Talking therapy is moving off the couch and into the virtual space and the independent sector is leading the way. **Dr Michelle Tempest**, partner at health and social care strategy consultancy Candesic looks at mental health policy and examines the emerging market for digital based interventions

Bricks to Clicks

Every brain is unique and how the brain is connected together, is of vital importance. Function is not dependent on size. German-born theoretical physicist Albert Einstein, who developed the theory of relativity and introduced the concepts of time and space into modern-day physics, had a brain that was smaller than the human average.

Famously, when Einstein was asked by a reporter for his telephone number, he picked up a phone directory to look it up. Dumbfounded, the reporter asked 'How come the smartest man in the world can't remember his own number?' To which Einstein responded, 'Why would I memorize something when I know where to find it?'

Perhaps Einstein's brain personified efficiency, focused on fast flowing connections around the brain rather than remembering specific number detail.

The topic of the brain is close to my heart because I worked as a hospital psychiatrist and have seen the human mind's frailty and fragility first hand.

I found that the mind can always surprise and have learned to expect the unexpected. Despite all the science textbooks and academic papers, clear cut answers cannot always be found, unlike what is portrayed in medical television dramas such as House.

INTERVENTION HAS ALREADY STARTED TO SHIFT AWAY FROM HUMAN-TO-HUMAN INTERACTIONS BY BEING REPLACED BY CHATBOTS

Such diversity has spawned a wide spectrum of businesses focused on mental health care. Mental illness is slowly becoming less stigmatised, although global diagnosis rates range from 26.4% of people in the United States to almost zero in some countries, often due to under-reporting. The European average for mental health disease prevalence is around 17%, see Figure One. Of course, not everyone with a diagnosis needs to be admitted to hospital and Figure Two highlights the variation in average length of inpatient stay across countries. The UK only admits the most severe cases to hospital, often detained under the Mental Health Act, and this results in longer lengths of stay. The inpatient providers in the UK span the public, charity, and independent sectors and include NHS mental health trusts, Cygnet, Elysium, Priory, St Andrew's and The Huntercombe Group.
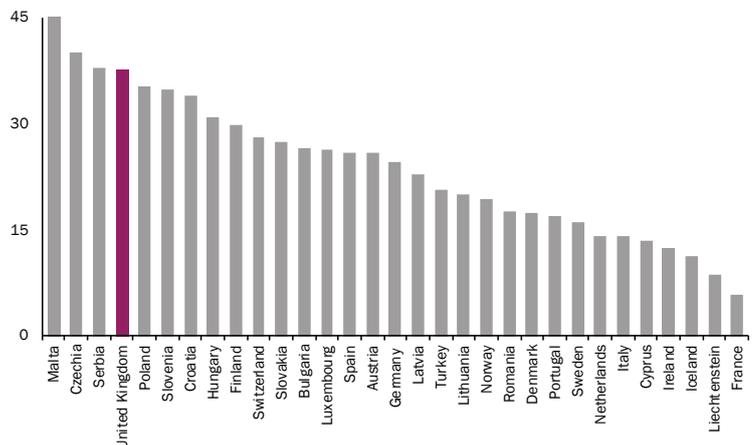
Talking therapy

This article focuses on how talking therapy and self-help are increasingly used in community settings and how these are moving to online delivery. Talking therapy is an umbrella term for treating psycholog-

FIGURE ONE - PREVALENCE OF MENTAL HEALTH DISORDERS, % OF TOTAL RESIDENTS SUFFERING FROM A MENTAL DISORDER, 2016
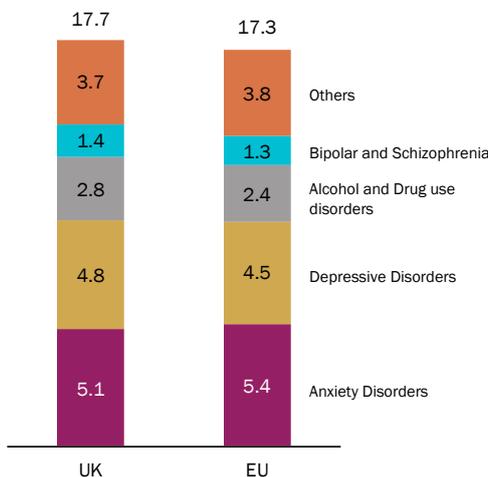
SOURCE INSTITUTE FOR HEALTH METRICS AND EVALUATION, 2016

