JOIN THE NEXT
GENERATION
OF HEROES
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#Crusades22

UNITY. HONOR. SERVICE.

An innovative, forward thinking vision of wellness and integrative care;
cultivating a brighter, more resilient future for our veterans
and first responders.

We are Reframing the Treatment of PTSI (Post-Traumatic Stress Injury). The Future for VRET (Virtual Reality Immersion Therapy) IS...

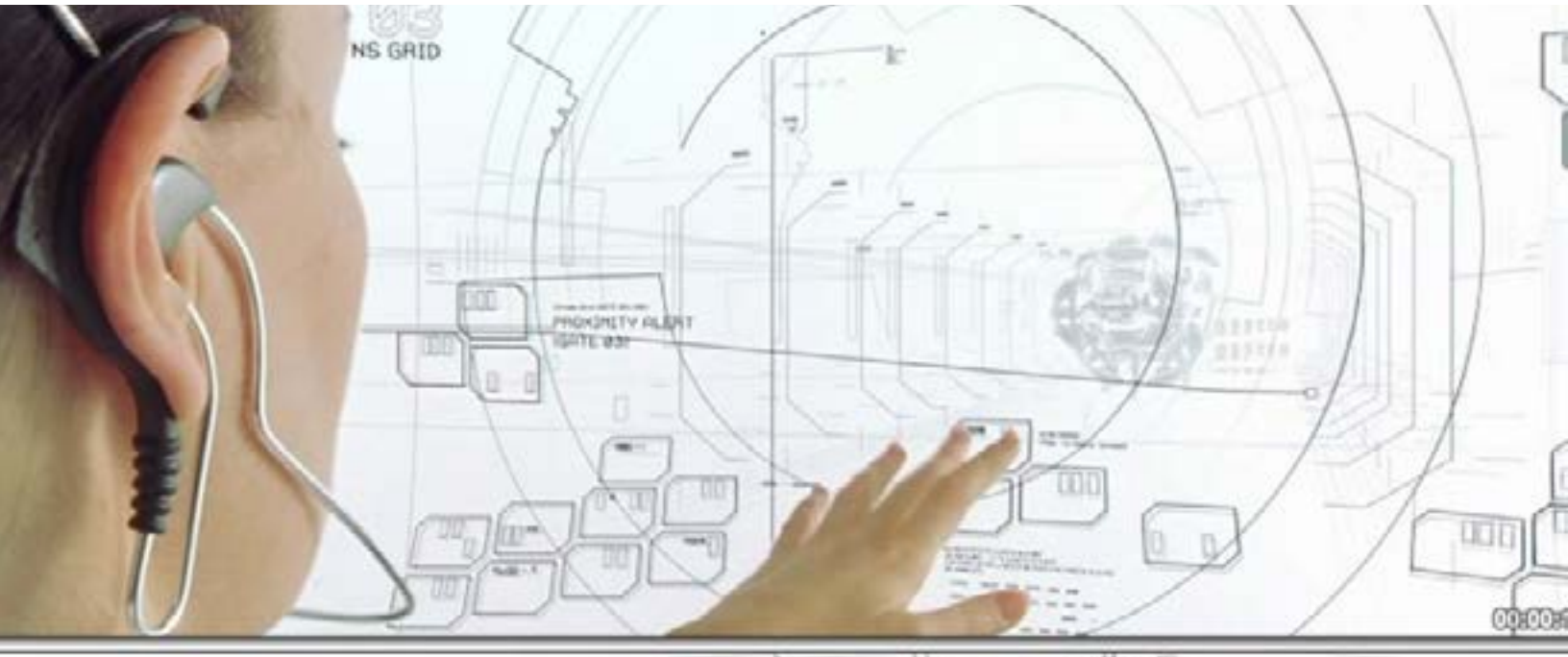
We are seeking funding for The FORGING: A Virtual Reality Veteran and First Responder Treatment/Care Management Protocol. (And an eventual civilian, gaming-community Entertainment version of The FORGING). The funding will include; initial seed/start-up funds to be utilized for the creation of The FORGING proof of concept/prototype, mid-range and long-term funding solutions for the research and development, writing, creation of a prototype/proof of concept, beta-test, and completed full test group version of this cutting-edge care management tool.

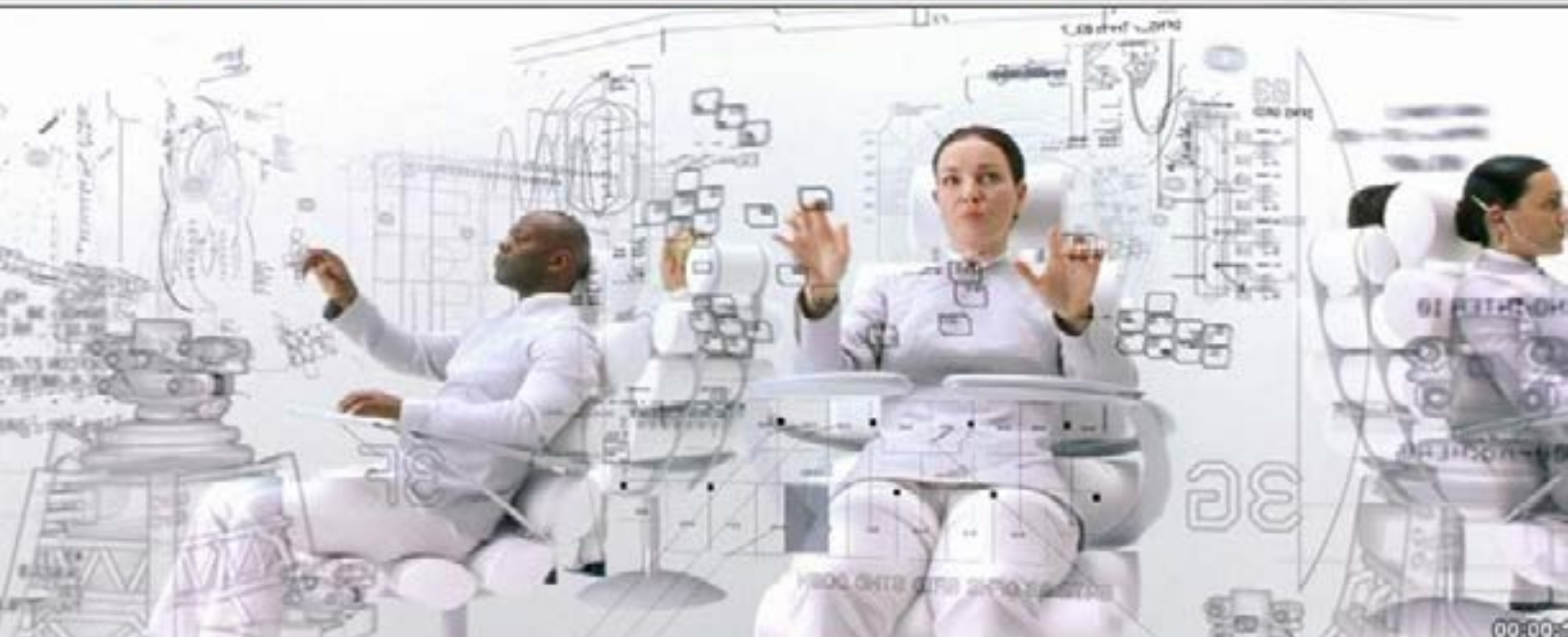
WHAT IS THE FORGING?

