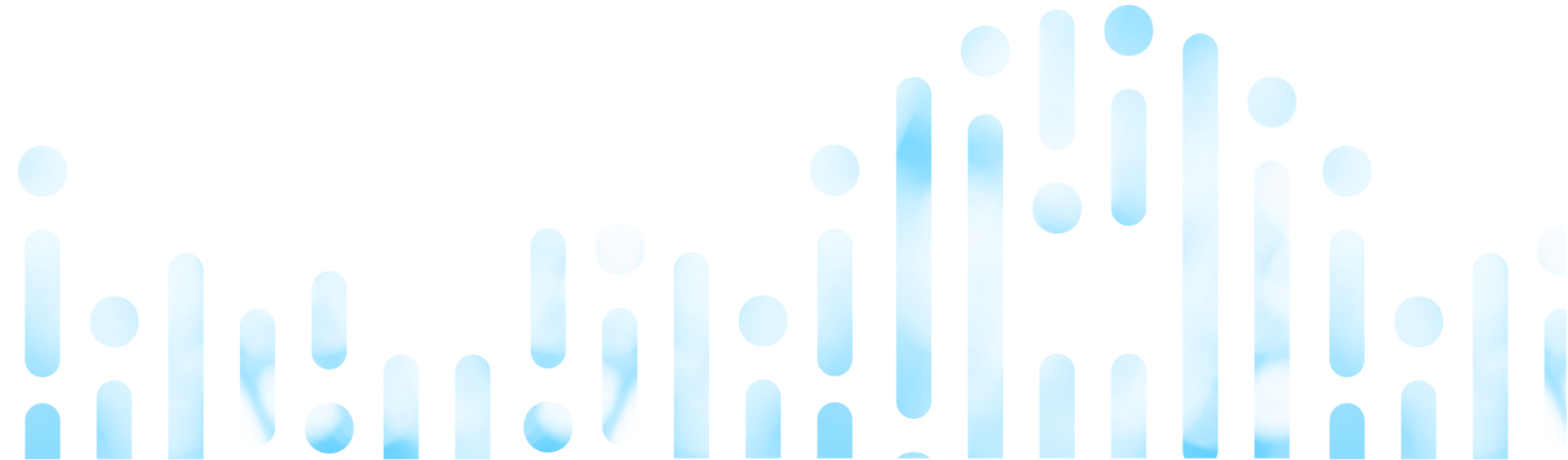


Education  
Bias



A Learning  
Effect

How do you address a \$1 trillion  
global health problem without  
adequate instruments?





# Introducing CognICA™

## An intelligent SaaS solution





# How CogniCA™ works

A patented rapid visual categorization task uses natural images of animals

Images are displayed for a fraction of a second.  
Users tap to classify each in turn as **animal** or **non-animal**.



Using speed and accuracy as a digital biomarker allows an accurate and effective assessment of cognitive function. See it in action at [cognetivity.com/cognicademo](https://cognetivity.com/cognicademo)



The use of animal imagery is an integral element of the test – **the human brain's unique reaction to animal stimuli is a key facet of our developmental history**

# Built-in explainable Artificial Intelligence

Reaction (ms)	Accuracy (%)
2427	98
2488	45
1876	82
1160	21

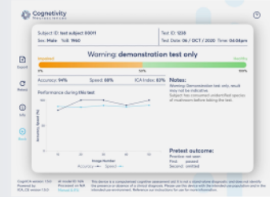
Test data



Combined with patient data



AI cloud processing

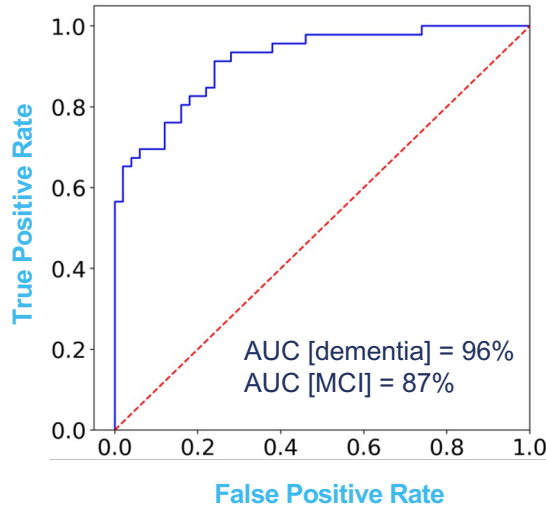


Patient Classified



*explainable* AI allows for accurate and generalizable detection of cognitive impairment

- Validated and tested across 15 NHS trusts , as well as a culturally diverse population of patients across 3 different continents



\*AUC of 96% in detecting dementia, and 87% in detecting MCI.

\*More broadly, across a wider range of disorders, ICA's area under the curve (AUC) in detecting cognitive impairment ranges from 84% to 96% depending on the settings (e.g. real-world vs. research setting) and the patient population.

## Significant Correlation with Fluid Biomarkers of Neurodegeneration

Biomarker	r-value
NfL	-0.79 **
AB40	-0.52 **
p-tau	-0.35 *
AB42	-0.34 *

\* $p < 0.01$ , \*\* $p < 0.001$

### Selected Cognetivity publications:

- Khaligh-Razavi, S.-M. et al. Integrated Cognitive Assessment: Speed and Accuracy of Visual Processing as a Reliable Proxy to Cognitive Performance. *Sci. Rep.* 9, 1102 (2019).
- Khaligh-Razavi, ..., Kalafatis, C., & Nabavi, S. M. (2020). A self-administered, artificial intelligence (AI) platform for cognitive assessment in multiple sclerosis (MS). *BMC neurology*, 20(1), 1-13.
- Shore, Judith, et al. "Health Economic Analysis of the Integrated Cognitive Assessment Tool to Aid Dementia Diagnosis in the United Kingdom." *medRxiv* (2022).
- Kalafatis, , Modarres, , ... & Khaligh-Razavi (2021). Validity and cultural generalisability of a 5-minute AI-based, computerised cognitive assessment in Mild Cognitive Impairment and Alzheimer's Dementia. *Frontiers in Psychiatry*, 12, 1155.



## BENEFITS FOR HEALTHCARE PROVIDERS and Patients...

*Numerous competitive advantages in  
clinical practice*



### Scalable

A 5-minute test, self-administered under non-expert supervision, leading to increased patient throughput and cost-efficiency



### SENSITIVITY AND ACCURACY

Potential to detect cognitive impairment significantly earlier than current methods



### AVOIDANCE OF BIAS

Consistency across individuals from different cultural and educational backgrounds



### COST SAVING

Saving the NHS ~£147 per patient in a GP setting



### LONGITUDINAL MONITORING

Long-term tracking of pre-dementia patients (MCI) or responses to treatment

# Company Summary

January 2022

## **Cognetivity Neurosciences Ltd.**

CSE:CGN

OTCQB:CGNSF

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