FIGURE TWO - AVERAGE LENGTH OF INPATIENT STAY DUE TO MENTAL ILLNESS, DAYS, 2015

SOURCE EUROSTAT; CANDESIC ANALYSIS

ical disorders or emotional difficulties that involve talking to a therapist or counsellor, either individually or in group sessions. The National Institute of Clinical and Care Excellence (NICE) has mandated that psychological interventions such as: cognitive behavioural therapy (CBT), dialectical behavioural therapy (DBT), interpersonal therapy (IPT), cognitive analytical therapy (CAT), psychodynamic therapy, and counselling should be offered to those in need.

NICE advocates face-to-face therapy for the more severe conditions but suggest online or telephone CBT can be offered for mild-to-moderate conditions. As a result, digital disruption is happening within this market, moving away from mandatory physical presence of therapist and client in the same room (bricks) towards online/virtual interventions (clicks).
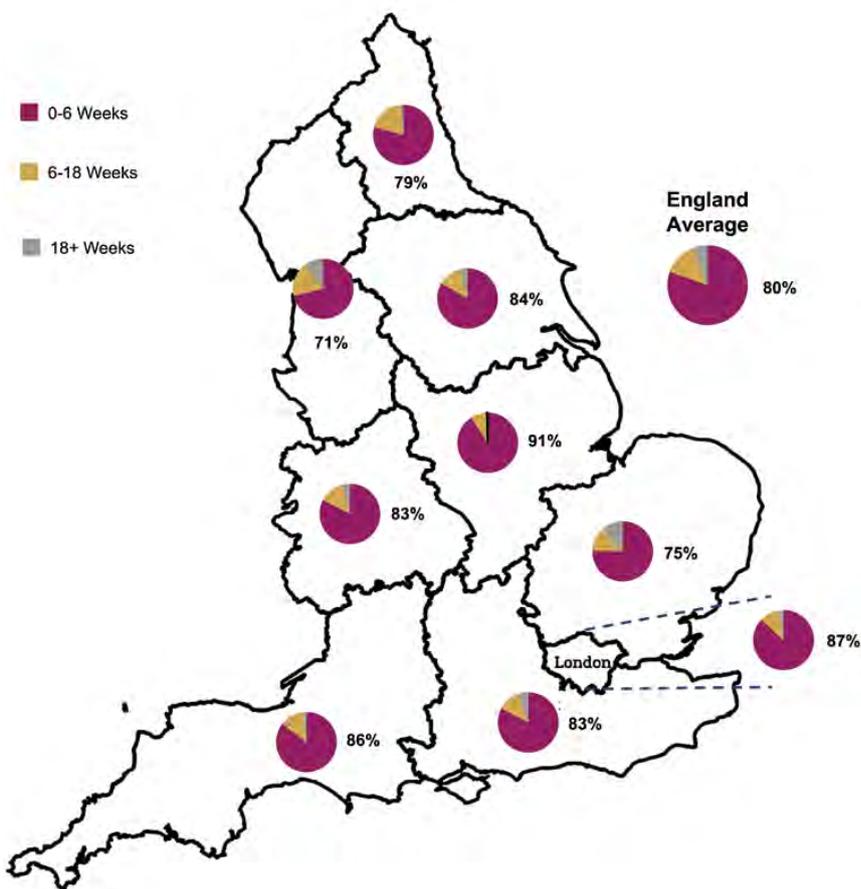
In England, the NHS spends c.£500m on talking therapy and sits in a subdivision called 'Improved Access to Psychological Therapy' (IAPT) services. Figure Three highlights the regional variation in waiting times for IAPT services with around 80% of people in England seen within six weeks.

The Five Year Forward View for Mental Health (2016) set out 'plans for expanding IAPT services so at least 1.5 million people can access care each year by 2020/21. ...By 2023/24, an additional 380,000 adults and older adults will be able to access NICE-approved IAPT services.'

