FROST & SULLIVAN

2024

ENABLING TECHNOLOGY LEADER

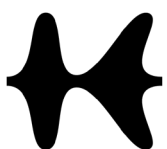*IN THE NORTH AMERICAN VOCAL BIOMARKER FOR MENTAL HEALTH INDUSTRY*

KINTSUGI

FROST & SULLIVAN

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BEST PRACTICES AWARD

Best Practices Criteria for World-Class Performance

Frost & Sullivan applies a rigorous analytical process to evaluate multiple nominees for each award category before determining the final award recipient. The process involves a detailed evaluation of best practices criteria across two dimensions for each nominated company. Kintsugi excels in many of the criteria in the vocal biomarker for mental health space.

AWARD CRITERIA

Technology Leverage	Customer Impact
Commitment to Innovation	Price/Performance Value
Commitment to Creativity	Customer Purchase Experience
Stage Gate Efficiency	Customer Ownership Experience
Commercialization Success	Customer Service Experience
Application Diversity	Brand Equity

Revolutionizing Mental Health: The Emerging Market of Vocal Biomarkers

The popularity of vocal biomarkers is increasing among mental healthcare providers and technology companies. Biomarkers leverage artificial intelligence (AI) and machine learning (ML) algorithms to provide insights into patients' mental health conditions through the analysis of specific speech patterns. The increasing demand for innovative and non-invasive monitoring solutions will also support growth in the market.

Unlike standard assessments, vocal biomarker technology can pick up subtle nuances in speech that often go unnoticed to develop comprehensive reports for doctors. It also acts as a monitoring device, to analyze patients' progress and deliver personalized treatments that adjust to each stage of their mental health journey. As a result, this technology has the potential to revolutionize mental health diagnosis and treatment. The collaboration between technology companies, healthcare providers, and life science research will enhance the accuracy of vocal biomarkers and their algorithms. This intersectional approach will expand the range of detectable health conditions and facilitate the widespread adoption of platforms and solutions destined to improve mental health worldwide.

However, despite these positive prospects, data privacy challenges restrain user adoption since many patients are unwilling to consent to the use of vocal biomarkers during sessions. This reluctance also delays the technology's integration into small devices like smartphones or smartwatches.

As the market evolves, the use of AI and ML algorithms will increase vocal biomarkers' operational efficiency, enhancing patient outcomes and the quality of mental health of millions of people worldwide.

Kintsugi: Strength in Repair

Founded in 2019 and headquartered in Berkeley, California, Kintsugi Health (Kintsugi) is revolutionizing the mental healthcare space by developing a voice biomarker software to measure, predict, and scale access to mental healthcare with more effective screening and triage. Named after the Japanese art of repairing fractures in ceramics with gold, Kintsugi embodies the philosophy of making what was once broken stronger and more beautiful.[1] With a team of over 50 employees dedicated to improving not only mental health but also access to non-invasive screening, Kintsugi is committed to strengthening mental wellness with the use of AI and ML algorithms.

With its expertise, the company developed Kintsugi Voice, which detects signs of depression and anxiety in patients under 30 seconds. This innovative approach sets them apart and modernizes the set of tools used by healthcare specialists, who usually rely on in-person questionnaires to assess mental health conditions with scores known as PHQ-9 and GAD-7.

Mental Health Innovation with Creative AI-Driven Vocal Biomarkers

Kintsugi's revolutionary vocal biomarker technology uses AI to analyze voice patterns and detect if patients need further screening for depression and anxiety. The company's application programming interface platform integrates seamlessly into existing clinical platforms and workflows, providing real-time

> *"Kintsugi leverages the world's largest annotated database for voice analysis to refine its algorithms and ensure high standards of accuracy and reliability."*
>
> *- Ana Dominguez*
> *Best Practices Analyst*

support for doctors and patients worldwide without the need for in-person assessments. Because the platform supports multiple use cases to help more people get the right care at the right time Kintsugi's technology is valuable both in consulting rooms and telehealth, flagging signs of mental distress in video and phone calls in under one minute. [2]

The technology employs a bot that joins patients on each virtual visit, collecting thousands of data points such as changes in voice pitch, pauses, and alterations in breathing in a short conversation. Kintsugi Voice works across hundreds of workflows, from retrospective analysis to live in-call scoring, enhancing the overall efficiency and effectiveness of the company's model. Kintsugi Voice showcases Kintsugi's innovative edge by allowing the healthcare sector to focus on timely and appropriate mental health screening in multiple situations.

The company's vocal biomarker tool functions in multiple languages, highlighting its universal applicability. This functionality promotes inclusivity alongside accessible healthcare globally. The technology also matches the accuracy of clinician-administered surveys like PHQ-9 and GAD-7 within 30 seconds.

