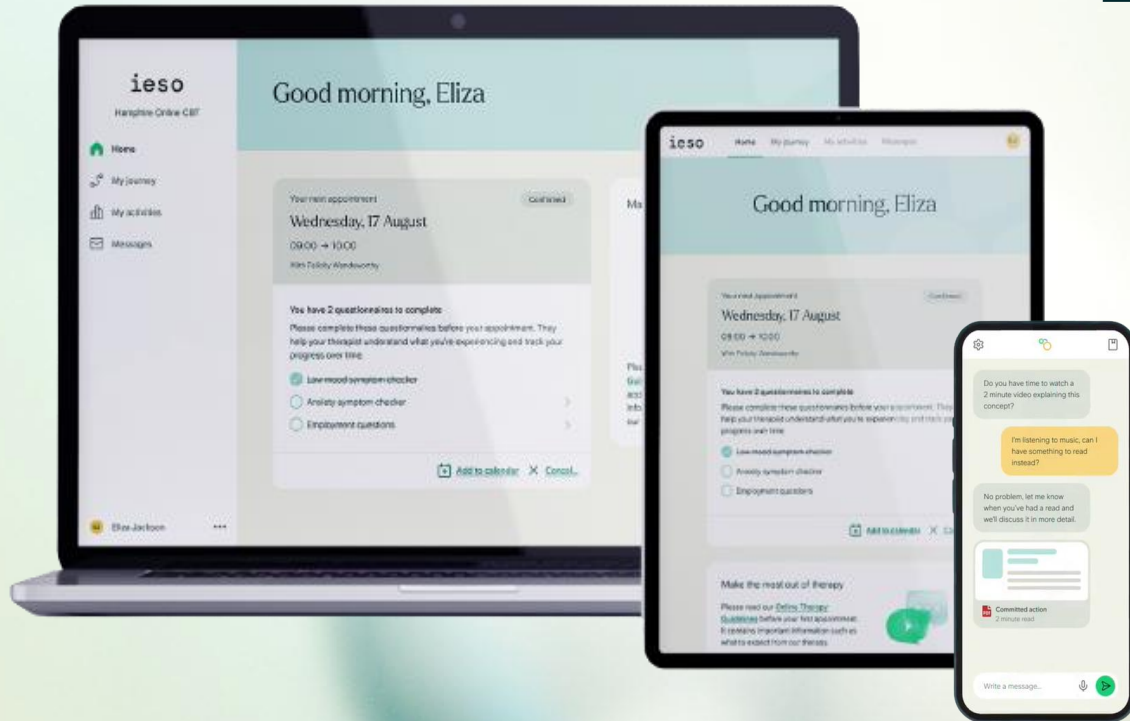# ieso

Digital mental health treatment:

Using *AI and clinical datasets* to increase access and improve patient outcomes

Clare Hurley, Chief Operating Officer (UK)

