

DOG HUT

VIRTUAL PRODUCTION TOOLSET



# Artistic Collaboration for Virtual Production

An immersive environment that makes virtual storytelling feel like being on a film set.

# DOGHUT

Designed for animated content creation DOGHUT is innovating the **storytelling process** and shortens the path from idea to final product.

DOGHUT will enable teams of artists to create fully **animated content** faster, more dynamically and more intuitively.

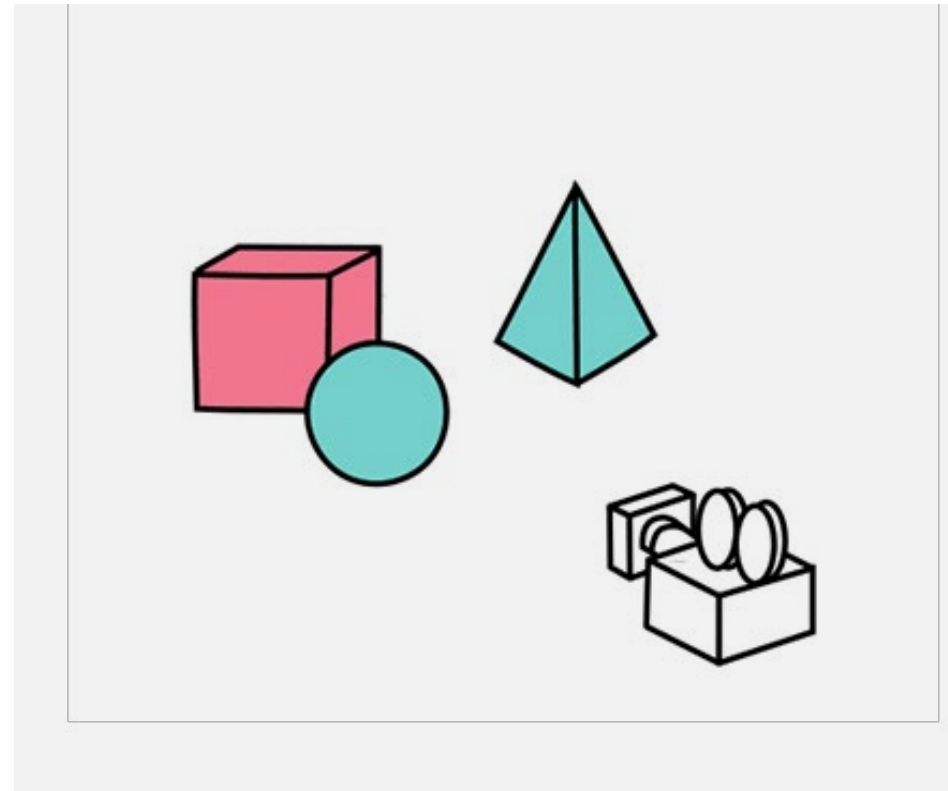
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# DOGHUT