The FORGING is THE cutting-edge future of PTSI (Post-Traumatic Stress Injury) Treatment, Evidence-Based, Sensor-Driven, Immersive Exposure Therapy.

We are building THE FUTURE, NOW.

The FORGING will serve as a cost-effective, fully engaging and therapeutic tool for rehabilitation.





Who is METASphere Industries and what is our unique approach?

METASphere was born out of our not-for-profit sister organization CRUSADES 22. CRUSADES 22 is a highly innovative, mission-driven, integrative and complementary health and wellness program that augments the treatment of veterans and first responders. METASphere was formed by a group of dedicated professionals from varied areas of expertise; these individuals having been brought together by the executive leadership of CRUSADES 22 to move steadily forward in our mission to bring a cessation to PTSI (Post Traumatic Stress Injury) and help to develop and create early detection systems for TBI (Traumatic Brain Injury); helping to innovate initiatives that focus on total brain health and rehabilitation in our active duty service men and women, veterans and first responders. We have a unique approach in that we are utilizing the technology of MR or "merged-reality" a blanket cover term for AR, and VR and the like technology. We are intersecting this evidence-based technology with the neuropsychology behind things like immersion therapy and narrative therapy, synaptic reframing, providing an exponentially powerful approach in treating the inner wounds that contribute to mental health community issues such as PTSI and TBI.

What sets us apart, lighting the fires of our unique approach as a team, is our deeply-rooted passion and dedication behind our mission. With our extensive connectivity to our veteran and active-duty military communities, as well as our deep connection that we share with our first responders; CRUSADES 22 has unique experience in influencing the lives of real HEROES! Our connectivity to our mission resonates deeply with those who we serve, as well as resonating deeply within each-and-every one of us.

What is the long-term 5–10-year vision for METASphere Industries? What new treatment techniques and technologies will exist because of METASphere and The FORGING?

Through passionate and outcome-driven collaborations with our vital strategic alliances, with whom we share this powerful future-vision, within 10-years METASphere will have helped pioneer initiatives and protocols, helping to bring about the answers to questions that we, as curious and driven humans have asked for many, many years about the vast potential of our human neuroscience. What is our true neuropsychology and how may we map the human synaptome so that we innovate and put into practice redefining diagnostic and treatment criteria for many types of human illness (be those physiological, psychological, or having to do with direct injury to the human brain)? How do we decrease and eventually bring a cessation to any number of human-heath issues currently seen in our active duty military personnel, veteran, and first responder communities; and how do we decrease significantly the suicide rate in these populations - again, bringing an eventual cessation to this current epidemic? All of these mission directives focused on our military personnel, veterans

We will have contributed to a completely new system of health care, and not only in the defense sector, giving our warrior community a new and powerful flourishing of morale and exponential growth, but also in the civilian sector as we provide better tools for healthcare systems globally. Through our research and development in biotech media and MR and it's health applications, we will have catalyzed the growth and development of many currently developing sectors of technology, such as A.I. and machine-learning, brain-machine-interfacing, telehealth, medicine and nanotechnologies.

Why is METASphere Industries, CRUSADES 22 and The FORGING uniquely qualified to be the tip of this spear?

Since its inception back in 2013, CRUSADES 22 has been working directly with active-duty military, veteran and first responder communities as a complementary, integrative and holistic care and support provider. Being seeded and cultivated by the leadership of CRUSADES 22, METASphere Industries has been working together as a team for over a year, and in that year we have made huge strides in the conceptualization and development of The FORGING. Through our time working directly with veterans and first responders, we have gained valuable insight into the problem we aim to solve.

What gives us a unique qualification? Our experience working in the community we look to innovate within, we have a few years under our belts working directly with veterans who are going through the existing CRUSADES 22 care model. Having had the opportunity to work with our veterans and first responders they have been able to provide us with invaluable feedback and insight into the cogwheels of the existing care model, which we have collectively viewed through our scientific and "hacker-mindset" looking to find inconsistencies in the program where our program could significantly improve things.

Another unique aspect of our team and solution approach is the diverse and dynamic team setup we have. Ranging from x-military operations specialists, to clinical and research psychologists and psychiatrists, to data scientists, statisticians, developers, gamification designers, and veterans themselves contributing to the development of one of the most ground breaking, innovative approaches to therapy ever created; our team is comprised of many people in different fields, but we all collectively have an "engineers approach".

METASphere is well established and strongly-rooted in various philosophies and ways of approaching issues from a problem solver point of view. Our ethos is fully steeped in business growth and leadership, operations, psychology, neuroscience, artificial intelligence, machine learning, psychiatry, virtual reality, education and research methodology.

POST-TRAUMATIC STRESS INJURY, NOT DISORDER:

CRUSADES 22 and our affiliated organizations and care givers no longer utilize the label P.T.S.D. - Post Traumatic Stress Disorder. The word Disorder, in and of itself conjures the feeling that someone is broken and that their rehabilitation would be quite difficult. The word 'Disorder' gives the feeling that someone cannot overcome the effects of a traumatic, or culmination of multiple traumatic experiences. We prefer to call this experience an Injury; something that CAN be rehabilitated; a Growth Opportunity.

This small tweak to the label establishes the fact that we are more able to heal from an Injury rather than suffer through a Disorder. Injury is fixable and warriors can come back from such things; a Disorder suggests that someone is 'broken' - Warriors do not want to be considered 'broken' or have the feeling or thought process that they cannot rehabilitate or heal an injury. They want to be educated on and engage in ways to "get back into the fight", wherever that phase of the fight may be. This was affirmed overwhelmingly by the Navy Seal Foundation Whole Warrior Health Impact Forum held in San Diego, October 2016.

The following excerpt from PTSInjury website summarizes the logic, and love, that is the foundation for changing the naming convention, in order to change the public's perception, for same:

In a letter to the President of the American Psychiatric Association, Frank Ochberg and Jonathan Shay endorsed General (ret) Chiarelli's position, adding their own reasoning for a new name: Post Traumatic Stress Injury. Ochberg and Shay believe that the "injury model" and the injury name is correct from a medical and a public perception point of view. With the injury model being seen just as honorable as any physical injury. Click to read the Ochberg,Shay letter:
http://www.posttraumaticstressinjury.org/letters-endorsing-the-change-from-ptsd-to-ptsi

VIRTUAL REALITY EXPOSURE THERAPY

The FORGING is a Virtual Reality exposure therapy, immersive treatment method in which veterans are introduced to, then slowly exposed to a traumatic stimuli within a virtual environment where they can safely interact with a representation of a Post-Traumatic Stress event, or events; not having to face the "real" version of the trauma or the environment where and when it was created.

By providing incremental exposure to the traumatic environments, active duty military personnel, veterans, and first responders will be given the tool-kit to reduce their anxiety and distress levels, increasing their resilience and eustress levels by utilizing this.

The blending of Merged Reality and Exposure Therapy is a relatively new concept, with promising data to suggest significant results over exposure therapy alone through the addition of immersive multimedia.

Virtual and Augmented Reality is also currently being utilized as supporting treatment for those with autism, burn victims and amputees, and those who have experienced stroke.

The FORGING: EXECUTIVE SUMMARY

A staggering 70% of the adults in U.S. have experienced some type of post-traumatic stress event, an estimated 24.4 million people in U.S have PTSI and 1/9 women develops PTSI at some point in their life.