iesogroup.com

The Problem Space: Mental health need and access to treatment

NHS Talking Therapies

Formerly: Improving Access to Psychological Therapies

✓ Evidence based psychological therapies

✓ Anxiety disorders and depression

✓ Monitor outcomes – standardised measures

✓ Face to face and digital

✓ 1.8 million referrals last year, 600,000 completed a course of treatment

Increasing prevalence of mental health need

Workforce shortages in NHS mental health services

Variable quality, poor outcomes

ieso is leading a *digital* mental health revolution. Building new digital tools and products
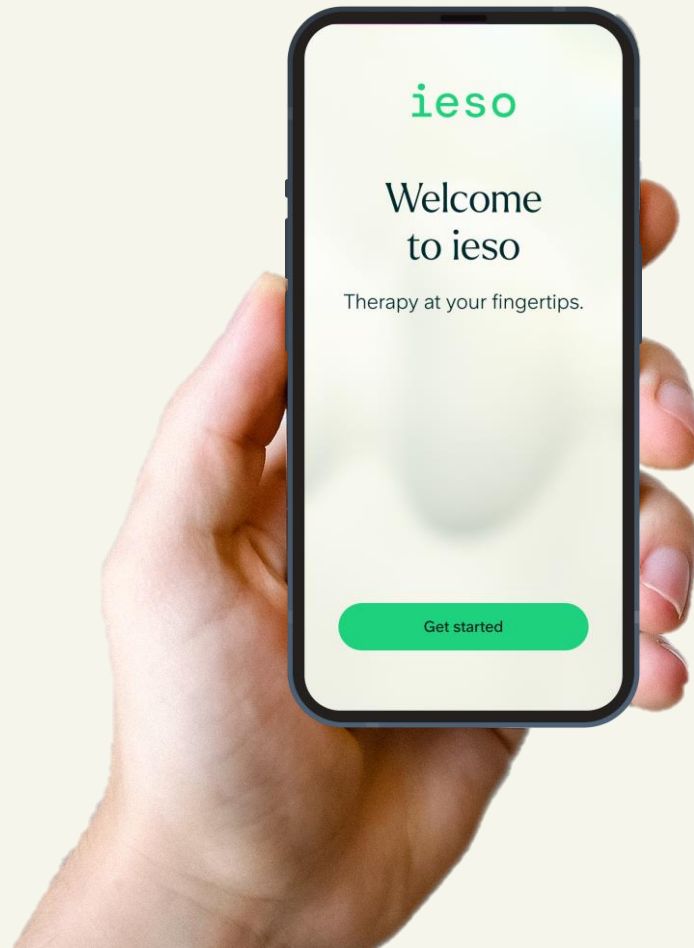
Access
Scalable product accessible anytime, anywhere

Quality
Evidence-based

Engagement
A digital therapeutic that provides tailored treatment responses

Our core business: ieso _text-based_ Cognitive Behaviour Therapy

Treating depression and anxiety

✓ One-to-one typed CBT securely through our purpose-built and device-agnostic, AI enabled therapy platform.
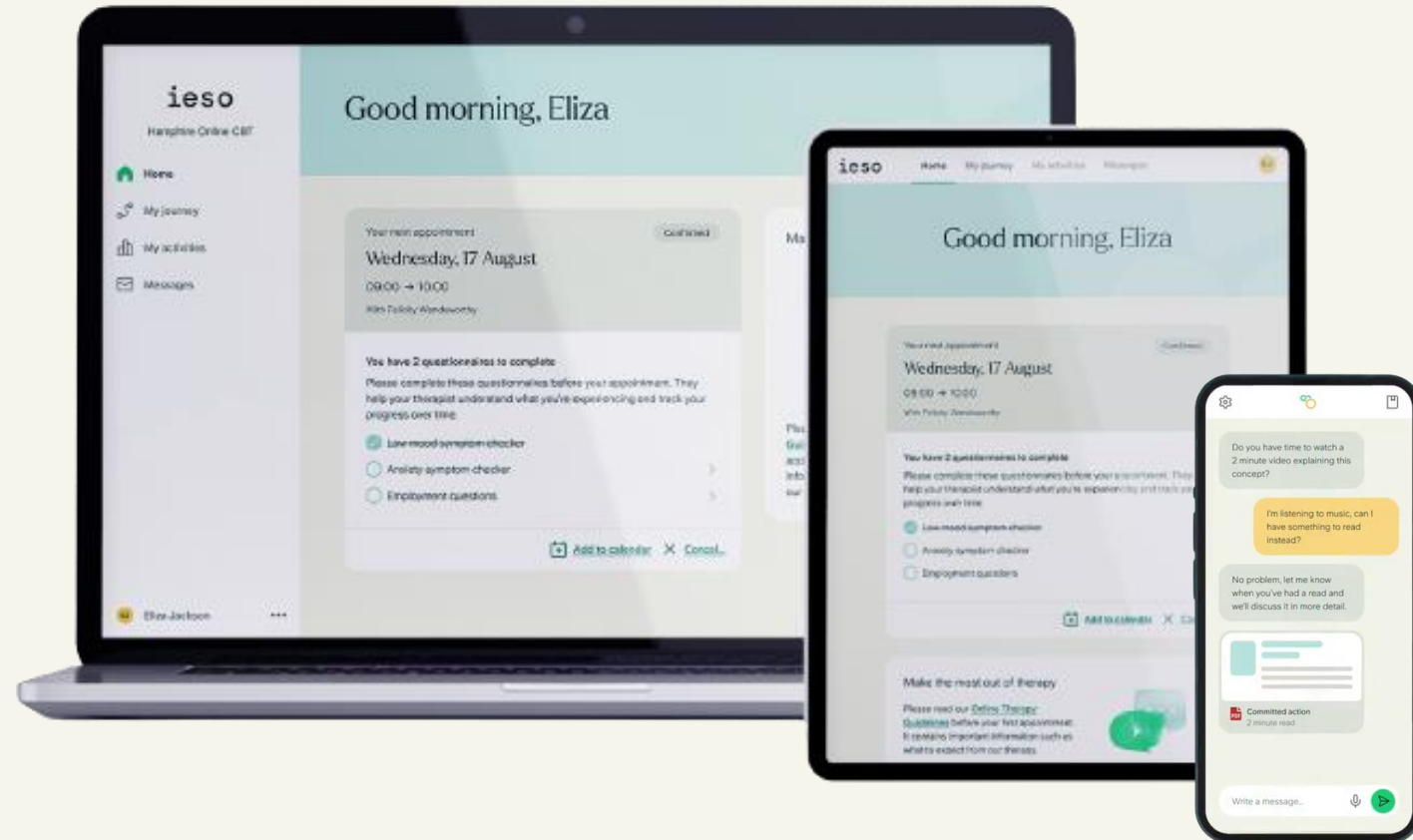
✓ Treatment anytime, anywhere: 60%+ outside of working hours