Kintsugi took its technology to market quickly, experiencing a high success rate. In 2021, the company began a partnership with American software company Pegasystems, aiming to extend its platform to the top healthcare providers in the United States. Pega's healthcare suite allowed Kintsugi's technology to

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[1] https://www.kintsugihealth.com/about. Accessed July 2024
[2] https://www.kintsugihealth.com/solutions. Accessed July 2024

operate on millions of patient calls. Pega´s platform already accesses health and personal information that patients provide to healthcare providers, like social, demographic, or economic information, that also affects mental health. This aspect enhances Kintsugi Voice data analysis and overall accuracy.[3] Unlike competitors, Kintsugi is in the process of achieving Food and Drug Administration Denovo clearance to expand its commercialization in its biggest market, the United States.

In February 2024, Kintsugi announced a partnership with Wellin5, the premier provider of online counseling. Wellin5 counselors can use Kintsugi's platform to access real-time mental wellness scores and have AI conduct reports for them. This partnership introduces a new standard both in mental health care and Kintsugi's growth trajectory, expanding its technology to over 50,000 clients based in the US and Canada.[4]

> *"With Kintsugi's software integrated with the Pega platform, providers and payers will now be able to address mental health on every call on which Pega is used, potentially benefiting millions of Americans."*

> -Kelli Bravo. VP, Healthcare and Life Sciences Strategy Solutions at Pegasystems.[5]

Kintsugi plans to collaborate with large pharmaceutical companies and expand usage to other indications like respiratory and chronic obstructive pulmonary disease (COPD). For instance, Novartis is working on a partnership with Kintsugi for congestive heart failure and COPD support, since Kintsugi Voice excels at identifying the effects of medication on clinical trials and the overall mental health of chronic care patients. Other pharmaceutical companies show interest in the application of Kintsugi Voice to develop new drugs for narcolepsy and neurodegenerative disorders. Kintsugi is also expanding its technology to behavioral health and obesity, since its technology can help identify signs of depression and emotional eating, allowing patients to get the correct levels of obesity care, a game changer across medication programs and clinical trials.

In addition, the company is actively partnering with digital health companies. Unlike competing solutions, Kintsugi Voice is already integrated into some of the leading video telephoning and AI platforms, such as Zoom and Goggle Gemini. Eric Yuan, Zoom's chief executive officer, is one of Kintsugi's largest investors, allowing the company's technology to integrate into Zoom's telehealth capabilities to monitor patients. This integration allows Kintsugi to capture valuable, objective scoring related to a patient's change in mental health acuity, passively.[6]

Kintsugi leverages the world's largest annotated database for voice analysis to refine its algorithms and ensure accuracy and reliability. Its extensive data collection enables Kintsugi to continuously improve its technology, maintaining a competitive edge in the mental health market. Kintsugi delivers efficiency nearly twice as high as that of primary doctors who rely on PHQ-9 and GAD-7 questionaries.[7]

Kintsugi brings accessible and equitable mental health care to anyone, regardless of language, geographical, or economic barriers. The social responsibility behind Kintsugi Voice earned the company

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[3] https://www.kintsugihealth.com/blog/kintsugi-pega. Accessed July 2024
[4] https://www.kintsugihealth.com/press. Accessed July 2024
[5] https://www.kintsugihealth.com/. Accessed July 2024
[6] https://www.kintsugihealth.com/blog/leveraging-voice-biomarkers-for-real-world-solutions#:~:text=Kintsugi%20is%20natively%20integrated%20into,in%20mental%20health%20acuity%2C%20passively.
[7] https://www.kintsugihealth.com/research

great exposure and praise. For example, the World Bank reached out to Partner with Kintsugi on a multi-year program to facilitate screening through Kintsugi Voice and mental healthcare through call centers for refugees in different parts of the world.

Limitless Customer-centric Growth

With a 9.8 Net Promoter Score, Kintsugi's customer-centric approach positions the company as a leader in the precision healthcare market, allowing it to expand its technology to millions of users in the United States and Canada.

> *"Kintsugi puts forward the ability to identify and stratify individuals to find proper levels of acuity, provide longitudinal monitoring, and increase the ability to understand how patients are coping over time."*
>
> *- Supriya Lala Kundu*
> *Industry Analyst*

Kintsugi's customer service is notoriously quick and responds to customer inquiries in multiple languages. Regular touchpoints with clients ensure seamless integration of Kintsugi Voice both on existing and new workflows. Administrative configurations in Zoom calls allow clinicians to tailor each setting and solution to their workflow. Some examples of its different customer support options are its technical assessment service, where a team leader will get in touch with customers to better understand their workflow and provide recommendations for where integration will be most efficient, or its user training, where experts train customers to ensure successful adoption by clinician teams.

