



# Immersive is Expensive - or is it?

**How to de-risk production costs through rapid lo-fi prototyping**

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## Future Networks

We drive the development of new future networks business models, taking them from concept to commercial reality.



## Immersive Technologies

Our mission is to make the UK the best place in the world to produce immersive content and applications.



## Artificial Intelligence

We accelerate the adoption of AI by industry, helping to grow the UK's machine learning ecosystem.



## Future Focus

We are always exploring future technologies, supporting Cyber Security innovators through Cyber 101 and testing DLT outside of finance.

## Digital Catapult's Immersive Team has a 5-year mission:

**“To make the UK the best place in  
the world to produce immersive  
content and applications.”**



# Immersive: Real-time 3D graphics meets Physical Space

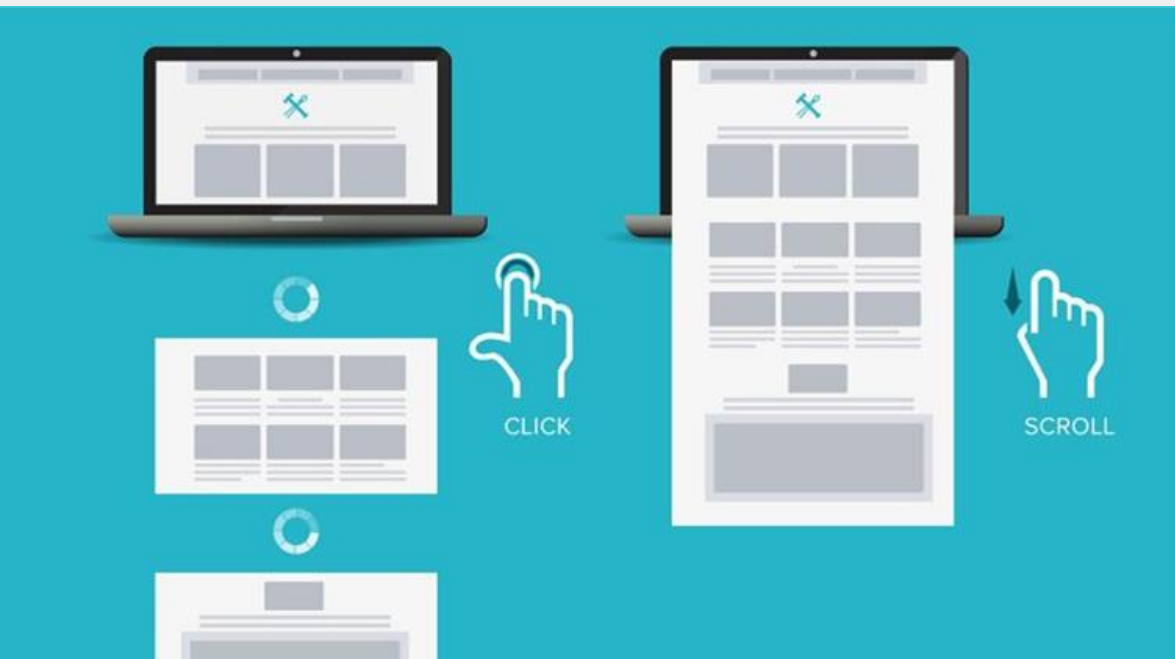
Transition to the new paradigm of spatial computing



# Premise: New design skillset and mindset

## Current

Concepts and designs for “flat screens”, such as monitors and touch screens.