This is a psychological and neurological injury that is associated with increase of suicidal rates, aggression, violence, and severe decrease in productivity. The national institute of Mental Health concluded in a recent research that people suffering from PTSI have a reduced posterior hippocampus, which is associated with storage, processing and retrieval of memories. This affects their mental health and overall functioning in society. PTSI also affects levels of cortisol in the body that creates a state of survival and drains vital energies from the body leading to a compromised immune system and an increase in susceptibility to illness.

Naval Center Combat and Operational Stress Control (COSC) – The Relationship between Traumatic Stress, PTSD, and Cortisol. Author: Eileen Delaney, PhD.:
http://pdfs.semanticscholar.org/0dd2/b268811ce0e3312390467ca73e65be6af1c9.pdf

Central to the revolutionary nature of the FORGING's core treatment protocol is a set of integrated hardware and software components enhanced with physical and virtual dashboard interfaces - all driven by an API (Application Programing Interface) cloud platform ecosystem that is connected to an Artificial Intelligence and Predictive Analytics back-end.

This Whitepaper describes an entertainment-distraction approach to MRET (Merged Reality Exposure Therapy) that features an Adventure-based Gamification of the spirit and concepts of Joseph Campbell's The Hero's Journey and The Hero of 1,000 Faces.

Dr. John Davis writes:

"When we look back in time, we find writings back into the Middle Ages where Priests and Elder Warriors have instructed knights on to the proper behavior in battle, so as to minimize the demons that would haunt their dreams. In more recent times, whether we call it battle fatigue, shellshock, post-traumatic stress, post-traumatic stress disorder, or post-traumatic stress injury, we continue to struggle with the same basic concepts that were written of in the Middle Ages.

The FORGING reaches into the common struggle that has been told for thousands of years. Drawing from the concepts laid down by Joseph Campbell and the commonalities of myths, The FORGING provides the opportunity for the warrior to tell the story that binds them. The fundamentals of this approach, laid down in the work of Bissell van der Kolk, and is supported through the work of thousands of VA, private practice, and self-led groups over the past decades of treating post-traumatic stress.

Narrative therapy, varied psychodynamic mindfulness, and cognitive approaches have all shared the fundamental telling of the story as the basis of their work. The FORGING incorporates the work of Dr. Skip Rizzo at UCLA and his work with merged reality as setting the standard for experiential healing.

The FORGING will combine the benefits of merged reality with the process of the telling of the Warrior's Tale. The FORGING will provide the opportunity for the individual to begin to tell their own tales of adventure, stories that are steeped in and molded to the unique characteristics of their own life's experiences.

The FORGING will allow the individual, in cooperation with their treating provider, to create a virtual reality therapeutic game that will allow them to begin to heal the inner wounds and cultivate healing and energetic shifts at the origins of their wounds. The process of tracking biometric markers will provide real-time feedback to the treating clinicians that will allow them to both monitor the individuals progress through The FORGING world, as well as track the sustained benefit to the individual between sessions."

These lessons and adventures are taught, via The FORGING's highly immersive Merged Reality experience, by characters in situations based on Joseph Campbell's The Hero's Journey, and The Hero with 1,000 Faces.

The FORGING is expressly created with appeal for the targeted participant population, namely, Military Veterans and First Responders (i.e. someone designated or trained to respond to an emergency). Additionally, there is a myriad of benefits for the families of these participants as well.

Dr. Skip Rizzo and UCS's Institute for Creative Technology

…is currently providing virtual reality exposure therapy that is aimed at providing relief for the veteran community from post-traumatic stress.

Currently found at over 70 sites, including VA hospitals, military bases and university centers, ICT's Virtual Iraq/Afghanistan exposure therapy approach has been shown to produce a meaningful reduction in PTS symptoms. Additional randomized controlled studies are ongoing.

The power of this entertainment-based approach is realized by recent advances in the science of Artificial Intelligence, namely: Machine Learning, Predictive Analytics, and Data Science. The exposure of this data, in summary / console fashion, using Augmented Reality interlacing, is the reason why our solution is termed Merged Reality (i.e. a combination of Immersive, CGI-based Virtual Reality, with consoles / team data interlaced using Augmented Reality.

‘Bravemind’: The launchpad of The FORGING

Exposure therapy, in which a patient – guided by a trained therapist – confronts their trauma memories through a retelling of the experience, is now endorsed as an “evidence-based” treatment for PTS.

More on Dr. Skip Rizzo and his work at USC’s ICT:
http://ict.usc.edu/prototypes/pts/

Exposure/Immersive protocols are hard solutions for hard problems.

The FORGING is a Virtual Reality Care Experience for the Care Management Community, the Mission of The FORGING is to help those who experience this virtual quest to find within themselves, and summon, the courage to exact positive changes in their lives. Non-invasive, Mindful / Experiential Treatments are applied, measured, and evaluated for efficacy and modification.

A phased approach of Clinical Alpha, Beta, and Production Trials are proposed, along with parallel tracks of hardware, software and data science research.

Through the development of highly collaborative, mission-driven strategic alliances with individuals and companies who are at the top of their chosen fields of expertise, together we will "FORGE" solution protocols that are hyper-immersive, extremely entertaining, relatively low in cost, and widely accessible to an ever increasing population of those who are suffering from symptoms associated with PTSI & TBI and in need of help.

CRUSADES 22, a not-for- profit, tax exempt, 501(c)(3) charitable organization (see link to website below), in direct partnership with MetaSphere Industries, a for-profit Biotech Mulit-Media corporation, is pioneering this evolutionary PTSI and Complementary Care treatment protocol for Military Veterans, the First Responder Community, and their respective families.

The FORGING initiative will also extend to the civilian, gaming community as an entertainment version that can be marketed and licensed to various gaming and tech companies.

The FORGING is a Virtual Reality Care Experience for the Care Management Community, the Mission of The FORGING is to help those who experience this virtual quest to find within themselves, and summon, the courage to exact positive changes in their lives. From the Virtual Reality Medical Center: http://www.vrphobia.com/index.htm

Advantages of Virtual-Reality Exposure Therapy:

- Costs considerably less than in vivo exposure (the use of real life situations for exposure therapy).
- Total control of the "phobic" experience, without leaving the therapist's office.
- Segments of any phobia can be repeated, allowing the client to gradually reduce fear and anxiety.
- Eliminates risks of potential physical harm.
- Therapy is conducted in the therapist's office, allowing for complete patient confidentiality and eliminating public embarrassment concerns.
- People once resistant to traditional treatment may consider Virtual Reality Exposure Therapy.

The Entire Process:

- Lasts 8-12 sessions on average.
- Takes you through a graded set of phobic stimuli.
- Uses a head-mounted virtual reality display and real-time physiological monitoring.
- In future generations, The FORGING will be customized for every client.
- Is faster than traditional exposure therapy and desensitization.

METHODS

The FORGING combines an immersive, interactive experience with mindfulness and evidence-based complementary experiential methods.

Implemented by the CRUSADES 22 care team, each participant will be taught techniques and lessons that may include but not be limited to:

- Heart-Focused Breathing to build coherence, reduce cortisol and balance DHEA for improved Health.
- Emotional Freedom Technique (EFT) – to disassociate memory from emotion.
- Mindful and Heart-Based Meditation for releasing stress and emotion connected to a certain traumatic event.
- Visualization of positive and fulfilling life experiences and how to attain then on a consistent basis; reprogramming old belief patterns and generating positive emotionality around certain life events.
- Breathing Techniques to build relaxation.
- Yoga to connect Heart, Body; Spirit and Mind
- Physical Wellness strategies and techniques: physical training, and nutrition.

