NextGenSurgery Inc. Outline

Prepared for BOLD AWARDS 2025

**NextGenSurgey and the Internet of Surgical Things (IoSxT)**

**Developing Elite Performance in Stress Resilient Surgeons and Their OR Teams**

**Why? Why Now? and Why the opportunity will not happen again**

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NextGenSurgery Inc. will be referenced with the acronym NGSx

Integrated Mental Training will be referenced as IMT

# Rationale

# WHY~

## Safe Surgery Saves Lives ~WHO Guidelines on Surgery 2009

1. The World Health Organization estimates that more than three million patients suffer a major preventable surgical complication every year, 500,000 of which die within the immediate peri-operative period.
2. While system level strategies have been implemented, timeout and safety checklist, patients continue to be unintentionally harmed at unacceptable rates.
3. Greater than 50% considered preventable.
4. Considerable advances in surgical technology in the past four decades. But even the most advanced interventions are relatively simple compared to keeping people safe while executing these techniques.
5. A report on the direct cost of treating patients who have been harmed by preventable errors amounted to 8.7% of total healthcare expenditure. This amounts to $606 billion USD/year.

**The Complex Problem of Patient Safety/Preventable Harm reduction needs innovative Solutions**

1. Adverse events occur from deviations in performance and environmental disturbances.
2. Auditory distractions occur 138x/case
3. Cognitive distractions occur in 64% of cases
4. Significant stressors occur 5.87x/case
5. Leading to 20 errors/case (Median)
6. 8 Adverse events/case

**An evolution in surgical training That Will not happen again**

1- For the first time in over a century surgical training has been reimagined. This has been

implemented over the past 6-8 years and the transition is near completion.

1. The model has not been overwhelmingly received and concerns from surgical educators and residency program directors across NA exist.
2. The Halsteadian Model (graded responsibility-based on volume and exposure- modeled after surgical training W.S.Halstead observed in Austria and Germany in the late 1800s)
3. New model of Competency by Design- (TBD in detail as to its implications and how NGSx is using this change to dev a new curriculum)
4. Simulation training (mannequin to XR) has become standard in all surgical programs.
5. MR Enterprise solutions largest growth opportunities in Surgery and Education.
6. The top 10 global Immersive/ Interactive XR surgical platforms can all be considered potential collaborators and go to market channel partners.

## XR SIMULATION PLATFORMS ALL REQUIRE WHAT this collaborative partnership can provide

1. A neurocognitive approach that promotes neuroplasticity which we can document.
2. Expertise in performance can be proven both clinically with surgical performance metrics and documented with PFC attenuation on EEG as the cortical architecture becomes refined through experience dependent neuroplasticity promoting neural efficiency.
3. Using purpose-built devices and bci we can assess and train daily, in any environment, and at any time as well as compare their progress in the controlled XR environment with the real performance environment of the OR. This allows for further refinements to the training.
4. This approach focuses on the edumetric model for its educational impact on within self-growth. Edumetric assessment focuses on authentic tasks and acknowledges cognitive complexity.
5. Provide transfer skills through brief self-regulation strategies to be used in the OR for elite performance during critical moments.

The technological advances of the 4th industrial revolution and 2nd surgical renaissance have created the most exciting time to be a surgical innovator drawing on my 25 years of clinical and academic surgery and elite background in amateur sport.

**We need to train surgeons for the future.**

**We are disrupting how surgeons will be trained now and for the future.**

**We will be the market leaders in the future.**

**I hope you will join me on this journey.**