✓ A.I. tools for quality control

✓ Synchronous and asynchronous messages between patients and therapists.

What makes treatment effective? Learning from real world data

Our unique clinical data set

- ✓ Treatment in the NHS for >10yrs.
- ✓ Treated >100,000 patients.
- ✓ >600,000 hours of therapy **(transcripts)**

For the first time in therapy, via a transcript, we have a full record of every interaction / utterance between a clinician and a patient

Presentation

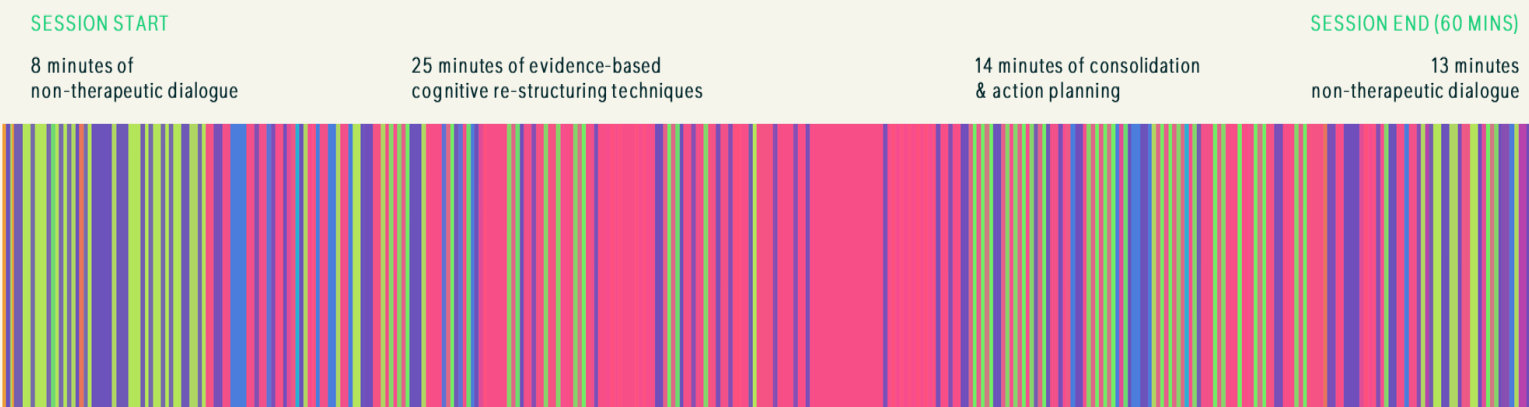Treatment

Outcomes

Measurement
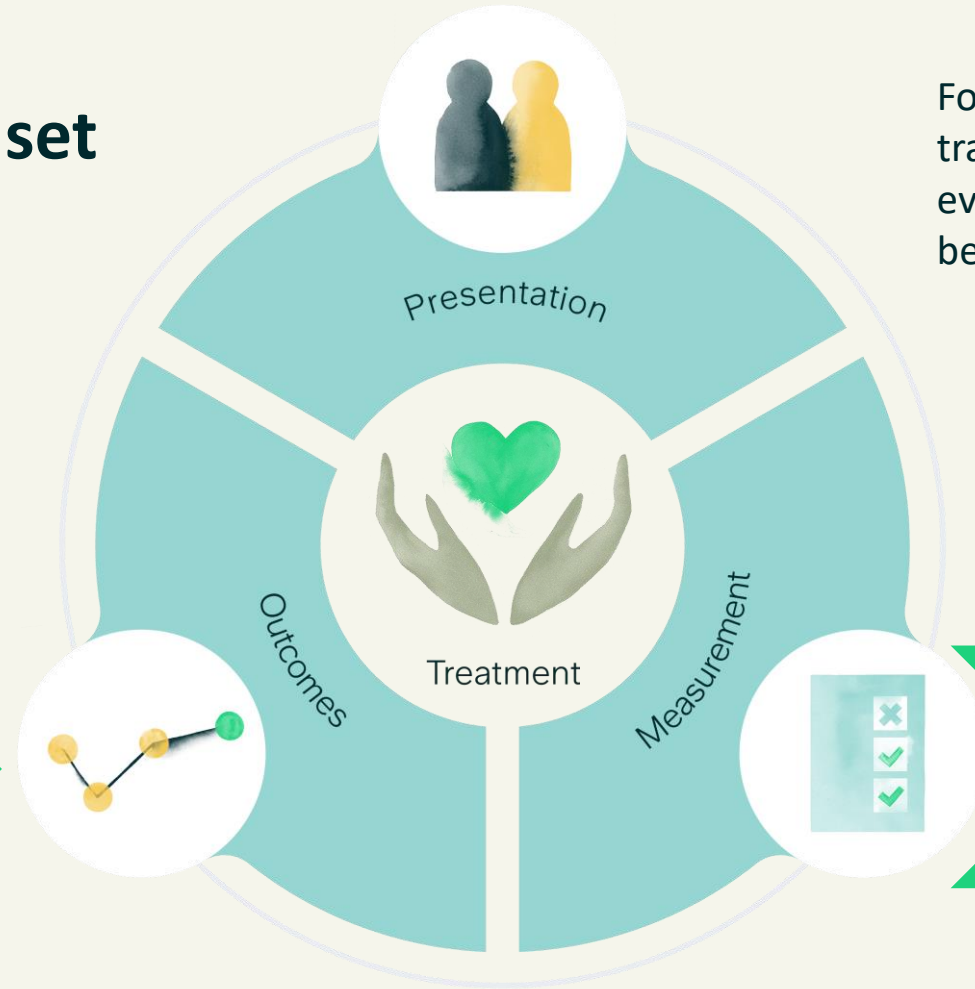
Analyse the data. What does good therapy look like?

Natural Language Processing – branch of AI – used to understand and interpret human language. Training deep learning models on large data set

We blend science, AI and deep clinical expertise to our data set to find out what works for whom in therapy. We convert those insights into digital tools and products.

Understanding the DNA of *therapy, with deep learning model*

What are the most effective components of CBT?

- Manually coded transcripts – train a deep learning model – applied to large data set of transcripts - automatically categorize therapist / patient 'utterances' within a session

- Coded 24 'aspects' of therapy – turning private language into anonymous tags

- Positive associations between therapist language and patient outcomes (and engagement).

- Two studies (2019, 2021) (combined 300,000 therapy hours).

SESSION START

SESSION END (60 MINS)

8 minutes of non-therapeutic dialogue

25 minutes of evidence-based cognitive re-structuring techniques

14 minutes of consolidation & action planning

13 minutes non-therapeutic dialogue