The FORGING helps promote resilience, coherence, and empowerment; each experience/episode of the journey helping to facilitate the best possible outcome for our Active-Duty Military Personnel, Veterans, First Responders. The FORGING will prove that our treatment initiative will provide practical solutions to help reduce stress and restore mental, emotional and physical balance.

Virtual-Reality Exposure Therapy as a Complementary Care Tool

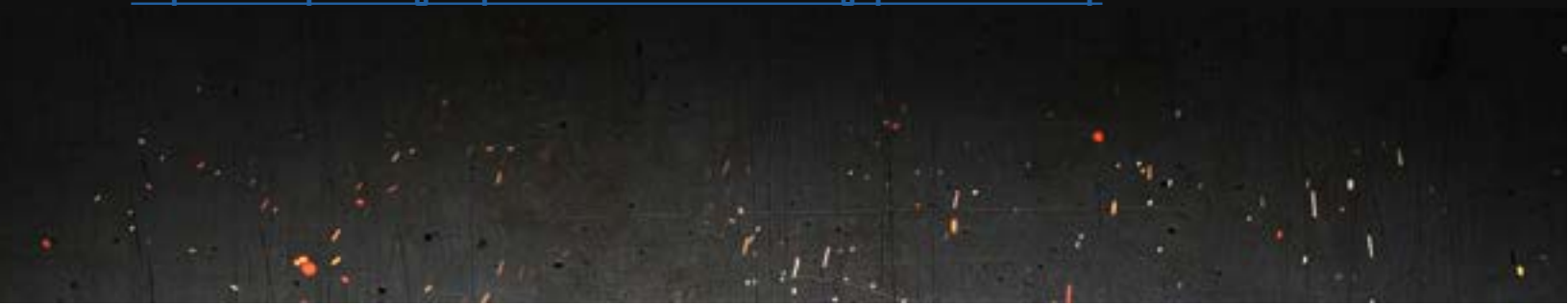
- The FORGING experience is a complementary care tool that is designed to be utilized in conjunction with more clinical, evidence-based treatment protocols such as:
- Cognitive Behavioral Treatment (CBT)
- Dialectal Talk Therapy (DBT)
- Eye movement Desensitization and Reprocessing (EMDR)
- Prolonged Exposure Therapy (PET)
- Cognitive Processing Therapy (CPT)
- Other Evidence-Based Immersion Therapies

The FORGING is presented to therapeutic practitioners and primary care physicians who require tools and services to help digitize and integrate the therapeutic interfaces that deliver more real-time, connected, and optimized outcomes centered on self-empowering mindfulness, compassion, and forgiveness to overcome the fear, guilt, shame, and self-destructive behaviors that are so prevalent in our Veteran and First Responder populations.

The initial focus is for Combat Veterans and First Responders who have been injured in action, this injury being psychological and /or physical.

Given the link between PTSI and suicidal thoughts/behaviors (suicidal ideation), and given the documented data that indicates a suicide rate of 20 or more United States military veterans, daily, our mission is to alleviate the manifestation of PTSI episodes and suicide risk so that they can be better managed safely, across a partnered continuum of clinical and outpatient treatments.

The Relationship Between PTSD and Suicide
http://www.ptsd.va.gov/professional/co-occurring/ptsd-suicide.asp



DATA CAPTURE and METASphere Industries' proprietary, mindfully-designed and Supervised Artificial Intelligence

Data captured during The FORGING experience will dictate the next best steps for each participant's care. The biomarkers of each individual will be measured by devices worn on the body (wearables). These biomarkers, captured by these wearable sensors, span a range of data points including, however not limited to:

- Heart Rate Interval
- Respiration
- Skin Conductance
- Sleep / Wake Patterns
- Neural Responses / Brainwaves and Facial Recognition

CRUSADES 22 and METASphere are strategically alliance with Tan Le and Olivier Oulltier of Emotiv - www.emotiv.com

The FORGING's utilization of Supervised A.I. (Artificial Intelligence) and the exponential growth potentials of machine learning, set this Virtual Reality Treatment Initiative apart from ALL others and gives the user the opportunity to work within their own space and time to generate improved outcomes for well-being.

Participants of The FORGING will have their experiences monitored via a comprehensive array of state-of-the-art sensors, fused by a marriage of traditional digital signal processing and a dynamic calculus of multivariate algorithms that feed bidirectional streams of aggregated data into a differential engine (i.e. from baseline to experiential sensor data / feedback loops), that are stored, enhanced, retrieved, processed, and analyzed using cutting edge machine learning and predictive analytics, to create transformational data (i.e. data structures that evolve from Factual, to Descriptive, to Diagnostic, to Prescriptive, to Predictive, to Transformational).

This data is assessed by the CRUSADES 22 Care Team and the Primary Care Therapist and/or Physician and discussed in detail with the participant, in order to gauge progress and determine if it is appropriate to move on to the next chapter / prescriptive treatment protocol based on mindful self-empowerment.
Next best steps are thoroughly discussed and debriefed and taken into mindful account before having a participant move on to the next phase of their journey in The FORGING.

Using virtual reality exposure therapy (VRET) for treating anxiety injuries and phobias is becoming increasingly less costly and more available for consumption.
Therefore, current testing of VRET's for clinical trials allows enhancing the psychological treatments and their accessibility in the near future.

WHY IS THE FORGING SO TIMELY?

By working alongside traditional clinical and medical protocols and strategies, the VA, and other veteran affiliated groups and organizations, CRUSADES 22 provides a multi-dimensional approach working with veterans and first responders who are not overly medicated and are not currently in a substance abusing cycle of behavior, and if they are substance abusers we work with their traditional providers of care.

We identified the need to reach more veterans in a personal, individual and effective way that could make a difference and extend our complementary care methods in a safe environment.

Our calling to do so is also backed up by research that proves existing systems including the VAs prolonged exposure are failing to support and make a difference to our heroes; especially those with Post Traumatic Stress Injury.

We set this limit on the care that we can give so that CRUSADES 22 can offer and administer to give safe, non-clouded, personalized direction and guidance. We offer complementary care and will work with substance abusers if they are following traditional methods of care.

According to a 2008 RAND Center for Military Health Policy Research study, nearly 20% of combat troops returning from Iraq or Afghanistan met criteria for either posttraumatic stress injury (PTSI) or depression. Of the estimated 300,000 returning troops, only 53% sought help from a provider in the year of the study. Fear of adverse consequences and stigma were frequently cited reasons for not seeking help (RAND Center for Military Health Policy Research, 2008).