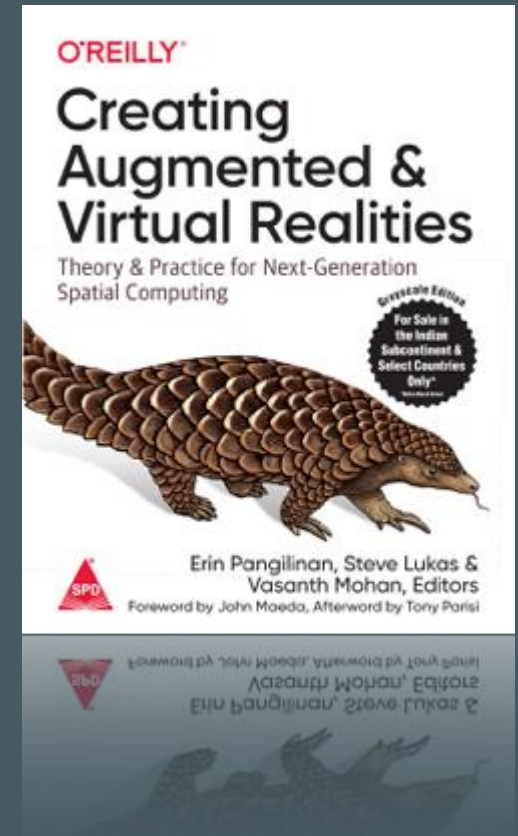
## New

Concepts and designs for “spatial computing”, i.e. for working with the space around us.

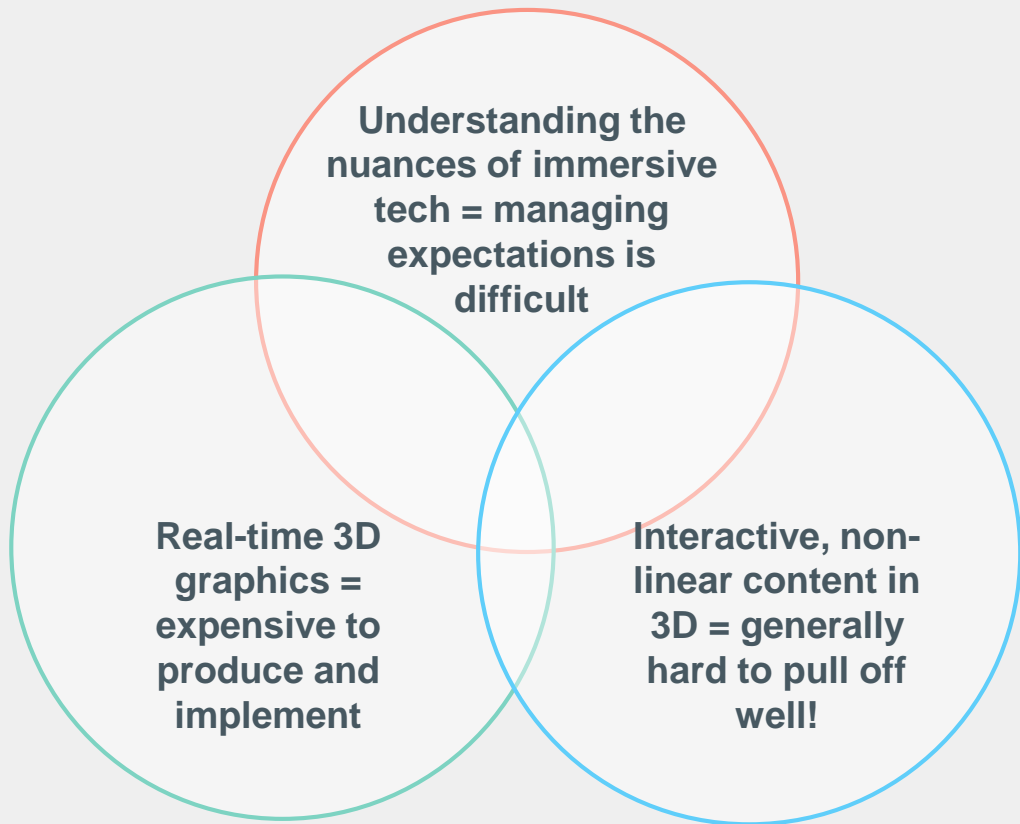




“Designing for the future with AI-powered spatial computing requires a **great diversity of skills** and a **deep understanding of human behaviour** by everyone involved.”



# ROI through immersive?



The remaining challenges in scaling immersive into mass market, from a production point of view

# Derisking via physical means

From “Brown-boxing” to Bodystorming





# Brown-boxing

As designing for immersive, most of the time, is creating life-sized environments and objects, building physical models of them with cardboard etc enables rapid prototyping without software development costs.