More recently in 2019, the *NHS Long Term Plan* made a renewed commitment to grow investment in mental health services and pledges 'a further £2.3 billion a year by 2023/24' with a focus on community care. It's also known that the current Secretary of State for Health Matt Hancock has placed mental health high on his agenda, with a promise of extra funding, and actively encourages the rapid expansion of digital interventions. The future seems bright for talking therapies and those who provide them.
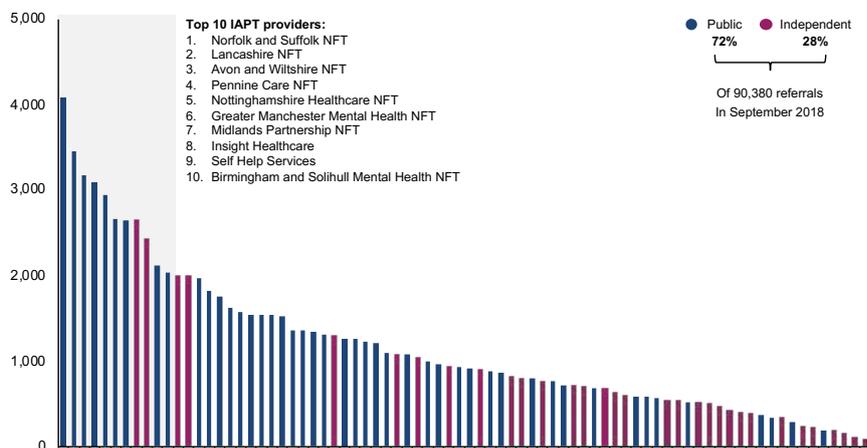
Some NHS IAPT services already offer online therapy and Candesic expert and psychologist Dr Josh Bourne, who helped contribute to the development of a London IAPT service, stated: 'On-line therapeutic interventions have returned some good recovery rates, often equivalent to face-to-face'. Some CCG's and NHS IAPT services are purchasing online therapy provision from external providers,

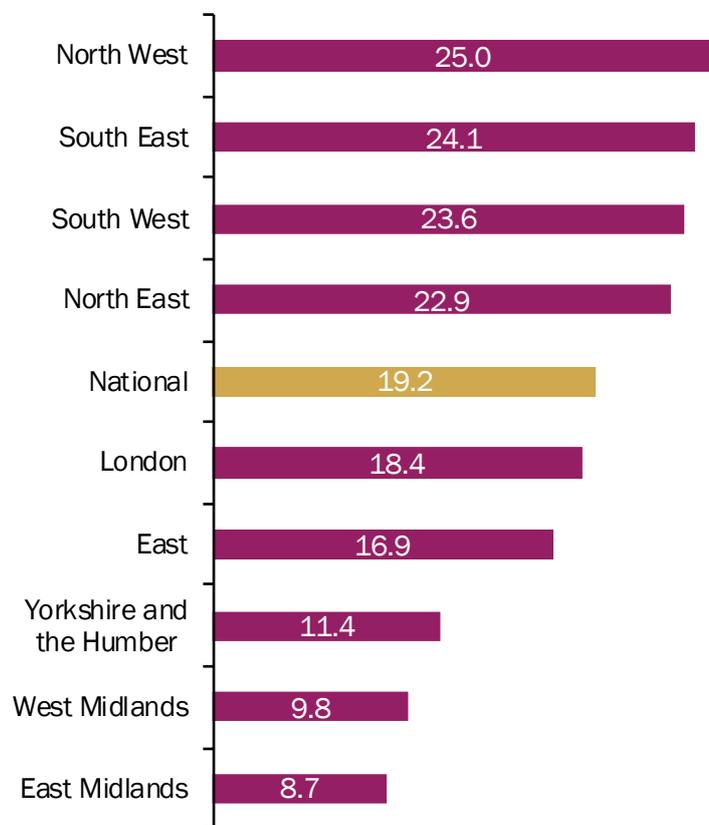## FIGURE THREE - DISTRIBUTION OF IAPT WAITING TIME BY REGION, % OF PATIENTS WAITING FOR TREATMENT

