![mindfire BURN IGNORANCE]

Role of Technology to address **Mental Health Epidemic**

The COVID-19 pandemic has exacerbated the global mental health crisis through it debilitating impact on health, economy and society. It is placing added burden on an already overwhelmed healthcare system, given the deterioration in the condition of patients with existing mental health disorders and the growing demand from those developing mental health disorders.

Social isolation and psychological stress has magnified the inclining depression rates that affect over 264 million people globally as per WHO. The annual global cost of lost productivity as a result of depression and anxiety disorders is estimated to be upwards of US$ 1 trillion.
Not just grownups, a significant number of young people are struggling with mental health issues too, especially with the lock downs, closure of schools and universities.

Innovation and advancement in Mental Health technologies

With increasing attention on mental health, there has also been a significant dialogue to grow accessibility and visibility of services, including access to medical professionals like psychiatrists and paramedical services providers like counsellors and behavior support services. Pandemic has also fueled the need for decentralized and virtualized access to mental health services, and as a result, tele psychiatry and virtual health care have become an essential need to prevent spread of infections and limited in-person access to healthcare.

Need to advance the existing models of mental health care has thus further fueled a growth of innovation and advancement in web and mobile based information technology solutions even as the smartphone and internet penetration continues to scale globally. Research, medical and business communities are actively engaging in building a panoramic spectrum of evidence-based and patient-centered solutions with breakthrough technologies that are revolutionizing the level of access to care and treatment.

These technological applications range from augmentation of existing services like EMRs, patient evaluations, education and medication management to defining novel data driven AI frameworks to provide personalized treatment and intervention plans like chatbots for therapeutic conversation and connected devices and sensors for monitoring patients' mood and behavior.

The innovation in technology has led to a cultural shift in expectation from patients as it is empowering them with greater choice to access the services and have better control of their privacy and personal data. User interface design improvements have further made it easier for patients to adopt services that are delivered through mediums like smartphone apps. Popularity of social media platforms has also driven an increase in adoption and usage of mental health technologies.

Examples of technological leverage to address the issue:

Digitized Treatments and Smartphone apps

This involves application of some of the proven in-person preventative treatments and therapies, for e.g. Cognitive Behavior Therapy. They are made available as smartphone apps and websites that can be used to record mood, depressions levels, journal entries and activities. Often, these target individuals with moderate to mild levels of depression, anxiety and stress and provide added wellness tools like mental resilience and guided meditations but there are also specialized apps that provide support for substance abuse and addictions.

Telepsychiatry

Telepsychiatry is an implementation of telehealth capabilities for mental health treatment; bringing together geographically dispersed patients and healthcare providers. This is often supported via web or smartphone based apps that can be integrated into the practice management systems, EMR systems that healthcare professionals use for in-person care. Custom solutions can be built to not only facilitate real time 2-way video and chat capabilities at a basic level, but also implement advanced IoMT capabilities for diagnosis and monitoring purposes.