## Gives Usable Results



<https://www.gdcvault.com/play/1024863/Playtesting-VR-Brownboxing-Spycams-and>

VRDC  
@ GDC 2018

Play clip



15:39 / 55:34

1x

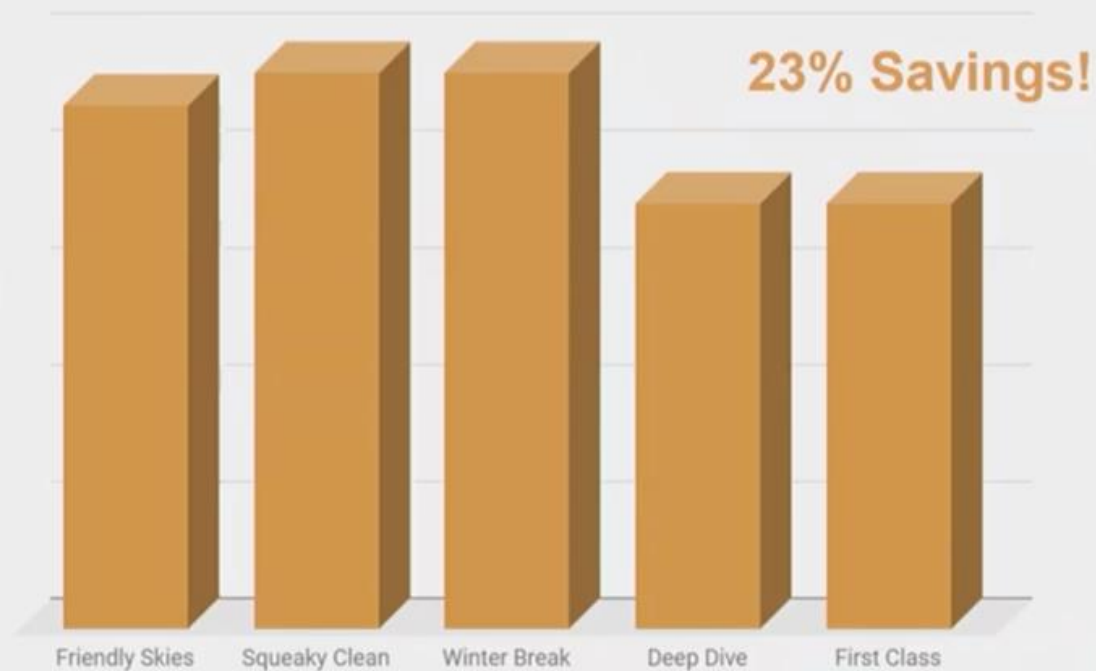






## Save Time & Money

Staff  
Weeks



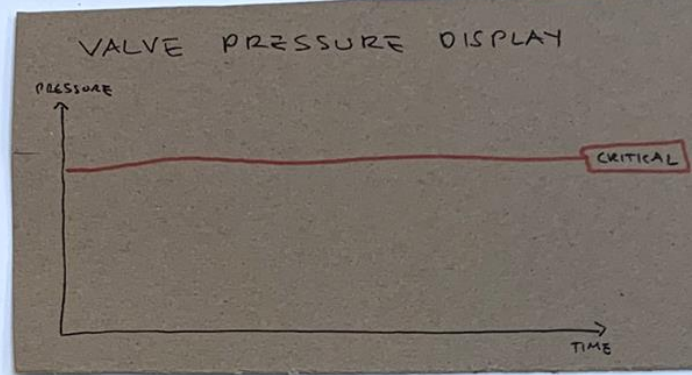
VRDC  
@ GDC 2018



16:09 / 55:34

1x





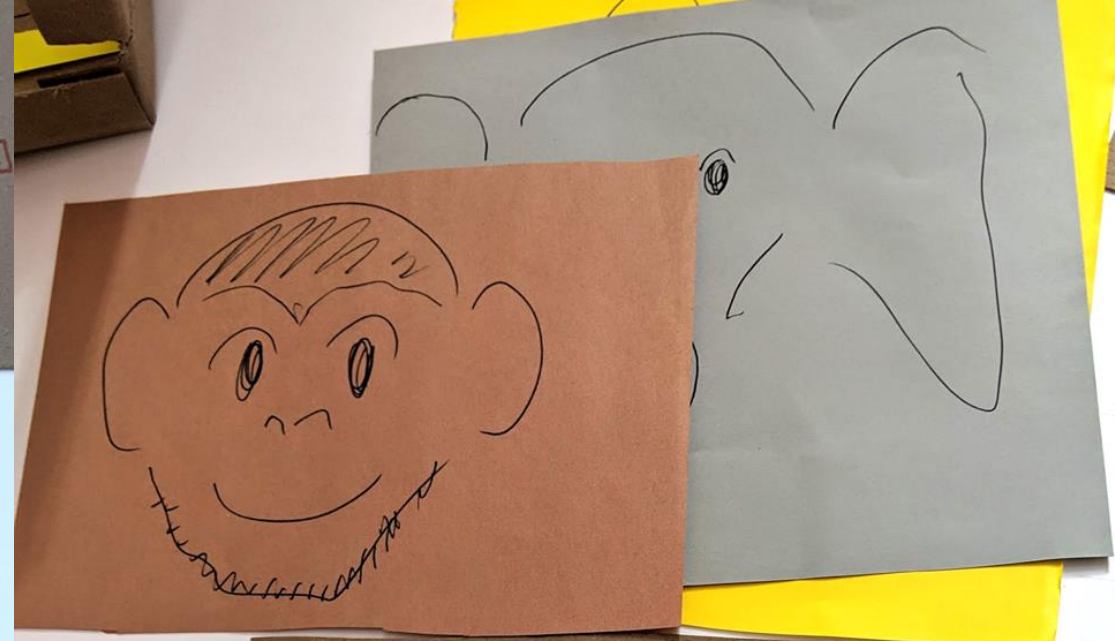
[Yellow LED]	ON
[Empty box]	OFF
NOT DEFINED	OPEN
NOT DEFINED	CLOSED

SPACE LED

### INDICATOR PANEL

### VALVE CONTROL

ON
OFF
OPEN
CLOSED