- 0-6 Weeks
- 6-18 Weeks
- 18+ Weeks

England Average: 80%

79% · 84% · 71% · 91% · 83% · 75% · 87% · 86% · 83%

London

SOURCE NHS IAPT SEPTEMBER 2018

FIGURE FOUR - THE FRAGMENTED IAPT MARKET[1], NO. IAPT REFERRALS

Top 10 IAPT providers:
1. Norfolk and Suffolk NFT
2. Lancashire NFT
3. Avon and Wiltshire NFT
4. Pennine Care NFT
5. Nottinghamshire Healthcare NFT
6. Greater Manchester Mental Health NFT
7. Midlands Partnership NFT
8. Insight Healthcare
9. Self Help Services
10. Birmingham and Solihull Mental Health NFT

- Public 72%
- Independent 28%

Of 90,380 referrals In September 2018

NOTE 1 SERVICES WITH >50 REFERRALS A MONTH   **SOURCE** NHS IAPT SEPTEMBER 2018

FIGURE FIVE - PREVALENCE OF COMPUTERISED SELF-HELP BY REGION,
% SELF-HELP DELIVERED BY COMPUTER IN SEPTEMBER 2018

Region	Value
North West	25.0
South East	24.1
South West	23.6
North East	22.9
National	19.2
London	18.4
East	16.9
Yorkshire and the Humber	11.4
West Midlands	9.8
East Midlands	8.7

SOURCE NHS IAPT SEPTEMBER 2018

as a top-up to their own provision; others are outsourcing all online delivery to independent providers.

We analysed a sample of IAPT referrals and discovered that out of the c.90,000 referrals during September 2018, almost 30% went direct to an independent provider (Figure Four).

There is also variation in the referral route, with most services offering the ability to self-refer. Figure Five highlights that around 20% of self-help is already delivered digitally. Examples of some well-known online independent talking therapy providers include: Silvercloud, Xenzone, Big White Wall, and Healios. There is also IESO, who offer text based CBT, rather than Skype-like consultations.

Online talking therapy platforms are not restricted to the NHS purse strings. The broader talking therapies market is buoyant, exceeding £100m in England each year.

Examples of other payor cohorts include:
- Private Medical Insurance (PMI),
- Medico-legal,
- Employee Assistance Programmes (EAP),
- Group Income Protection (GIP),
- Self-pay, and
- Universities and other higher education establishments.

Many independent therapy providers are not dependent on a single payor and have developed a diversified income stream.

Figure Six offers a graphical view of number of therapists employed and digital advancement. A previous rate-limiting step with pure physical face-to-face therapy was the local availability of therapists. One of the drivers to offer online therapy is that it allows therapists to be located anywhere, offers the freedom to manage their own time schedule and work from home. Of course, recruitment, retention, and ensuring quality staffing remains key across all talking therapy assets.

Leaders in digital

The online mental health market is also set to expand deeper into self-help. Even tech titan Facebook has been forced to get involved, following a high profile death of a 14-year-old girl in Miami, in Jan 2017, who live-streamed her suicide on her homepage. As a result of this horrific incident, Facebook have invested to help identify at-risk users and refer them to a choice of crisis counsellors. However, to date, they have not opened up their methodology for external academic research and as a result, their current efforts are not validated.

But it's clear that in an increasingly tech savvy and connected age, the global market for online support and diagnosis is wide open.

Chatbot revolution

Intervention has already started to shift away from human-to-human interactions by being replaced by chatbots, in part, in response to a staffing shortage of trained therapists.

Step-up Artificial Intelligence, especially machine learning, to help generate automated approaches to both diagnosis and treatment. There have been a number of 'proof of concepts' within the physical

ONLINE TALKING THERAPY PLATFORMS ARE NOT RESTRICTED TO THE NHS PURSE STRINGS... THE MARKET IS BUOYANT, EXCEEDING £100M IN ENGLAND EACH YEAR

health care setting, such as Deepmind to help diagnosis retinal disease and predict impending mortality in cardiac patients.

Within mental health, IESO have also utilised their back log of written scripts from CBT therapists and are developing an automated solution. But perhaps the most well-known chatbot to date is AI powered 'Tess', a Canadian mental health support messaging service that primarily delivers support to carers who often spend long hours within a home environment. Such achievements may one day even reach individuals previously reticent to access help.

Another well-publicised tech start-up trying to collect data to predict population based human psychology is called Mindstrong Health, based in California. It uses an app installed direct to mobile phones aimed to monitor a person's cognition, mental health, and emotional health. The app measures how the user interacts with his or her phone, such as the way someone types, taps, and scrolls. This data is then securely fed back to Mindstrong databank and analysed using machine learning, where continuous monitoring benchmarks the data twice.

