



cogitativo

Advancing Military and Veteran Suicide Prevention:

Making a difference in the lives of American heroes using the power of Artificial Intelligence

Introduction

Suicide is a national public health issue that disproportionately affects our Veteran and active-duty military members. The Centers for Disease Control and Prevention (CDC) indicates that suicide is the 12th leading cause of death in the US, claiming the lives of nearly 46,000 people. According to reports, the death by suicide rate for Veterans and young service members is nearly double the rate for civilians the same age. Furthermore, fewer than 7 out of 17 Veteran suicides were carried out by individuals who sought care within the Veterans Affairs (VA) health system in the prior two years.

NEED

New methods for capturing relevant data and assessing suicide risk among service members and Veterans is an urgent but challenging task. Despite the benefits of seeking help, less than 40% of military personnel who experience mental health problems receive clinical support. This underutilization highlights the limitation of using suicide assessments to prevent suicide among active and former military members as they rely heavily on capturing self-reported and/or behavioral data obtained during in-person clinical encounters.

In addition to the challenges associated with assessing the military community at large, today's assessments lack the continuous learning capability needed to deliver interventions that meet the individual patient's needs. New findings

on the impact of military related determinants of health (i.e. chemical exposure, injury, deployments) are rapidly emerging and must be accounted for in order to produce personalized and reliable risk scores. Furthermore, today's artificial intelligence technologies need to be leveraged to take non-verbal cues into consideration—helping to overcome the stigma attached to self-reporting mental health symptoms and conditions.

Lastly, effective suicide prevention strategies need to be designed with the coordinator and healthcare provider in mind. Predictive tools for early identification and response to suicidal risk must integrate into existing systems, ensuring little disruption to current workflows.



Today's assessments lack the continuous, dynamic learning capability needed to deliver interventions that meet the individual patient's needs.

¹ [Young troops are taking their own lives at double the rate of their civilian peers. Why?](#)

² [Veteran Suicide Drops to Lowest Level in Over a Decade, But Still Twice the Civilian Rate](#)

³ [Barriers to Care](#)

Solution

Our AI enabled platform, called *Visión*, is the first to successfully shape visual, audio, determinants of health, medical, and genomic data into individual digital biomarkers for suicide risk assessment.

This precision health technology leverages the latest in natural language processing and deep learning to capture and harmonize the most comprehensive datasets required for accurately predicting risk amongst the VA and DoD's beneficiary population.

The most unique feature of *Visión* is its unmatched ability to remotely capture and analyze audio and video data to determine changes in emotional expressivity, physical movement, and speech patterns that are indicative of increased risk. This feature enhances access and helps capture important data relevant to measuring suicide risk.

