THE FUTURE IS SIMULATED

WHITE PAPER
ON IMMERSIVE
DESIGN

2023

Advanced
Performance

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What is Immersive Design?

Harnessing the power of deep user engagement to solve real world problems

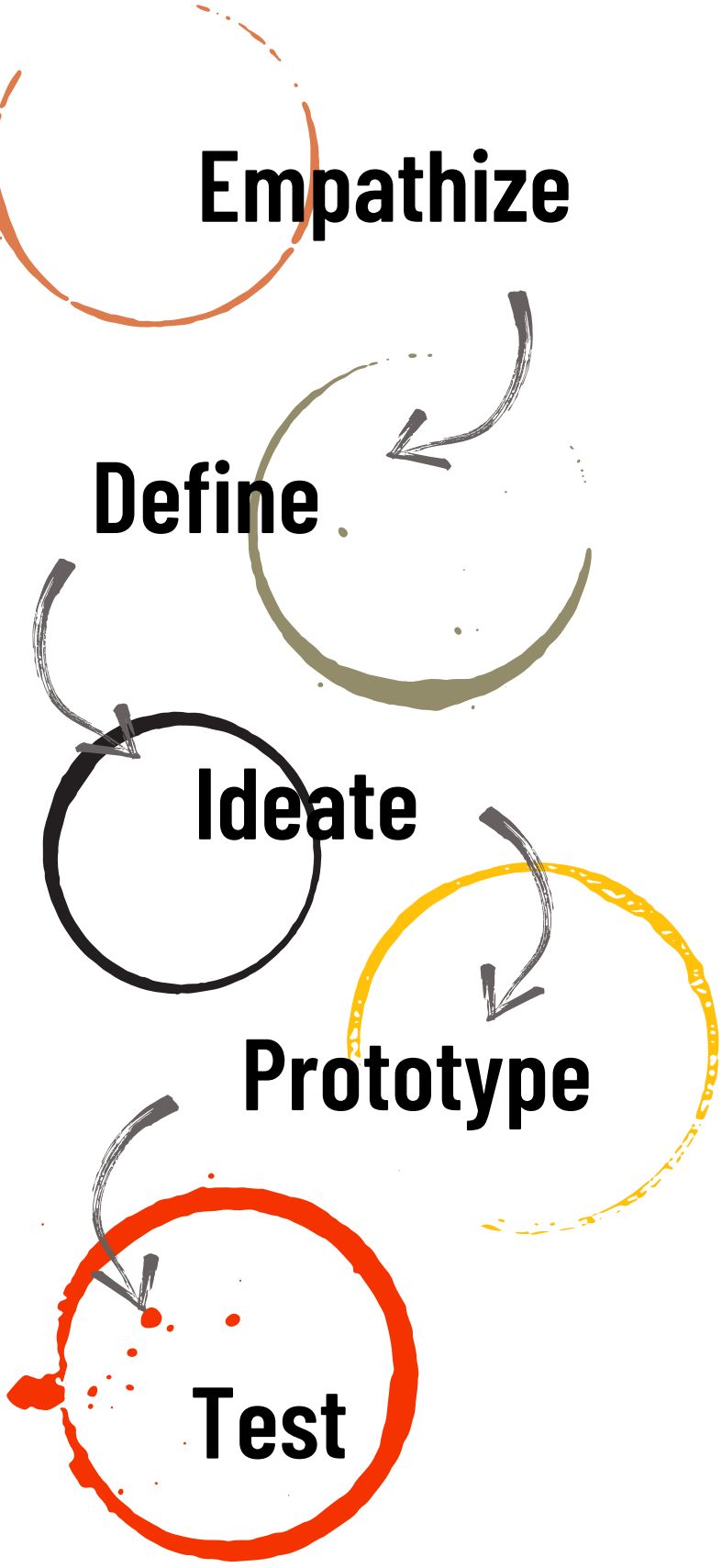
Examples of bad design are troublingly abundant. Be it a new workspace, technology, process or tool, the perspective of the user is often an afterthought. Design flaws necessitate work-with and work-around solutions, often improvised or created ad hoc, creating inefficiencies and avoidable safety hazards.

Simulation — **the re-creation of real word events in a controlled, reproducible setting** — is a powerful method for examining the interaction of people and teams with systems, spaces and technology. Using a suite of tools ranging from table-top exercises, patient actors, virtual and augmented reality and sophisticated computer-controlled human mannequins, **simulationists** craft scenarios for participants to work through as if they are involved in a real event. The resulting deep activation and engagement is leveraged in a subsequent debriefing session, where skilled facilitators walk back through the scenario, asking curious questions and generating rich data and feedback.

You can't solve a problem if you don't know that it exists.

Immersive Design can be used **to crash test systems and spaces, closing the gap between project concept, design and implementation.** The ID process involves creating, executing and debriefing simulations to interrogate complex systems, spaces and technology. This highly specialized work is anchored by a deep theoretical and practical understanding of behavioural psychology, human factors and complex systems theory.

The four pillars of the ID platform — **Design, Build, Train, Excel** — highlight the many ways in which simulation and debriefing can be used to create intelligent designs, safe systems and elite teams.



Design

Don't *think* you have it right—
know that you do

User-centered design is at the core of the Immersive Design concept. ID provides valuable data and insight at all stages of the design thinking framework, from empathizing with the user — their concerns, fears, questions, and frustrations — to prototyping and testing solutions. In so doing, ID helps to bridge the gap between *work as imagined* and *work as done*.