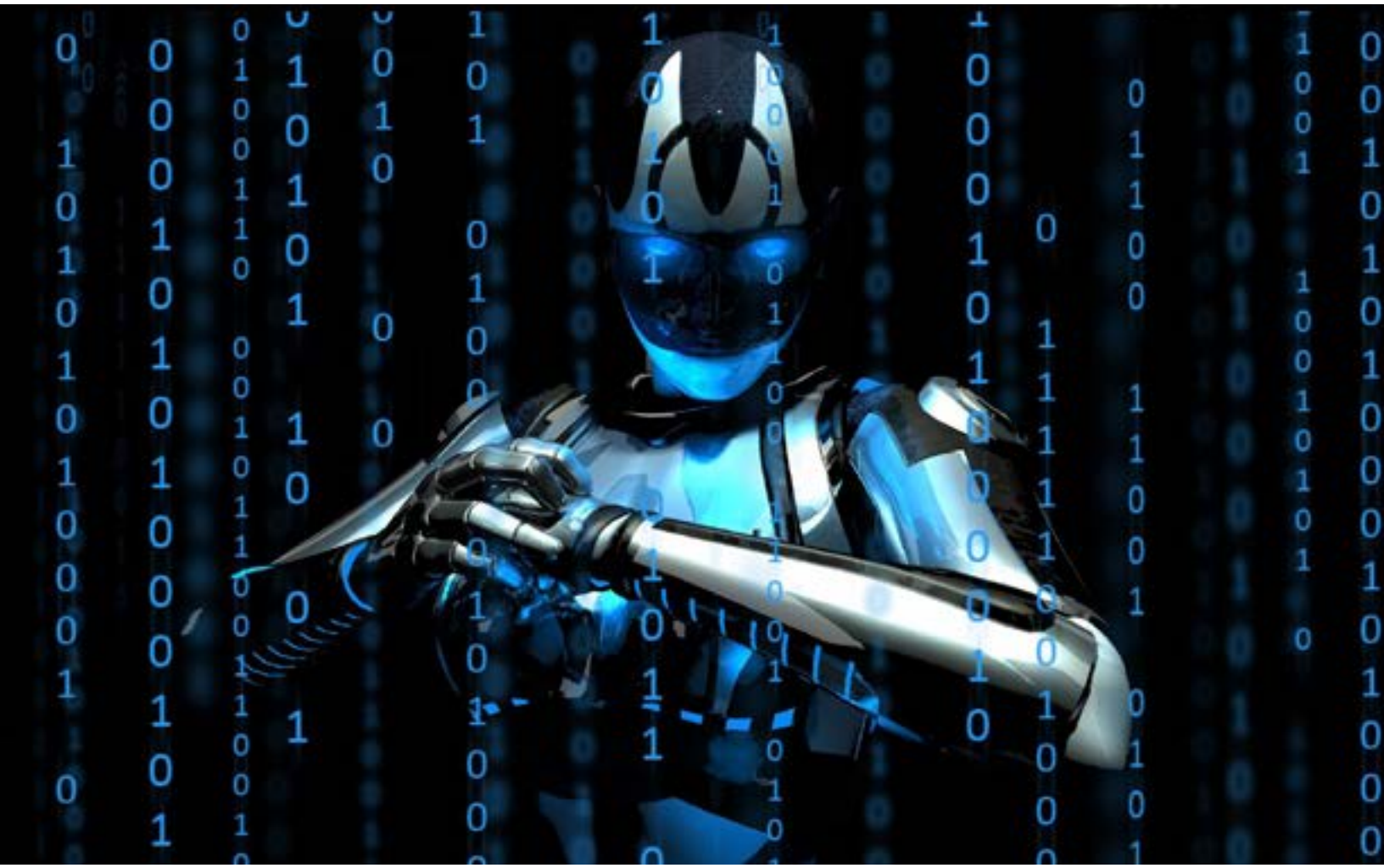
In today's world of an ever-increasing number of options for PTSI (Post Traumatic Stress Injury) treatments, there exist many different types of psychotherapies (i.e. talk therapies) and medications to help people with PTSI function in their everyday life.

These treatment options range from medications to individual and group counseling, and, more recently, hardware, software and computer generated content to enhance the facilitation of certain types of exposure therapy.

All of these tools, methods and techniques are important for a person with PTSI to be independent in their everyday life.

- For people with PTSI, there exist very few adapted recreational or entertainment-based options.
- Recreational activity is important for everybody, however it has an extra special importance, and value, for people with PTSI.
- The National Health Education Standards state that "All people, regardless of physical or intellectual ability, deserve the opportunity to achieve personal wellness."
- Entertainment-based activities for a person with PTSI not only act as recreational fun, but also as rehabilitation.
- It boosts self-esteem, independence, and this in turn leads to an increased quality of life.

People with PTSI should be given the same opportunities to participate in recreational / entertainment based therapies, so they too can reap these benefits.



Conclusion

Over time, and through the combined result of empirical, longitudinal studies, in collaboration with leading academic institutions including the pioneering work ongoing at USC's Institute for Creative Technology, led by Skip Rizzo, this transformational data will deliver on the promise of pro-active prevention of these life-decimating episodes that can all too often crush individuals, their loved ones, and negatively impacting society as a whole.

This Whitepaper addresses the clinical and social bases for the harvesting, processing, retrieval, analysis, and application, of said clinical data points in conjunction with expertly supervised exposure to immersive CGI (Computer Generated Imagery) and Cinematic content, delivered in a Merged Reality vehicle comprised of interlaced Augmented and Virtual Reality experiences.

We offer what other organizations DO NOT and understand that sending our veterans on two-week 'vacations' does not support their best interests for healing.

Our current systems are overloaded!

As the number of veterans residing in rural communities continue to grow, American Legion National Veteran Affairs and Rehabilitation Division said veterans will continue struggling to find timely and quality VA health care that meets the needs of the communities in which they live. "In 2015, during our SWS (System Worth Saving) site visit to the VA Medical Center in St. Cloud, Minnesota, providers were openly upset about the number of physician vacancies and how the additional workload is impacting morale at the medical centers," he said. "One veteran told us, 'Every time I visit the medical center, I am assigned a new primary care provider because my last provider either quit or transferred to another VA."

New Methods for Care are required from our strategic partners at Applied Bio Solutions – Dr. Joy Neff and Dr. John Davis:

A military presence has historically played an integral part in the security and functioning of progressive societies. This vital role has, however, come at the cost of human life and serious mental health issues. The current suicide rate in military personnel is alarmingly high. The increase in mental health concerns experienced by military veterans and their enrollment in the Veteran's Administration Healthcare System is staggering. Such diagnoses as Post Traumatic Stress Disorder (PTSD), Traumatic Brain Injury, Depression, and Anxiety have become commonplace with both active duty and military veterans. Coupled with the increasing number of mental health issues have been public and political attacks on the Veteran's Administration hospitals and healthcare system provision of general services. It is imperative that new and progressive diagnostic and treatment protocols be established that have the ability to prevent and treat military related mental health concerns in a more effective and efficient manner. Improved mental health care offers the benefit of improved quality of life for military personnel, cost containment for Veteran's healthcare systems, and reassurance for the general-public that effective measures and substantive studies are being undertaken.

While current mental health treatments have evidenced many successes, serious deficiencies remain. Computer technology has done much to change the landscape of military activities. It also offers dynamic opportunities to advance mental health treatment. This program proposes a convenient, non-intrusive, voluntary method of integrating continuous monitoring of active duty and veteran's Biometric reading into prevention and treatment intervention protocols. This technology, together with direct treatment, will allow for a more rapid response by the VA healthcare system and enhance measured interventions appropriate to the level of an individual's symptoms. Such improvements in prevention and treatment found in this proposal hold a key to:

- Reduction in suicide rates
- Reduction in mental health symptom morbidity
- Reduction in duration of delays between deployments
- Improved adjustment during deployment
- Improved reintegration into civilian life
- Improved public perception of credible VA efforts to deal with serious military mental health issues.

