



# HELLO!

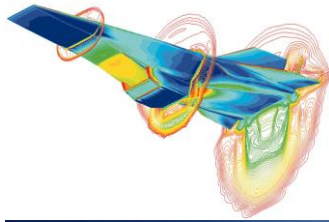
**I am Dennis Leung**

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# Who Am I



Trident II Ballistic  
Missiles



X-43A Hypersonic



Satellites



Smart Factory



# Why AR/VR?

The next revolution of hands free data

We have reached a point where looking down at your phone or laptop is no longer efficient



Each Subsequent generation of technology allowed us easy access to information and how we interact with it.



# A PICTURE IS WORTH A THOUSAND WORDS

Information retention rate over 3 days

Visual Information 65%

Reading 20%

Listening 10%



# The Power of Images

**HUMAN BRAIN  
CAN PROCESS IMAGES**

**60,000X  
FASTER**



**90%**  
OF THE INFORMATION  
SENT TO THE BRAIN  
IS VISUAL.



**93%**  
OF ALL HUMAN  
COMMUNICATION  
IS VISUAL.



Humans are wired to process visual  
information

# What is your AR/VR Strategy?



Medical



Education



Manufacturing



Retail



Defense

There is a fundamental disconnect between the data available vs how it is applied.

# “Leveraging other industries”

- ▶ Augmented / Virtual Reality (early 1990s)
  - ▶ Entertainment industry is first wide spread adoptions of technology



Industrial



Military



Personal



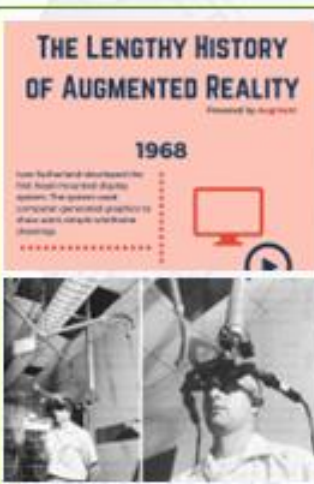
Games



Media



1992 USAF Research Lab created the first real operational AR system



Establishing Relationships is Key to all Engineering Tasks

# Use Cases In Aerospace

Studies / Concept  
Evaluation



Launch / Sustainment



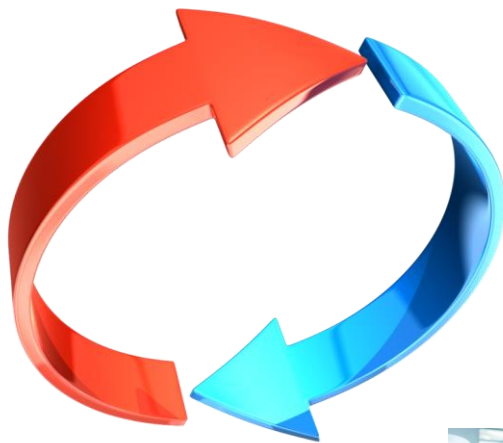
Production /  
Integration &



Proposals



Design



# Traditional Engineering

# AR / VR



Proposals

Customer imposed limits on pages and written text

Limits no longer exists and customer experience is now a factor in contract awards

Design Review

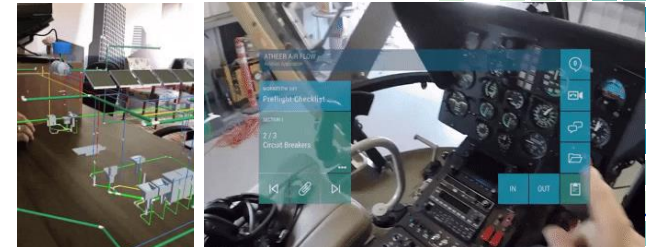
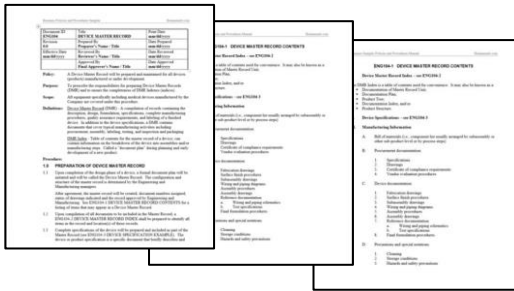
Hundreds of slides per review

Significant reduction in slide count and increase of information. Same environment different locations.

Production

Countless paper drawings and physical models

Smaller drawing packages and a reduction on building physical models for accessibility studies

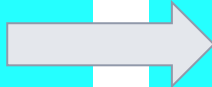


# Traditional Engineering

# AR / VR



Logistics



Expensive trailblazer activities and fit checks



Fit checks can be done with high fidelity models instead of expensive hardware.

Training



Reading manuals and limited scenario training



Realistic training and confidence boost for employee and customer

Customer Experience



Static and non-interactive information



Status and presentation can now be interactive, remote and real time with actual hardware

Employee Experience

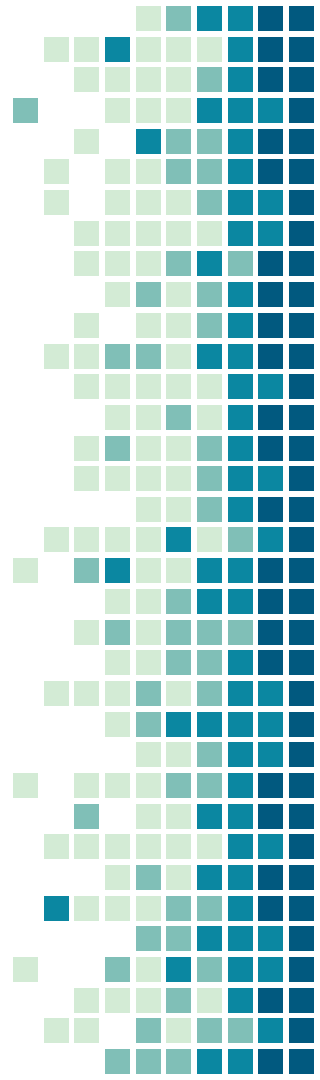


Old technology and processes leads to low creativity and high dissatisfaction



Reduction in traditional workload and more relatable to current technology

# Videos



# Obstacles to Mass Adoption

## Cyber Security



Classified  
Environments?  
Securing Data via wifi?

## Antiquated Infrastructure



Wifi Bandwidth?  
Data storage capacity?  
Latency or data input lag?

## Data Conversion



Converting existing data  
without recreating?  
Conversion speed?  
Data accountability and  
revision methodology?

## Culture



Breaking people out  
of their comfort  
zone.

# THANKS!

Any questions?

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