## Our Virtual Production Use-Cases



PREVIZ



PITCHVIZ



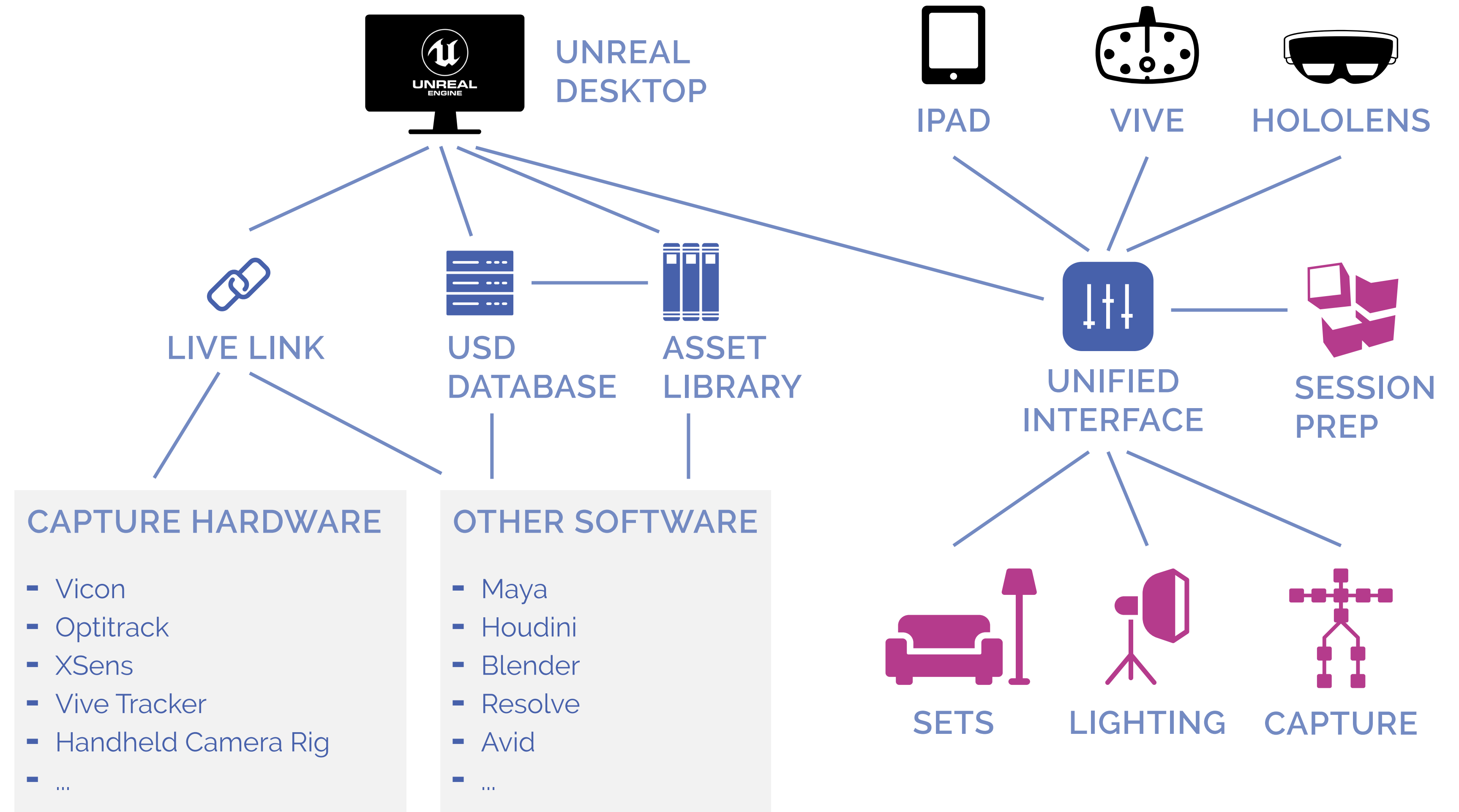
CONTENT CREATION

DOGHUT will boost the creative workflow for large as well as for **indie productions**. It scales with its environment and is usable even with a **minimum amount of hardware**.

## Ecosystem

Using Unreal Engine at the core, DOGHUT will provide unified interfaces, across a multitude of XR Devices.

Throughout specific multi-user sessions, artists immerse themselves into the creative process and send their decisions and choices down the line into a USD database, that can be integrated into the animation studios pipeline and asset library.