### WILDLIFE LANGUAGE TRANSLATOR

SWITCH TRANSLATION MODE BY PRESSING A BUTTON

RABBIT MODE	MONKEY MODE
ELEPHANT MODE	DUCK MODE



Conforms to ASTM D-4236  
See conforming to ASTM D-4236  
for details in ASTM D-4236



# Bodystorming

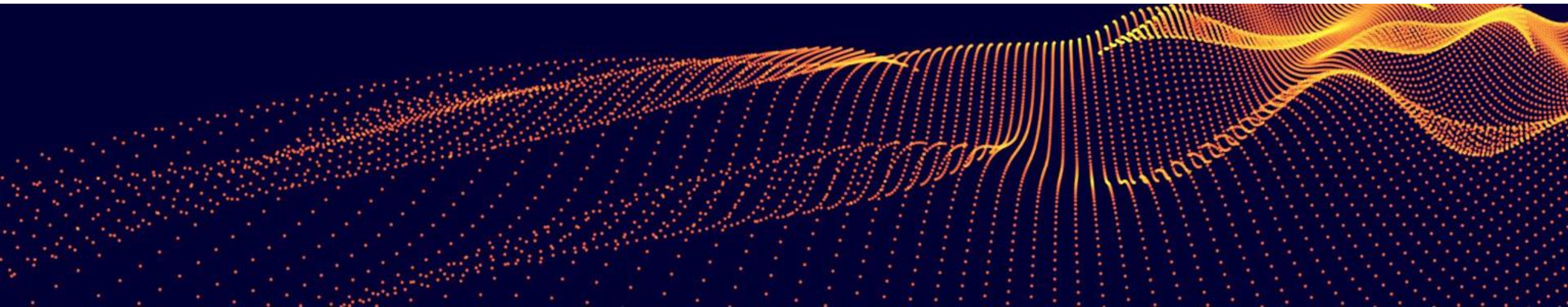
Is a design thinking method with which to act out a sequence of interaction, instead of e.g. verbally describing it

Fits immersive, again, via enabling to explore considerations of physical space and how to lead users through the experience