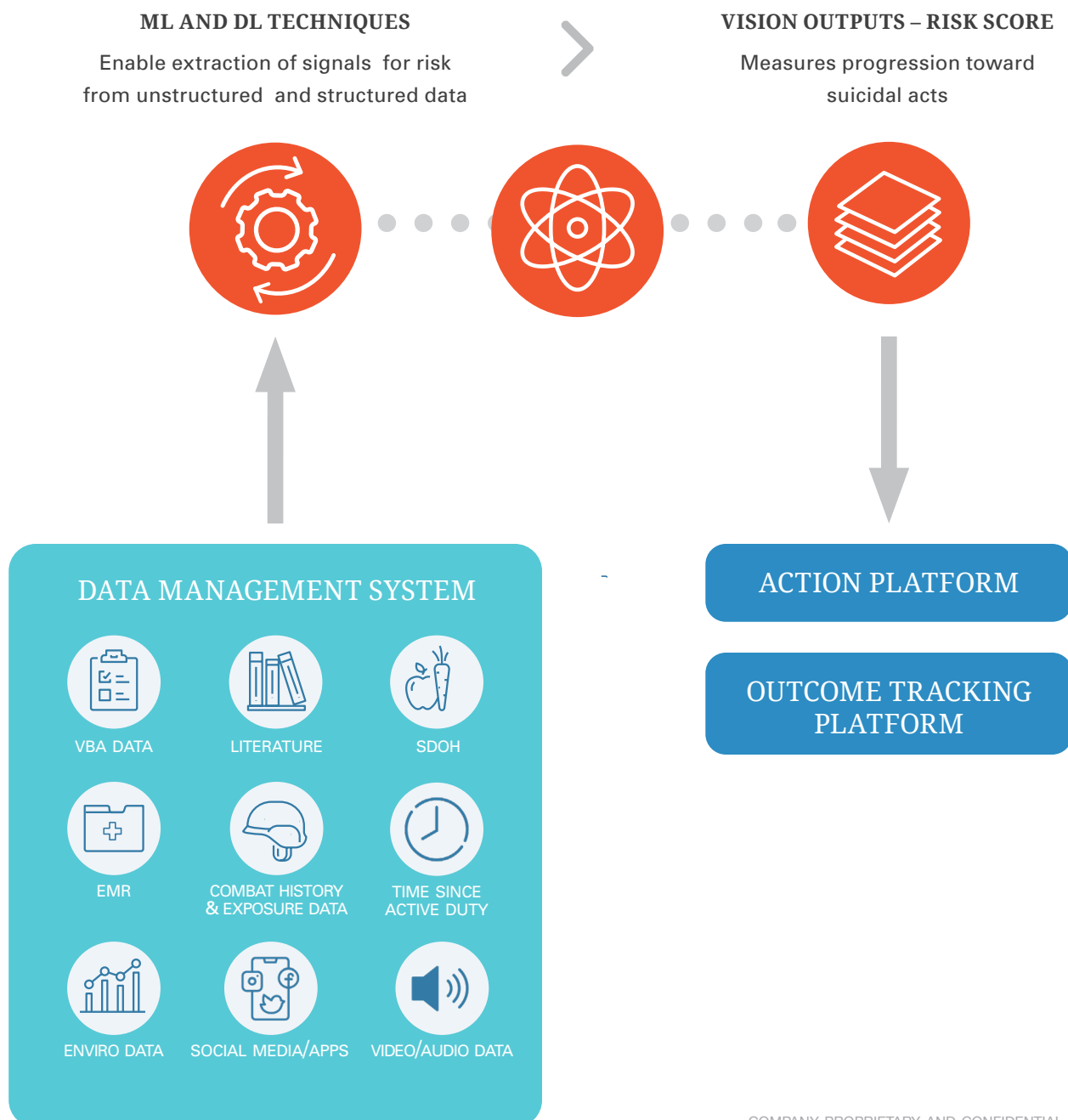
In addition to enhancing access, the *Visión* platform uses a proprietary suicidal risk progression index (SRPI) to allow clinical teams to focus on individuals with the highest probability of suicide. As research adds to the body of knowledge for suicide prevention, *Visión's* knowledge management system incorporates the latest findings into the SRPI. The knowledge management system also applies patient demographic, VBA information, clinical, and combat data changes as it becomes available—ensuring that our heroes receive the most relevant and effective care.





How Vision Works

KEY COMPONENTS OF THE VISION PLATFORM



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Visión consists of the following key components

- 1) A library of machine learning (ML) and deep learning (DL) techniques that enable the extraction of signals for prevention from structured data and unstructured data
- 2) A risk index that classifies risk by severity (low, intermediate, high) and temporal pattern (acute vs. chronic) to target appropriate therapies and reserve high resource interventions for those needing them the most
- 3) Valid measurement and comparison of providers based on the cost of care
- 4) Provides recommended next best steps that identify the optimal interventions and delivery pathways for specific individuals.
- 5) A knowledge management and representation system that encompasses the latest up-to-date clinical insights
- 6) A data management system that brings together and harmonizes the most comprehensive and diverse datasets, ranging from structured data (i.e., service records, EMR, claims, lab measurements, pharmacy, SDOH, environmental, VBA data, and behavioral features) to unstructured data (i.e., doctor notes, video calls, sound recordings)
- 7) A robust library of network analyses and insights centered around building, managing, and optimizing the network
- 8) An outcome tracking platform that measures the impacts of various interventions around specific diseases and episodes



IMPACT

Expanding access to and improving the accuracy of existing suicide risk assessments using the *Visión* platform will provide a significant reduction of suicides. *Visión*'s ability to identify early signs of suicidal risks allow for early-stage interventions. It can also be a tool to unobtrusively capture the subtleties of a patient's response to treatment and guide a provider to make the most effective therapy recommendations based on a patient's unique biological and clinical characteristics.



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