Alongside these options are the ongoing support provided by Kintsugi's customer service representatives and its implementation plan option which supports customers with any technical or workflow constraints.[8]

> *"Kintsugi's voice biomarker technology can help us make a quantum leap in the care of patients with mental health disorder by facilitating acquisition of unbiased data in both the inpatient and outpatient settings."*
>
> -   Steven Bibevski, Pediatric Cardiac Surgeon. Joe DiMaggio Children's Hospital.[9]

Kintsugi puts forward the ability to identify and stratify individuals to find proper levels of acuity, provide longitudinal monitoring, and increase the ability to understand how patients are coping over time. Kintsugi Connect, an extension of Kintsugi Voice, stratifies patients through their engagements with some of the largest enterprise health systems and payers in the world. The platform quantifies patients' mental health challenges and, with Kintsugi Connect, offers personalized care recommendations based on their insurance plan.

Today Kintsugi's platform is expanding across health system call centers. Each call center handles 25,000 calls per month with 25% depression prevalence in chronic condition cases and 30% undiagnosed. The company identifies around 2,000 eligible patients for treatment with its technology. At 20 call centers, Kintsugi is screening six million calls per year, targeting people who would otherwise go unnoticed by clinicians, making mental healthcare accessible to everyone. In a world where AI offers the opportunity

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[8] https://www.kintsugihealth.com/solutions/kintsugivoice
[9] https://www.kintsugihealth.com/

to replace in-person mental healthcare, Kintsugi chooses to use it responsibly, leading the market to unknown limits.

Conclusion

Kintsugi's innovative and equitable approach to mental health screening through Kintsugi Voice positions the company as a leader in the market. Its artificial intelligence (AI) solution and cutting-edge technology capture nuances in speech and provide a non-invasive mental health assessment that surpasses traditional methods. This AI approach revolutionizes mental health diagnosis since it can be applied worldwide, enabling personalized and timely clinician interventions.

Kintsugi's platform easily integrates seamlessly into leading pharma companies and telehealth services, providing several customer service options to facilitate the integration of Kintsugi Voice into any healthcare workflow. With an impressive Net Promoter Score of 9.8, the company continues to refine its algorithms, ensuring the highest standards of accuracy and reliability for both patients and customers.

With its strong overall performance, Kintsugi earns Frost & Sullivan's 2024 North America Enabling Technology Leadership Award in the vocal biomarker for mental health industry.

What You Need to Know about the Enabling Technology Leadership Recognition

Frost & Sullivan's Enabling Technology Leadership Award recognizes the company that applies its technology in new ways to improve existing products and services and elevate the customer experience.

Best Practices Award Analysis

For the Enabling Technology Leadership Award, Frost & Sullivan analysts independently evaluated the criteria listed below.

Technology Leverage

Commitment to Innovation: Continuous emerging technology adoption and creation enables new product development and enhances product performance

Commitment to Creativity: Company leverages technology advancements to push the limits of form and function in the pursuit of white space innovation

Stage Gate Efficiency: Technology adoption enhances the stage gate process for launching new products and solutions

Commercialization Success: Company displays a proven track record of taking new technologies to market with a high success rate

Application Diversity: Company develops and/or integrates technology that serves multiple applications and multiple environments

Customer Impact

Price/Performance Value: Products or services provide the best value for the price compared to similar market offerings

Customer Purchase Experience: Quality of the purchase experience assures customers that they are buying the optimal solution for addressing their unique needs and constraints

Customer Ownership Experience: Customers proudly own the company's product or service and have a positive experience throughout the life of the product or service

Customer Service Experience: Customer service is accessible, fast, stress-free, and high quality

Brand Equity: Customers perceive the brand positively and exhibit high brand loyalty

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Frost & Sullivan's proprietary model to systematically create ongoing growth opportunities and strategies for our clients is fuelled by the Innovation Generator™.
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Key Impacts:

- **Growth Pipeline:** *Continuous Flow of Growth Opportunities*
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- **Innovation Culture:** *Optimized Customer Experience*
- **ROI & Margin:** *Implementation Excellence*
- **Transformational Growth:** *Industry Leadership*

The Innovation Generator™

Our 6 analytical perspectives are crucial in capturing the broadest range of innovative growth opportunities, most of which occur at the points of these perspectives.

Analytical Perspectives:

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- Business Model (BM)
- Technology (TE)
- Industries (IN)
- Customer (CU)
- Geographies (GE)