# De-risking via digital means

XR tools for design and prototyping

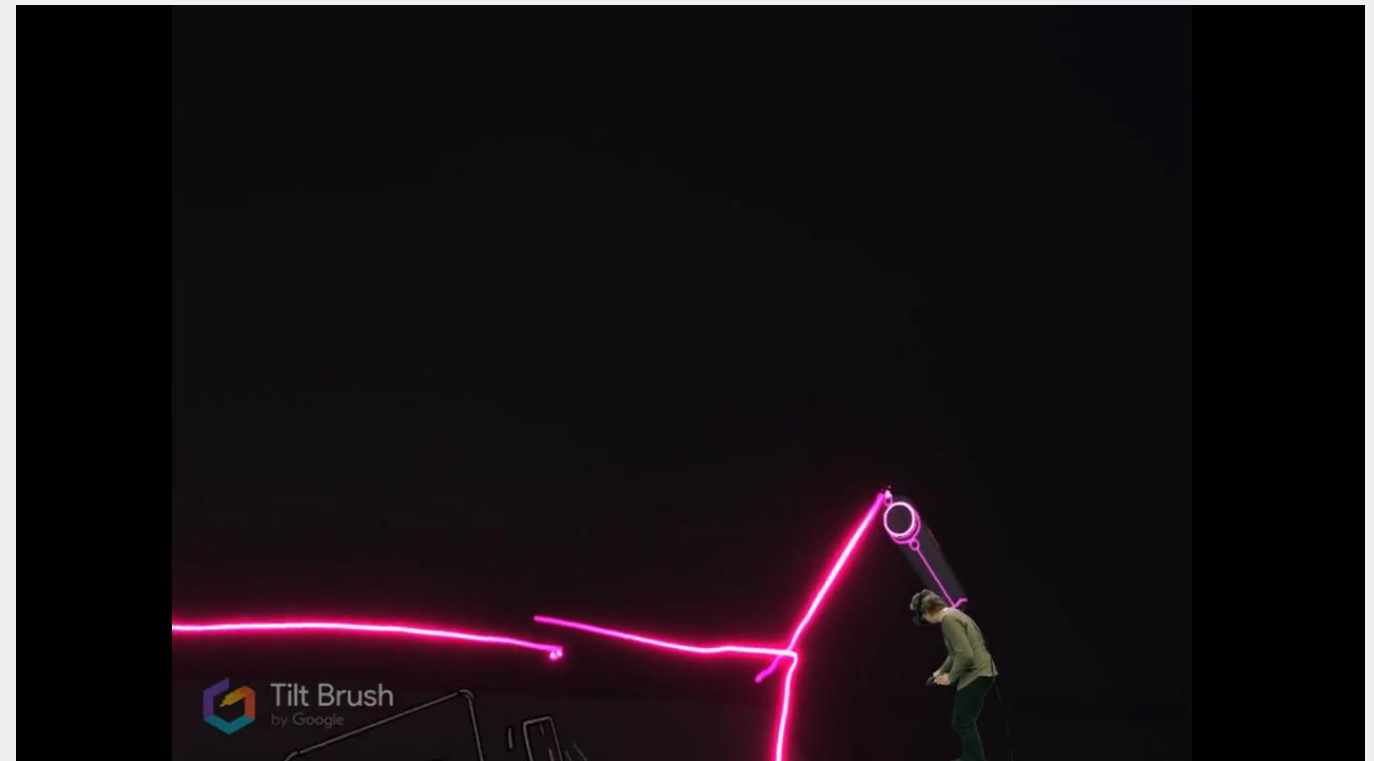




# Prototyping spaces with Tilt Brush

## Wireframing immersive environments in scale

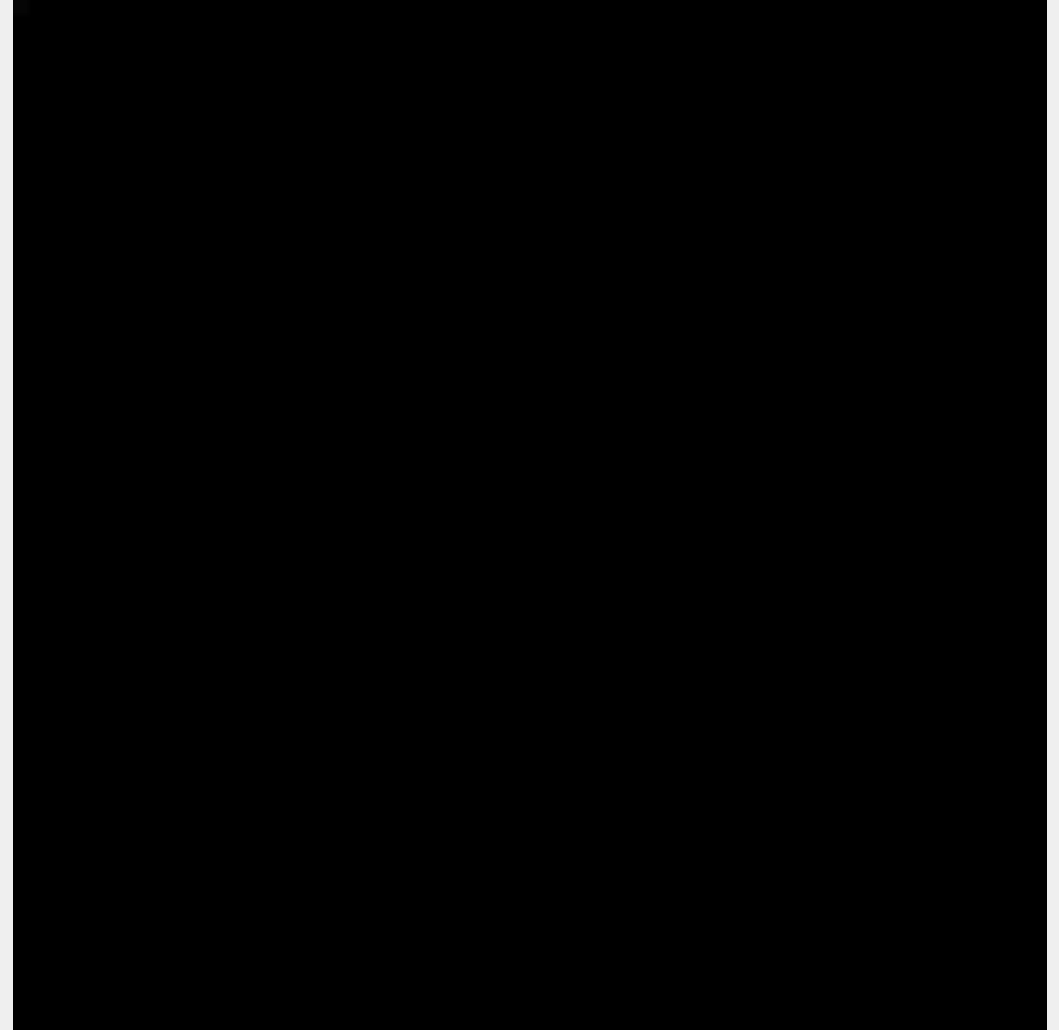
And taking them into a game engine to reduce guesswork - and save time - in implementing and testing the implementation