Conversational AI and Chatbots

AI enabled Chat bots are being increasingly leveraged as triaging and behavior well-being tools that support patients before they need or get access to the health care professionals. These are designed with sophisticated algorithmic programs that use Natural Language Processing to engage patients in therapeutic conversations, and allow them to share their thoughts and feelings. These tools are also enabled with the ability to detect warning signs and triggers to direct patients to professionals for advanced psychological care. The effectiveness in treating of depression and anxiety-symptoms is a direct function of how advanced and sophisticated the underlying AI engines are.
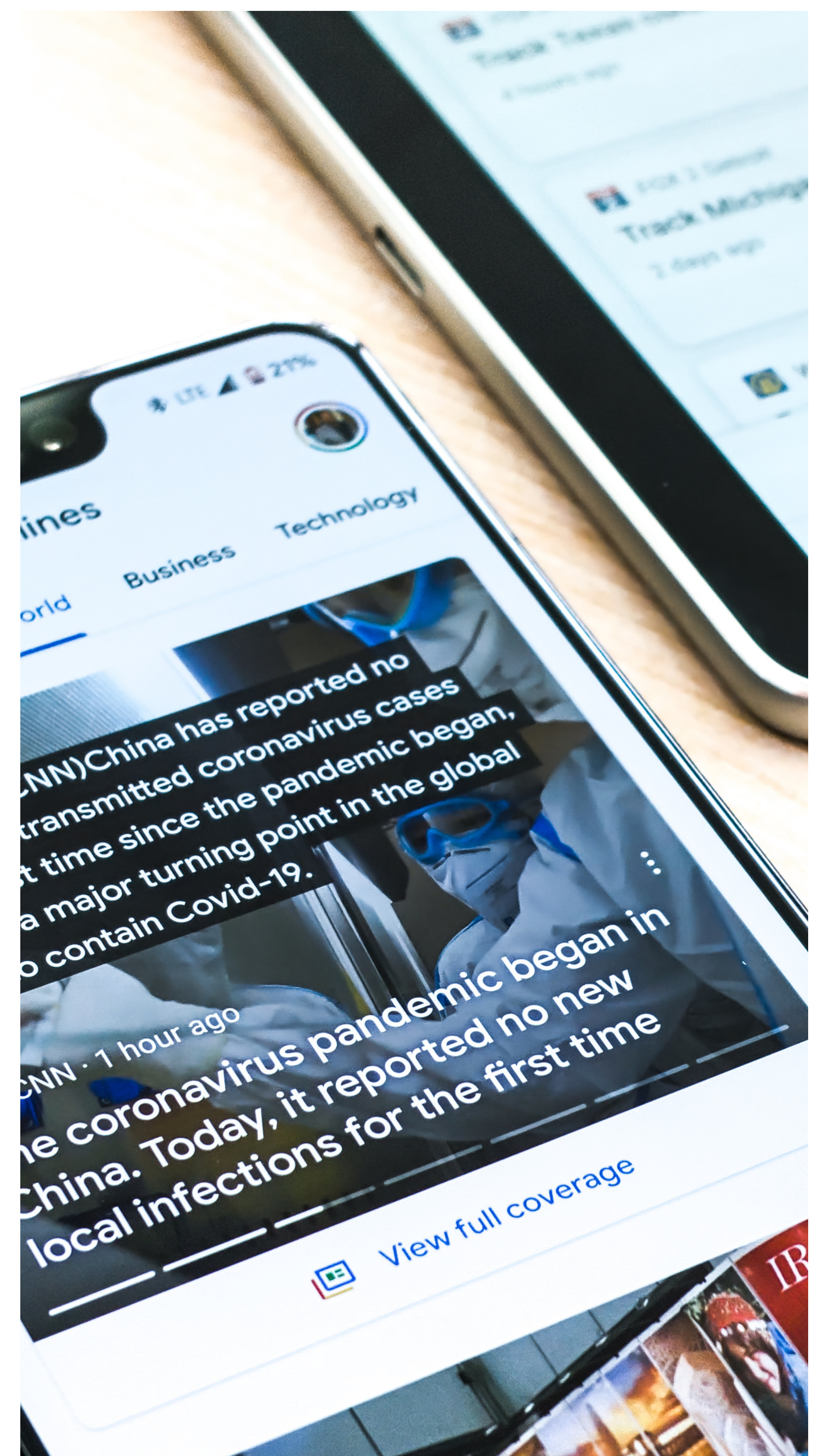
Online Health Communities

Online health communities (OHCs) are patient engagement platforms that provide peer support, moderated forums and resources for patients. These can be modelled as purpose based online websites or apps or even hosted on social media platforms like Facebook. These platforms provide flexibility and privacy for patients to stay anonymous as they explore support resources thereby reducing the stigma and barriers to access support, and learn from those who are in similar situations as themselves. Additionally, trained professionals who moderate these forums can also identify at-risk individuals and support in re-directing them to comprehensive health services.