NEEDS ASSESSMENT

Self-report has historically been the prime avenue of patient assessment outside of more intrusive medical procedures and testing. These measures often include patient self-report, questionnaires, symptom checklists, and structured clinical interviews. Studies show, however, that the manner used by individuals to assess their own personal health, together with their perceptions, highly influences their decisions and behavior related to both their health and their personal life (Williams, Wasserman, & Lotto, 2003). To complicate this issue, the self-assessment of health, which remains the primary mechanism of communication of mental health data collection for practitioners, becomes pathological for some patients which then affects their pattern of health care reporting and usage. Poor self-assessment of personal health issues significantly increases the risk factor for reporting of negative mental

health symptoms (Lewinsohn, Seeley, Hibbard, Rohde, & Sack, 1996; Williams, Colder, Richards, & Scalzo, 2002; Ellington & Wiebe, 1999). Therefore, the ability to collect health-related data that transcends self-assessment is crucial.

To augment self-report measures, many studies investigating PTSD have utilize in-laboratory stress simulation methods, such as startle stimuli (Pole, 2007; Metzger et al., 1999; Morgan et al., 1997) and script-driven imagery and trauma cues involving pictures and/or script (Bauer et al., 2013; Pineles et al., 2013; Pitman, Orr, Forgue, Altman de Jong, & Herz; 1990; Pole, 2007; Carson et al., 2000). While these methods have produced significant insights into PTSD, this data collection has not incorporated objective tracking of subjects' day-to-day functioning.

New developments in technology now add the ability to collect physiological or biometric data that often exists outside the individual's awareness or conscious effort. These innovative technological advances allow for the addition of significant information that mental health care professions can monitor and use to inform and direct major mental health care decisions and interventions. Additionally, it offers the ability to access internal responses to stimuli in real time, permitting the ability to adjust a patient's medication or behavioral symptoms prior to their experiencing more serious symptoms. This supplemental information also makes decisions such as when to transfer military personnel to a different duty activity or when it is most appropriate to return them to duty can also be identified more effectively with the addition of variable biometric information.

UNIQUE CONTRIBUTION

This PTSD Biometric Program proposes to collect a set of physiological data from veterans and active duty military personnel in a 3-year longitudinal study (with option to continue) through electronic monitoring of vital physiological patterns on a daily basis. The participants will go about their normal lives and routines during this process, which will provide a set of data that tracks changes in physiology with exposure to various military activities and post military life. The addition of new procedures and interventions is vital. Prior studies using in-laboratory methods have revealed valuable information that has helped our understanding of PTSD. The reality is, however, that rates of PTSD and suicide in the military has continued to increase, and there is no reasonable expectation of reduction in these numbers with our current understanding of PTSD and its treatment in the absence of new program applications.

INTEROPERABILITY

The data from this study will be analyzed and communicated to medical and mental health providers who care for the individual military participants. A focus will be maintained on the interoperability of this data, allowing for shared data between medical/mental health professionals both in the Veteran's Hospital settings and active duty medical/mental health settings. Identical records can be transferred directly between the two settings without participants being responsible for gathering and/or transferring the inform

OUTCOME DATA

The outcome of this longitudinal study will be a dataset of physiological and biometric responses to real life functioning both with veterans and active duty military personnel. This will differ from most prior studies in that the data will be collected in everyday life rather than in artificially controlled research settings. The physiological and biometric data will not be altered by the participant's perception or self-report because the data will be transferred through direct link from the non-evasive monitoring devise to the study computer systems on a daily basis.
The procedures described in this proposal will significantly enhance the VA and active duty medical facilities' ability monitor military personnel's mental health status. The proposed non- intrusive method of continuous monitoring of physiological and biometric data in this study will provide enhanced patient information will help guide treatment and prevention programs leading to improved functioning and reduced treatment costs for active duty and veteran military personnel.

This program's application goal is to provide crucial information toward the following objectives:

1) Better reintegration into civilian life
2) Reduction in mental health symptom morbidity
3) Reduction in suicide rates
4) Reduction in duration of delays between deployments
5) Improved adjustment during deployment,
6) Improved public perception of credible VA efforts to deal with serious military mental health issues.

Key gateposts outlining program measures and progress will be submitted in 6-month increments beginning 6 months after the first participants enter the program.

Why (re)create experiences that illicit powerful emotional and bodily responses?

By recreating the emotional experiences the individual has faced during the time the traumatic event took place, there will be a collection of data regarding the collective effects of the immersion, the anxiety/phobia triggering or decline of such responses, the duration of the overall anxiety decline and incline. Understanding the possible therapeutic effects of immersive media on anxiety injuries could offer an alternative mediated treatment for stress-related psychopathologies by:

1. Allowing the patient to have easier access to treatment.

The number of individuals developing such anxiety injuries is growing rapidly in our society. Trained professionals are in high demand; complementary care professionals, psychologists and psychiatrists, all part of a larger, more comprehensive care team that can be established for each participant, the collective team assisting in the treating of a participant's PTSI and accompanying triggers and symptoms. Replacing parts of the treatment with immersive media could possibly allow an easier access to a set treatment program of reducing the negative symptoms of stress injuries.

2. Reaching a stabilized mental state in a shorter period of time.

In previous research, Exposure/Immersion Therapy has proven to have a stronger effect on participants when compared to imaginal exposure, especially in treating specific phobias. In vivo exposure therapy through the creation of a virtual environment allows the patient to engage in a more immediate manner with the stress object or fear stimuli and process the emotions by confronting them 'face-to-face'. Virtual reality systems are becoming increasingly less costly and more available for consumption therefore testing them currently for clinical trials will allow enhancing the psychological treatments in the near future and design a more effective platform for Neuropsychological pathology applications..

The prototype of the FORGING, the aforementioned immersive care solution, is scheduled for a phased introduction to market over a period of 18-24 months, beginning with a Building Infrastructure and Research & Development Phase from October through December, 2017; quickly followed by initial Clinical Trial Phases (starting with smaller 'inner team' tests) that would begin in January, 2018.

Tiered Roll Out Dates and Targets

TARGET: 31 August 2018 (clock beginning 01 January 2018)

Prototype/Proof of Concept; The FORGING. Prototype will cover the Prologue, Episodes 001-003, live-action sequences shot for episode 007 while we have our cast and field crew), and the experience Epilogue.

A working concept and model to show to potential government organizations, donators and investors; Corporations, Organizations, private investors, VC's, Angels, DARPA, DoD, FDA, etc.
This will be ALPHA version.
(from January 01, 2018: 8 months to complete)

TARGET: 31 January 2019

BETA-tested full version of The FORGING – completed and ready for clinical test groups.
(from 01 September 2018: 5 months to complete – 1-Year to complete The FORGING Beta Test Version and begin clinical test trials)

TARGET: 04 July 2019

The FORGING Full Launch event and CRUSADES 22 Fund-Raiser.
(from 01 January 2019: 6 months and 4 days to complete – 1-Year, 6 months and 4 days for Full Launch Version of The FORGING Virtual Reality Immersion Treatment and Training Experience)

Application and rollout structure after 04 July 2019 Launch Event:

TARGET: 15 September 2019

Application 001 – CRUSADES 22 takes The FORGING Virtual Reality experience; utilizing it as an Entertainment, Distraction, and Teaching/Mentoring Experience – for veterans, first responders, spouses and families.

A percentage of proceeds and/or profits earned by strategic partner organizations, companies and entities via Application 001, will filter back to CRUSADES 22 in the form of donations; helping CRUSADES 22 continue to support veterans through our integrative and complementary training and mentoring care programs. These strategic partnerships will greatly support the ongoing mission of

CRUSADES 22, as well as function as a charitable giving and community outreach vehicle for our partner organizations and companies.