First, to compare individuals against each other, and second, to understand personal variation. The mundane minutiae of phone interactions are a goldmine of data; it tracks speed of typing, error rates, how frequently characters are deleted, and how fast contact lists are used and scrolled down. The analysis also gives insight into how fast the phone user switches from one task to another. Mindstrong believe they can predict depression and prevent relapse of depression. Paul Dagum, founder and CEO of Mindstrong, says it monitors 24/7 and believes that smartphone usage correlates with lengthy cognitive performance tests. He said: '[i]t's like having a continuous glucose monitor' in the world of diabetes, but for mental wellness.

Psychiatry and neuroscience Professor Srijan Sen, based at the University of Michigan, is using Mindstrong in a new study to track the moods of first-year doctors across the USA. Junior doctors are known to experience intense stress, sleep deprivation, and high rates of depression. Participants log their mood each day and also wear a Fitbit activity tracker to log sleep, activity, and heart-rate data. Sen's hypothesis is that doctor's memory patterns and thinking speed change in

FIGURE SIX - INDEPENDENT THERAPY PROVIDERS, NO. IAPT REFERRALS
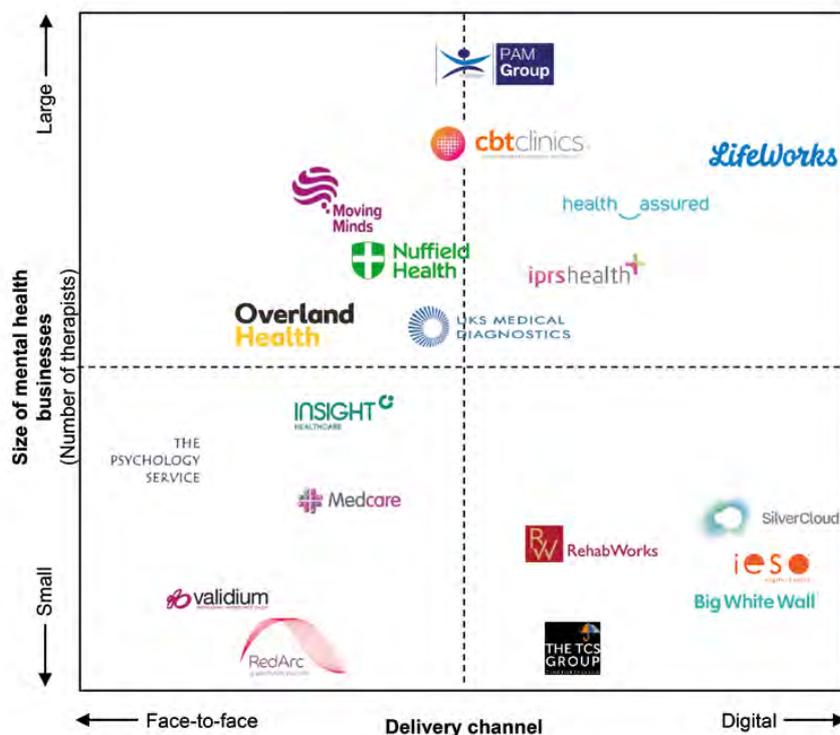
NOTE THIS SECTION IS NOT EXHAUSTIVE IN TERMS OF COMPANIES LISTED OR THEIR SERVICE OFFERINGS
SOURCE COMPANY WEBSITES; ORBIS; CANDESIC MARKET RESEARCH

subtle ways before they realise they are depressed. But nobody knows how long this lag will be or what cognitive patterns will end up being the best predictors of depression. The aim is that by tracking this cohort, the data may reveal the early signs of depression and even work out when and if there is a risk junior doctors may be too tired to treat patients safely.

In summary, globally there is an enormous growth in mental health awareness with over 350 million people around the world battling depression.

Inpatient and face-to-face care and support will always be needed, but there is potential for online platforms and AI to lend support to affected individuals. Various tools and platforms are in development but the market is yet to scale, remains unconsolidated, and with no clear winner.

The only thing known for sure is that human and artificial intelligence are converging and this will be needed to fill the gap created by the vastly insufficient number of clinicians.

Dr Michelle Tempest, partner, Candesic