Digital Wearable Devices and Sensors

Similar to Big data, wearable devices and sensors empower health care providers with an ability to gather and monitor real time objective data including activity, sleep, nutrition and health vitals like weight, blood pressure and oxygen levels to drive better health outcomes. Now sophisticated apps and devices like smartwatches can collect data accurately that can be used to interpret mood, anxiety and stress levels.
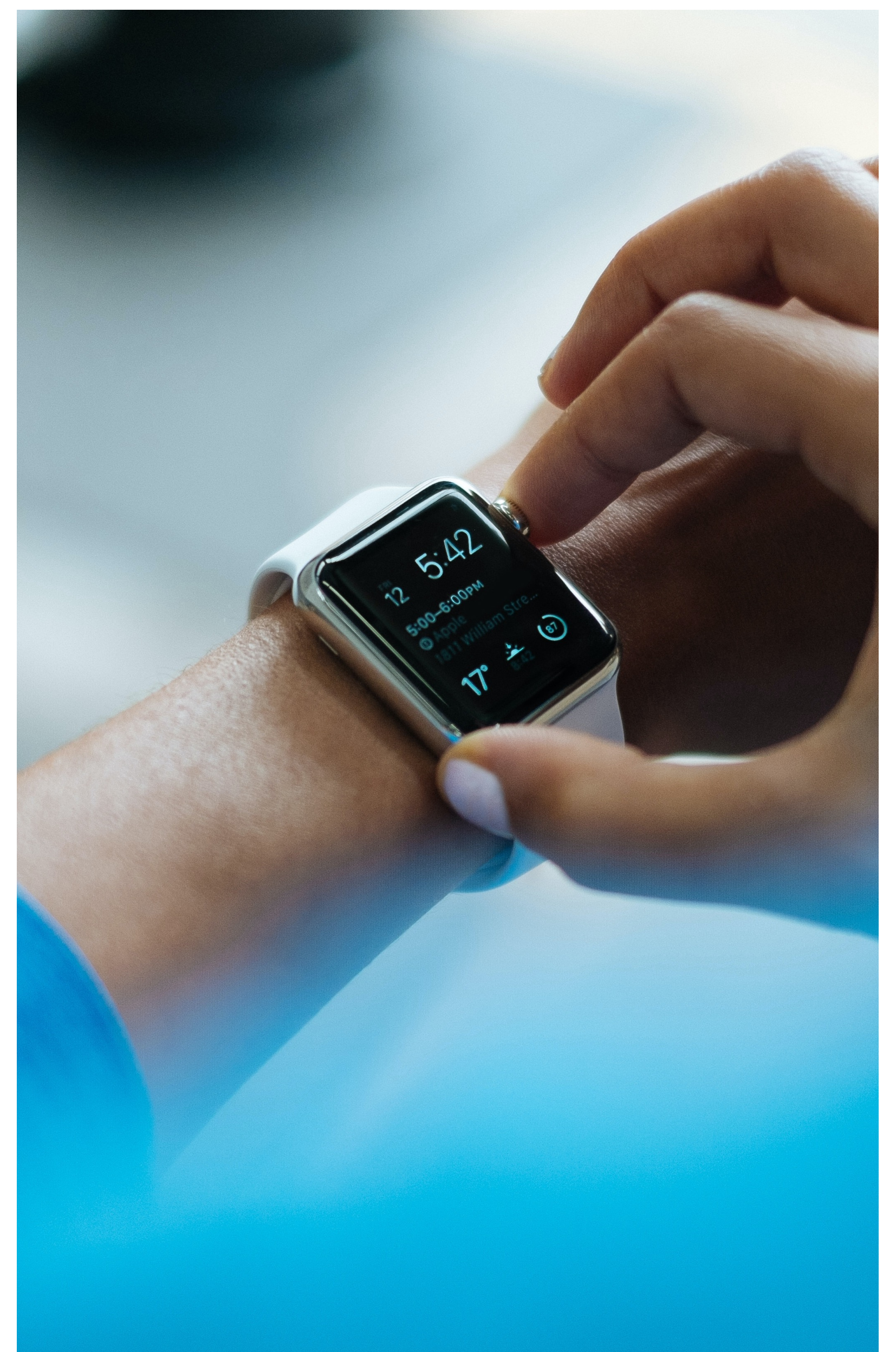
Big Data and Cloud

Application of big data in mental health refers to analysis of large volumes of patient health and behavioral information data to run predictive analysis. The resulting outcomes and insights can be used to build a better understanding of the associated problems, design individualized treatment options and identify at-risk population or patients with highest risks of suicide, self-harm and homicide. While these platforms have grown out of real time surveillance systems, these can be leveraged to run predictive analysis of mental health disorders using online data as well as passive monitoring of mobile data.