# Exploring interactions with Tilt Brush

## Using VR to think through AR interactions

Example: Getting the feel of a particular, dynamic interaction designed for mobile AR, using Tilt Brush in VR:





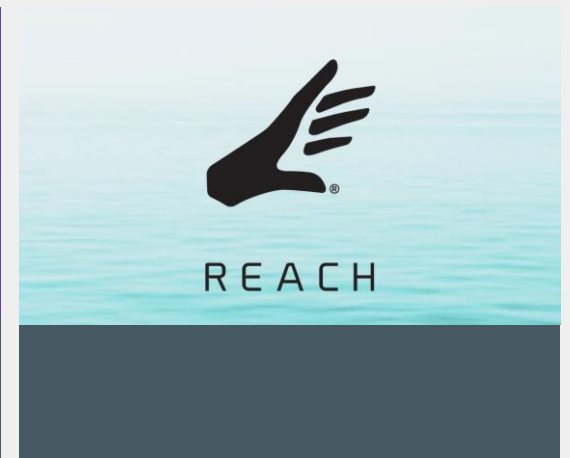
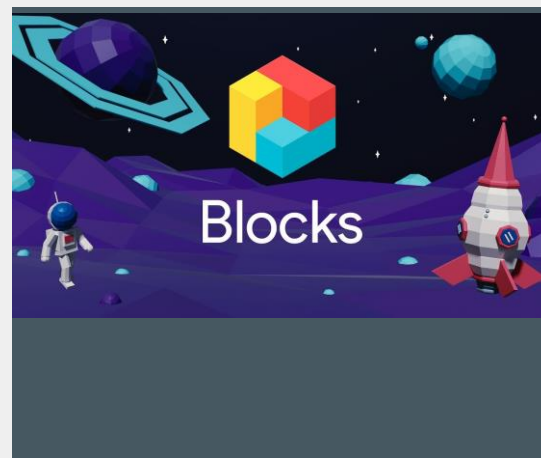
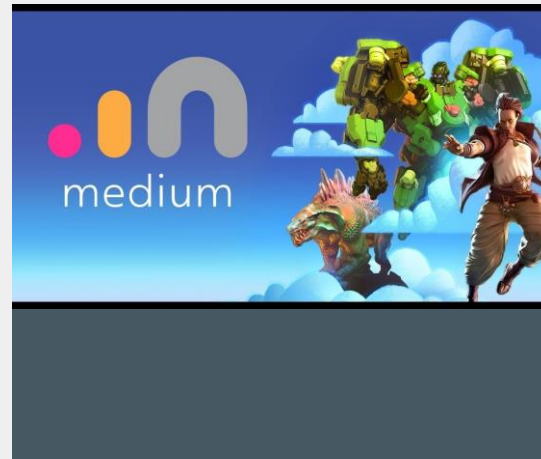
# Super fast AR prototyping with Torch