The outcome can often shift design concepts dramatically, providing the end-user with a sense of ownership in both *process* and *outcome*.

Build

Crash test high stakes equipment, systems and technology *before* rolling it out

01 Prototype testing

Imagine a blueprint or schematic coming to life in three dimensions: Simulation allows participants to physically interact with prototypes and mock-ups, rendering a more fulsome understanding of strengths and weaknesses, opportunities and threats.

02 Revise, refine, re-create

Prototypes can then be revised and improved, using video capture data, direct observation, and rich feedback from facilitated debriefing sessions.

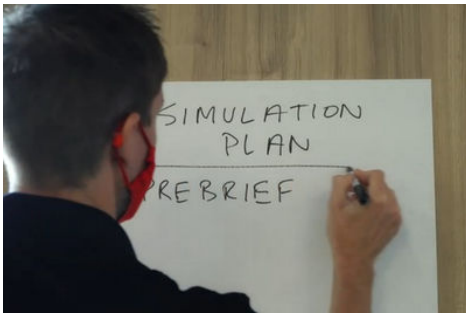
03 Crash test in-situ

With a mature concept and design ready for roll-out, the final step is rigorous in situ simulation to ensure the project is functioning as planned.

Train

Elite teams don’t just happen.

Multi-modal simulation is used to drive elite performance in a variety of high stakes, high-hazard professions like aviation, military, police, musical performance and athletics. Training with Immersive Design situates people and teams in the systems and spaces they work with and depend on.



Immersive Design Coaching

For organizations with mature simulation programs and infrastructure, ID can be coached from a distance, with our simulation working along side local experts, assisting with project conceptualization, systems-focused script writing and debriefing plans.

Pre and post-implementation team training

With a mature concept in hand, Immersive Design can help to up-train users and teams on a new system, space or technology prior to go-live, and in an ongoing fashion to ensure a cohesive and error-free roll out .

Practice until you can’t get it wrong

Whether developing a new product marketing plan, focusing on knowledge translation, or implementing a new technology or process, Immersive Design can help to design, refine, and accelerate uptake by way of deep user engagement and the provision of meaningful, targeted feedback.

Excel

User-focused, data-driven design that pays dividends

Immersive Design requires an up-front investment of time, attention, thought and coast — so what are the upsides? Our examination of ROI suggests that ID yields substantial value on future decisions regarding project spending, planning and timeline.

Key Indicator	Data / Outcome
Overall project ROI	> 500% for post-occupancy renovation 18% costs savings on large scale capital projects
Process-oriented outcomes	21% reduction in deleterious high stakes process outcomes 33% cost savings on accelerated product design and development
Safety and threat mitigation	A ZERO occurrence rate for high risk safety events (never events) within 3 months of project completion

What makes ID so effective at reducing time and cost while also improving safety? Consider the MacLeamy Principle: early and integrative design processes support decisions that are far less costly (resource and economic) and easier to implement than traditional methods. Put simply, **ID helps to side-step errors and inefficiencies before they happen**, allowing for a smoother, faster, and safer project timeline.

Who We Are

Advacned Performance was founded by Dr. Christopher Hicks and Dr. Andrew Petrosoniak. Chris and Andrew hold Master's degrees in applied and theoretical simulation, and have active academic careers as Assistant Professors and Clinician-Educators at the University of Toronto.

Dr. Andrew Petrosoniak

is an emergency physician and trauma team leader in Toronto. His research focuses on the use of in situ simulation (practice in the actual workplace) , and specifically on usability testing and the identification of personnel- and systems-based safety threats.

Dr. Christopher Hicks

is an emergency physician and trauma team leader in Toronto. His academic work is focused on simulation and human factors for the development of expert team performance. His interests include logistic and systems-level solutions to improve safety, efficiency and mission success.

Research

Immersive Design is grounded in a strong understanding of simulation theory and techniques

Selected references included here represent prior work in simulation with our academic collaborators, and provide a snapshot of the science supporting ID

01 **Design, build, train, excel: Using simulation to create elite trauma systems**

Christopher Hicks, Andrew Petrosoniak. International Anesthesiology Clinics, Spring 2021

02 **Trauma Resuscitaiton Using in-situ Simulation Team training (TRUST) study: latent safety evaluation using framework analysis and video review**

Andrew Petrosoniak, Mark Fan, Christopher Hicks et al, BMJ Quality and Safety, 2020

03 **Tracking workflow during high-stakes resuscitation: the application of a novel clinician movement tracing tool during in situ trauma simulation**

Andrew Petrosoniak, Rodrigo Almieda et al, BMJ Sim & Technology Enhanced Learning, March 2018

04 **The human factor: Optimizing trauma team performance in dynamic clinical environments**

Andrew Petrosoniak, Christopher Hicks, Emergency Medicine Clinics of North America, February 2018

05 **Design thinking-informed simulation: an innovative framework to test, evaluate and modify new clinical infrastructure**

Andrew Petrosoniak, Christopher Hicks et al, Simulation in Health Care, 2019

Advance

Contact us to set up a one-hour virtual or on-site **needs assessment**

Simulation // ID demonstration

Description of techniques

Current state analysis

SWOT analysis

Hazard matrix and latent safety survey

Problem definition

Project scope and timeline

Draft proposal and costing

Learn more about how Immersive Design can take your project to the next level.

Contact Us

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