TARGET: 15 October 2019

Application 002 – In concert with App 001; A Deeper Holistic and Scientific Applications. Value of Outcome and Captured Bio-Marker and Emotional Response Feedback Data attached to

The FORGING which is USC and The Institute for Creative Technologies endorsed.

CRUSADES 22 would hold separate liability for and partner in the facilitation of this application.

At this stage of our rollout, we will begin the University Study phase. In this proposed study, we will have the ability to capture bio-data for a number of chosen participants over a longitudinal case-study developed, constructed and initiated by a group of clinicians and scientists from USC and Stanford Universities.
During this study, we will capture bio-data via wearable devices provided to us by our sponsors, this data capture giving us the ability to show just how effective The FORGING is in helping to lessen the effects of PTSI (Post Traumatic Stress INJURY) and related traumas and triggers.

TARGET: 30 November 2019

Application 003 – Monetization and Roll-Out to the General-Public. This monetization aspect of the strategic partnership will help CRUSADES 22's partner organizations, companies and entities see a deep return on their partnership investment, as well as setting the stage for a massive public relations vehicle.

NOTE: All time-frames and TARGET goals are contingent on The FORGING's build-out process beginning by: 01 January 2018 with $1,750,000.00 available for seed/start-up funds by proposed start date.
With these seed/start-up funds, we will need to secure a build space resource and assets required for build-out (see bulleted list below).

The entire build-out costs for the FULL completed The FORGING experience is estimated at $7,750,000 (a full line-item 'living-budget' that presents, in detail, to where funds will be allocated is available for review).

Proposed initiative dynamics, how our participants will experience The FORGING:

- A traveling experience that would be installed into a space, say at V.A. medical facilities, tech conferences, and universities. This installed experience would function much like the permanent brick and mortar foundries, possibly having a bit less immersion due to internet and broadband constraints.

- An in-home version of The FORGING. A version that could be sent to a veteran, first responder and their families, boxed in a way that they get all the hardware and materials they require to go through The FORGING. Also comes with a "liner-notes" book that explains The FORGING and shows some of the different characters, worlds and locations that they may visit in the experience – very similar to an Art of book that you may see for a film. We could broker a possible strategic partnership with Microsoft and roll this out on X-Box, as well as brokering the same licensing opportunity with Sony PlayStation and other tech and entertainment companies and organizations.

- Multiple CRUSADES 22 supported brick and mortar foundries where our participants have the opportunity to go through an installed walk around experience of The FORGING, untethered. These could be installed into existing structures so that the cost of building the infrastructure is lessened.

Initial Injection of Start-Up Funds for the purposes of:

- Set up of the METASphere Industries corporation.
- To secure our Corporate Attorney to assist in the set-up of METASphere, assuring the corporation is set up properly and that METASphere is in alignment with the day-to-day activities and procedures of what will be its sister organization CRUSADES 22. Assuring that CRUSADES 22 continues to function as a non-profit with at least 85% of donations and revenue going directly to programs; making METASphere Industries the for-profit entity of this conglomeration.
- To secure our Patent Attorney to assist in the securing of our Intellectual Properties, preparing The FORGING and accompanying program dynamics for licensing capability to organizations and corporations who wish to utilize our proprietary systems, protocols and procedures.
- Hiring a POC (Proof of Concept) Producer.
- Hiring a POC Director.
- Hiring a POC Project Manager.
- Hiring a POC live-action sequence film crew.
- Continuing the process of Marketing and Branding The FORGING.
- Branding Dynamics: logos, website, branded content; Media, and Social Media presence designed and created for METASphere Industries.
- Rental of offices and build space for The FORGING POC, same space to act as clinical study site – in concert with utilizing space at USC's Institute for Creative Technologies.

THE GROWING POPULATION OF PEOPLE DEALING WITH POST TRAUMATIC STRESS INJURY, NOT JUST VETERANS AND FIRST RESPONDERS:

How Common Is PTSI?

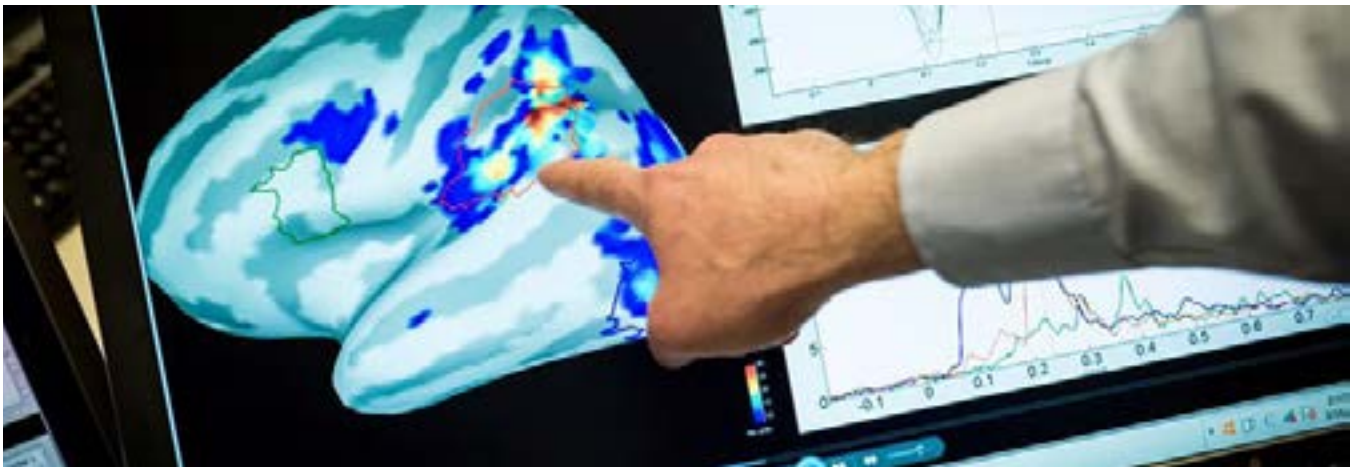
Post-Traumatic Stress Injury (PTSI) happen to ANYONE; veteran, first responder and civilian. PTSI may occur after anyone has experienced a traumatic event/experience in their lives. A trauma is a shocking and dangerous event that you see or that happens to you. During this type of event, you think that your life or others' lives are in danger.

Going through trauma is not rare. About 6 of every 10 men (or 60%) and 5 of every 10 women (or 50%) experience at least one trauma in their lives. Women are more likely to experience sexual assault and child sexual abuse. Men are more likely to experience accidents, physical assault, combat, disaster, or to witness death or injury.

PTSI can happen to anyone. It is not a sign of weakness, nor is it a sign of someone being damaged or broken – it is a merely a fact of life that most of us experience in some way shape or form. A number of factors can increase the chance that someone will develop PTSI, many of which are not under that person's control. For example, if you were directly exposed to the trauma or injured, you are more likely to develop PTSI.

Here are some facts (based on the U.S. population):

- About 7 or 8 out of every 100 people (or 7-8% of the population) will have PTSI at some point in their lives.
- About 8 million adults have PTSI during a given year. This is only a small portion of those who have gone through a trauma.
- About 10 of every 100 women (or 10%) develop PTSI sometime in their lives compared with about 4 of every 100 men (or 4%). Learn more about women, trauma and PTSI.



PTSI and the Military (Source: US Dept. of Veterans Affairs):

When you are in the military, you may see combat. You may have been on missions that exposed you to horrible and life-threatening experiences. These types of events can lead to PTSI.