One very renowned app in this space harnesses the power of data from millions of text conversations to predict and prioritize texters with the highest risk of suicide.
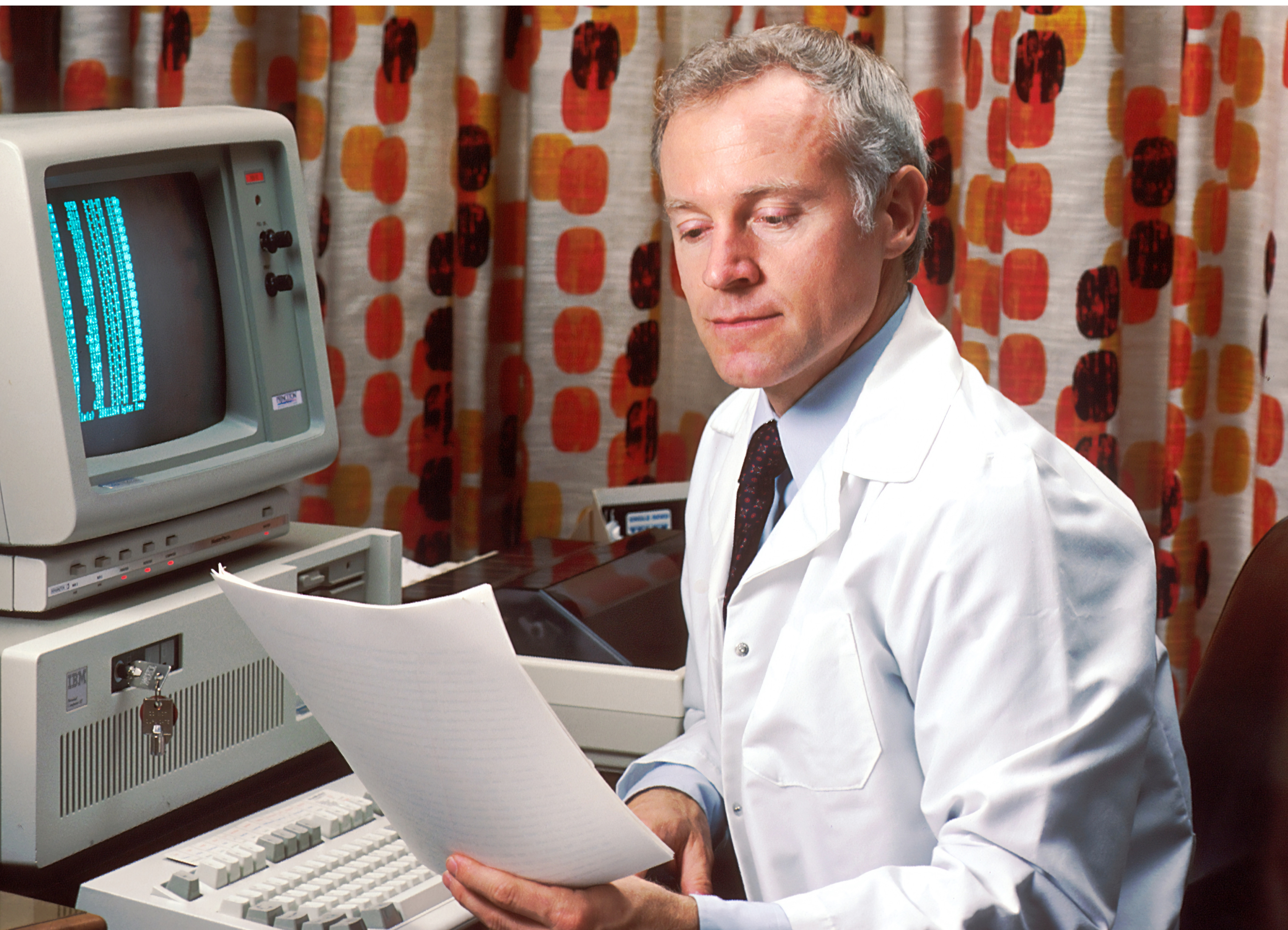
Partnering in innovation of mental health technologies

For over 2 decades, Mindfire Solutions has been the Software Technology Partner of choice for custom developing web and mobile solutions for many global clients. This includes 15+ years' of exclusive experience in HealthIT across a wide range of areas: EHR/EMR, mHealth, IoMT, Patient Portal, Interoperability, Billing etc.

Few of our notable experiences with direct relevance to the Mental Health technologies

Mental Health practice management systems:

We have led development and integration of a practice management tool into a mental health EMR system for one of our clients. The tool included billing, scheduling and various reporting capabilities that were tailor made to meet the specific requirements of mental health professionals.

Virtual care solutions:

We have developed and implemented a web based video conferencing widget as an extension to a health care application. This application allows the health care professionals to schedule and conduct a 2-way video and chat based telehealth appointments and give patients and providers the ability to download and store the recorded appointments and chat exchanges.

Online social communities:

We have demonstrated capabilities in building online social communities with common features offered by large social media websites like live broadcasting, video/text/audio live chat, blogs, groups and discussions. Mindfire delivered a full scale, extensible team setup for both client and server side application design and development with data portability.

Aside from a few capabilities shared, Mindfire continues to actively seek opportunities to build our technical capabilities as well as grow a contextual understanding of mental health ecosystems and its evolving needs, challenges and opportunities. We recognize the urgency and importance to develop evidence-based, patient-centered and secure health care services. An increased investment and collaboration in technology innovation is certainly a key to realizing the full potential of these digital solutions in transforming the levels of mental health care. We believe that this innovation will empower our health care communities to deliver highly personalized and effective mental health care and treatment.

About Mindfire Solutions:

Since its inception in 1999, Mindfire Solutions has successfully executed 1000+ projects for global clients across all major industries. Some of the prominent ones include Aviva, GE, SAP, DHL and Thomson Reuters. Simultaneously, the organization has forged partnerships with global technology players like Adobe, Apple, Microsoft etc.- thereby enabling it to continue to drive innovation and growth.

Reach us at:

📞 **US East Coast:** +1 248.686.1424
📞 **US West Coast:** +1 415.226.6334
✉ sales@mindfiresolutions.com