Exploring interaction design  
rapidly for feasibility

And showing them to stakeholders to  
communicate proposed design  
solutions



# Plethora of tools are out there!





# Investing into Design is the key to de-risking

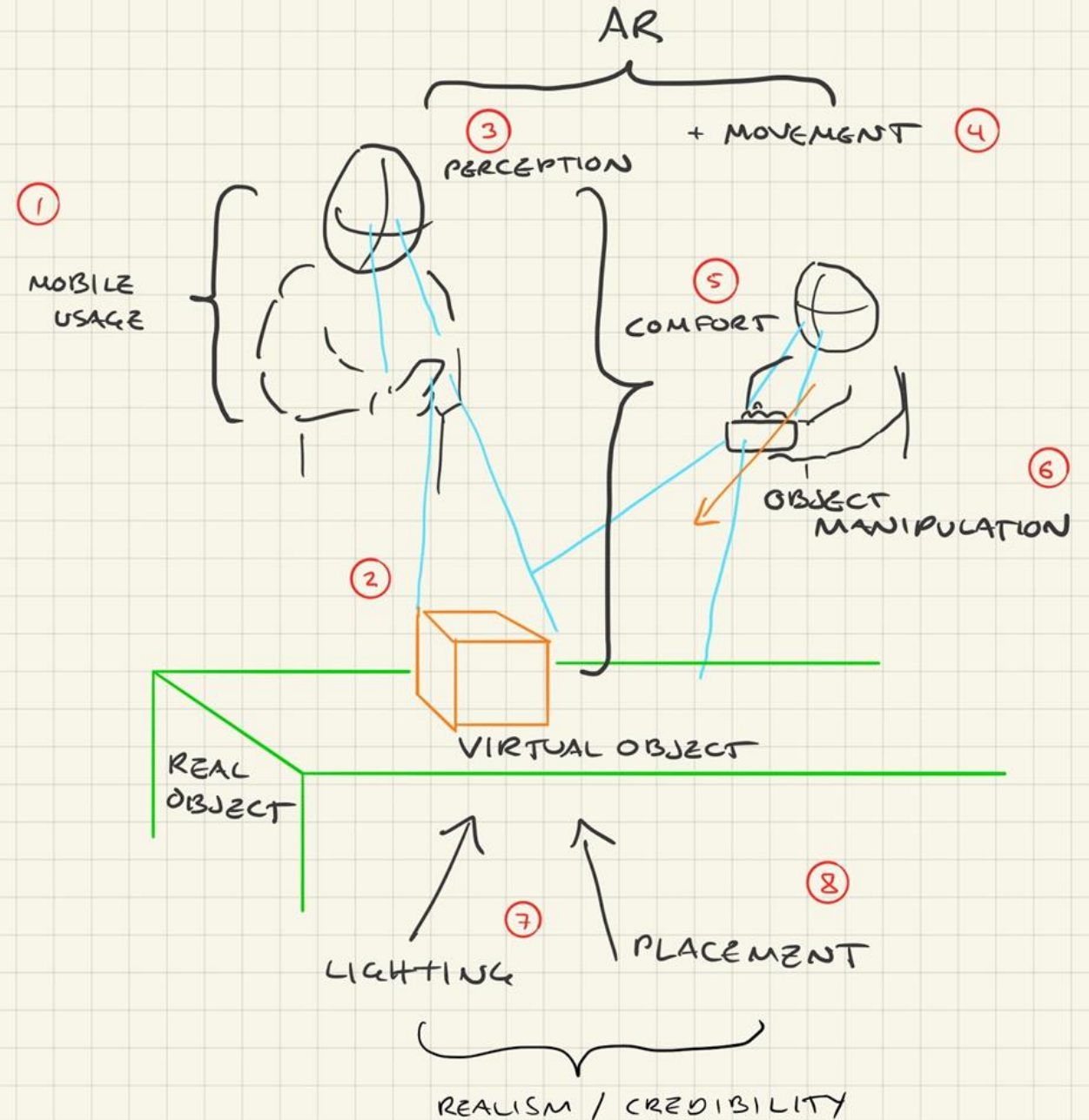
How to strive for design maturity in immersive