The number of Veterans with PTSI varies by service era:

- Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF): About 11-20 out of every 100 Veterans (or between 11-20%) who served in OIF or OEF have PTSI in a given year.
- Gulf War (Desert Storm): About 12 out of every 100 Gulf War Veterans (or 12%) have PTSI in a given year.
- Vietnam War: About 15 out of every 100 Vietnam Veterans (or 15%) were currently diagnosed with PTSI at the time of the most recent study in the late 1980s, the National Vietnam Veterans Readjustment Study (NVVRS). It is estimated that about 30 out of every 100 (or 30%) of Vietnam Veterans have had PTSI in their lifetime.

Other factors in a combat situation can add more stress to an already stressful situation. This may contribute to PTSI and other mental health problems. These factors include what you do in the war, the politics around the war, where the war is fought, and the type of enemy you face.

Another cause of PTSI in the military can be military sexual trauma (MST). This is any sexual harassment or sexual assault that occurs while you are in the military. MST can happen to both men and women and can occur during peacetime, training, or war.

Among Veterans who use VA health care, about:

- 23 out of 100 women (or 23%) reported sexual assault when in the military.
- 55 out of 100 women (or 55%) and 38 out of 100 men (or 38%) have experienced sexual harassment when in the military.

There are many more male Veterans than there are female Veterans. So, even though military sexual trauma is more common in women Veterans, over half of all Veterans with military sexual trauma are men.

Source: Click HERE for this fact sheet is based on a more detailed version located in the "Professional" section of the US Dept. of Veteran's Affairs website:

https://www.ptsd.va.gov/professional/PTSD-overview/epidemiological-facts-ptsd.asp

WHY SUPPORT The FORGING?

What sets The FORGING apart from other VR/AR experiences?

Simply answered: the ability to generate multi-tiered outcome data in real-time, utilizing a system of low profile wearable bio-marker tracking devices. Each participant's bio-feedback and emotional response output gathered and extrapolated by an on-board SENTIENT LIFEFORM (Artificial Intelligence) that will give each participant real-time feedback, strategic direction and support as they navigate through the VR worlds and environments we have created.

As an organization, we offer a sharing of techniques and wisdoms that we have classically trained in, experienced, developed and collectively facilitated over the last 35-years; working with numerous clients from the public and private sectors, as well as working with the military and first responder communities.
What we offer comes from a place of love and caring and we guarantee that when our warrior's and their spouses commit themselves to engaging in this work, they will see positive and lasting change.

Engaging in any type of self-change and shifting of one's old set patterns and energies can be an arduous task. CRUSADES 22 supports and cares for our TRIBE each-and-every step of the way. Our warriors and their families are given the opportunity to tap back into their truest inner-wisdom, allowing them to come home to their true selves. This work is an extremely important component to the healing process for it helps members of the tribe buy in and commit to their own healing, and to the healing and care of the collective family. CRUSADES 22 helps those with whom we work learn to trust once more one's inner voice and rediscover forgotten parts of themselves.

Marketability & Target Audience FOR FDA APPROVED VR WEARABLES

Digi-Capital predicts that the market in virtual reality should be worth about $30 billion by 2020 and the market will take off in the next 12 to 18 months.

The FORGING is presented to therapeutic practitioners and primary care physicians who require tools and services to help digitize and integrate the therapeutic interfaces that deliver more real-time, connected, and optimized outcomes centered on self-empowering mindfulness, compassion, and forgiveness to overcome the fear, guilt, shame, and self-destructive behaviors that are so prevalent in our Veteran and First Responder populations.

The potential market size for use of THE FORGING VR amongst clinicians and veterans across all US states just for PTSI /CBT/TBI/EMDR treatments:

Some numbers from Psychology Today:

- Outpatients receiving PTSI treatment with specified treatment methods – 21000
- Outpatients receiving CBT with specified treatments– 17650
- Outpatients receiving EMDR with specified treatments– 4274
- Private Treatment Centers – 6725
- VA clinics – 170
- Outpatients receiving PTSI and TBI without specified treatments- 2620
- Outpatients receiving CBT without specified treatments - 2245
- Outpatients receiving EMDR without specified treatments – 568
- PTSD distribution between services for OND, OIF, and OEF: Army 67% of cases, Air Force 9%, Navy 11%, and Marines 13%. (Congressional Research Service, Sept. 2010)
- As of September 2014, there are about 2.7 million American veterans of the Iraq and Afghanistan wars (compared to 2.6 million Vietnam veterans who fought in Vietnam; there are 8.2 million "Vietnam Era Veterans" (personnel who served anywhere during any time of the Vietnam War)
- According to RAND, at least 20% of Iraq and Afghanistan veterans have PTSD and/or Depression. (Military counselors state that, in their opinion, the percentage of veterans with PTSD is much higher; the number climbs higher when combined with TBI.)

IN ADDITION: 50% of Veterans DO NOT seek help, our mission is to offer with The FORGING, ease of use, accessibility and acceptability, combining entertainment with effective healing, thereby making our VR tool more acceptable and easy to use.

GENERAL POPULATION - (US Dept of Veterans Affairs – National Center for PTSD)

- About 8 million adults have PTSD during a given year. This is only a small portion of those who have gone through a trauma.
- About 10 of every 100 women (or 10%) develop PTSD sometime in their lives compared with about 4 of every 100 men (or 4%).

This fact sheet is based on a more detailed version located in the "Professional" section of the US Dept. of Veteran's Affairs website:
http://www.ptsd.va.gov/professional/PTSD-overview/epidemiological-facts-ptsd.asp

The FORGING provides a unique, state-of-the-art treatment and care experience!

The FORGING initiative presents hard solutions for hard problems.

JOIN US in supporting, caring for and opening the infinite doors and possibilities that await our Veteran's, First Responders and their Families on their personal quests . . .

SUPPORT the journey of these amazingly dedicated and committed HEROES . . .

We will never, ever quit.

CRUSADES 22, METASphere Industries, and The FORGING

Further Research and Readings on Immersive Therapies, Artificial Intelligence, Treatment of Post-Traumatic Stress Injury:

http://medvr.ict.usc.edu/projects/bravemind

https://news.usc.edu/80595/skip-rizzo-honored-for-advances-in-virtual-reality-therapy

http://ict.usc.edu/prototypes/pts

https://www.gizmodo.com.au/2015/10/how-virtual-reality-declared-war-on-ptsd

http://medicalfuturist.com/escape-scary-painful-healthcare-appliedvr-review/?utm_source=The+Medical+Futurist+Newsletter&utm_campaign=2da4036681-Newsletter_2014_07_177_17_2014&utm_medium=email&utm_term=0_efd6a3cd08-2da4036681-420582041

http://medicalfuturist.com/algorithms-robots-mimic-empathy/?utm_source=The+Medical+Futurist+Newsletter&utm_campaign=2da4036681-Newsletter_2014_07_177_17_2014&utm_medium=email&utm_term=0_efd6a3cd08-2da4036681-420582041

https://www.technologyreview.com/s/603216/5-big-predictions-for-artificial-intelligence-in-2017

https://blogs.scientificamerican.com/observations/consciousness-goes-deeper-than-you-think/?utm_source=pocket&utm_medium=email&utm_campaign=pockethits

https://www.theverge.com/2017/8/3/16007736/china-us-ai-artificial-intelligence

FOR MORE INFORMATION ON
The FORGING and METASphere Industries

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