Therapy Insights Model (TIM)

✓ Change methods

✓ Planning for the future

✓ Perceptions of change

✓ Therapeutic praise

✓ Agenda setting

✓ Eliciting and give feedback

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Using data and science to *build* products and improve patient outcomes: some examples

Clinical data set

>600,000 hours of therapy transcripts

1) Therapist effectiveness eg. automated CTSR (therapist rating scale)

AI trained model - looks for particular words within session that are associated with positive patient outcomes – feedback to clinician

+

=

2) Identifying cases that are 'off track' in terms of anticipated progress

Improve patient outcomes

Machine learning methods and scientific analysis = *Clinical Insights*

3) Digital triage tool – screens for 'flag' words in referral form

Reducing admin burden, efficient oversight

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Data-driven care, data-driven product development

Our peer-reviewed publications in leading international science journals.

Putting patients at the heart of what we do: Optimising efficacy and outcomes

"After 12 sessions with my amazing therapist I left with a variety of tools to help me manage my anxieties going forward. It's helped me more than I thought and I have a strong well-being plan in place for the future"

"I could download the whole therapy session afterwards to re-read it and think about it. I had a good number of sessions and felt at the end that I had made real positive progress!"

"I found the format - online text based - very easy to do and clarifying. The structure of the sessions enabled me to better frame my issues, understand my behaviour and find new ways to behave."