**There are no experts in immersive.**



We are all  
learning as we  
go, while the  
goal posts are  
being moved.



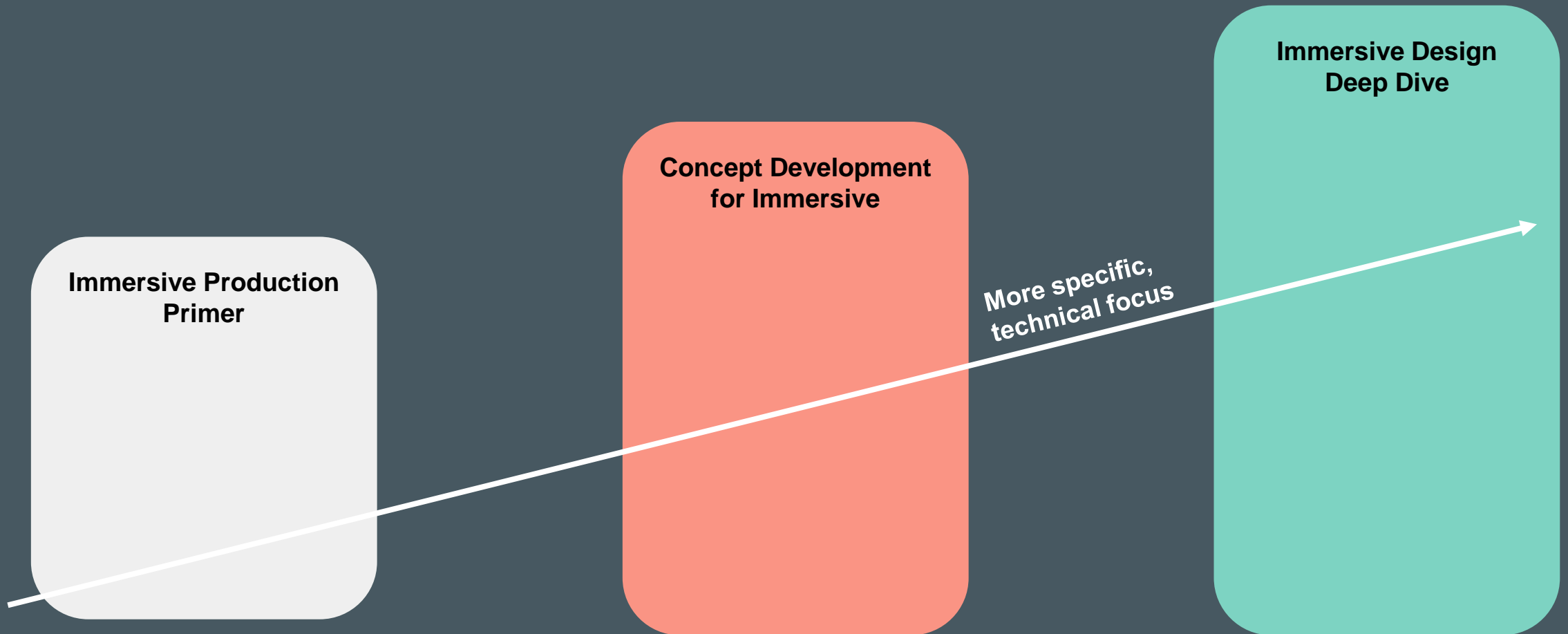
# Where are you?

Design capability and adoption in your company





# Three workshop formats for three different audiences





**Thank you - questions?**

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