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# Workspace Configurations

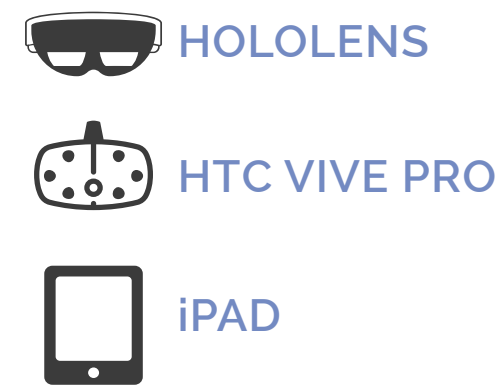
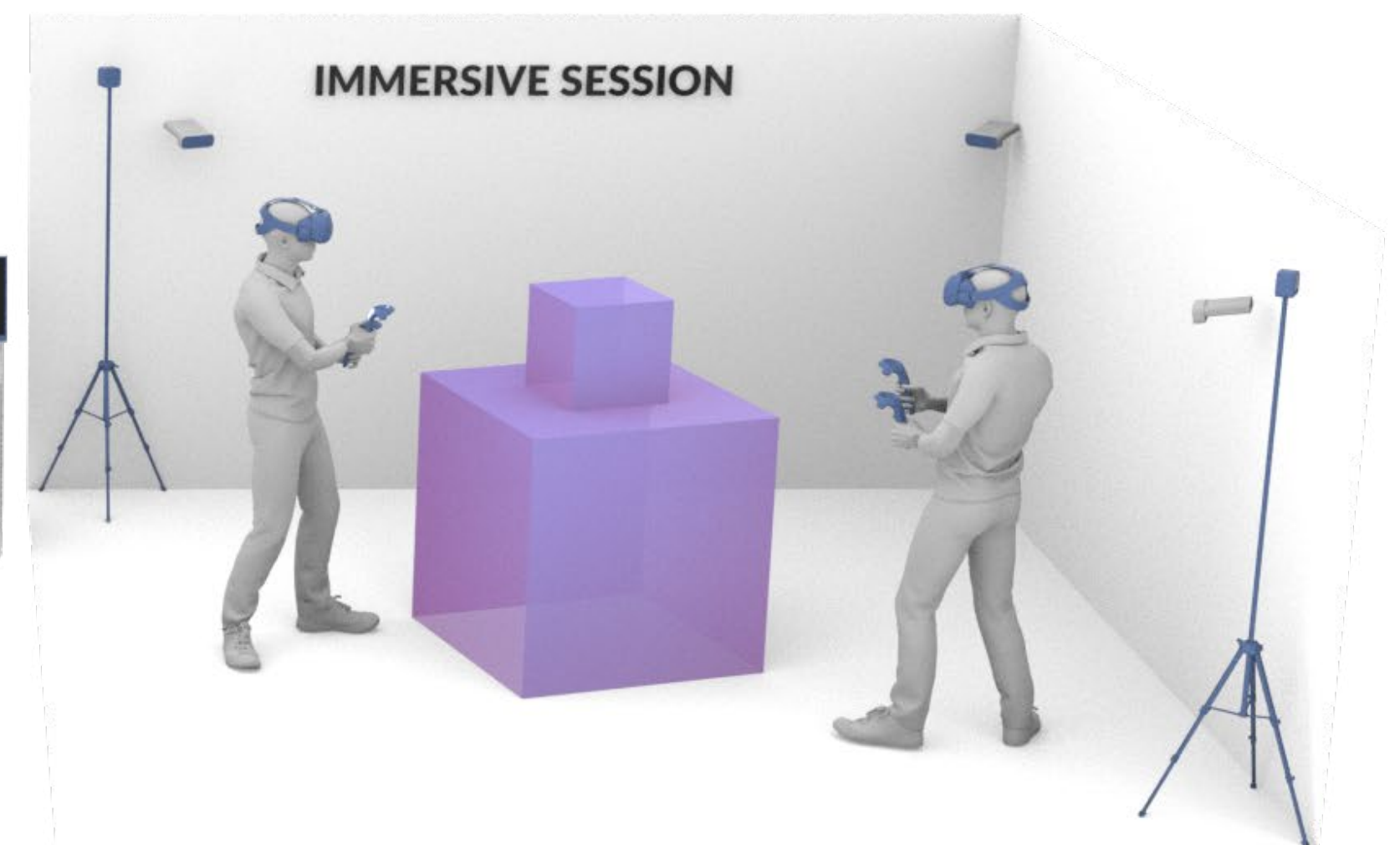
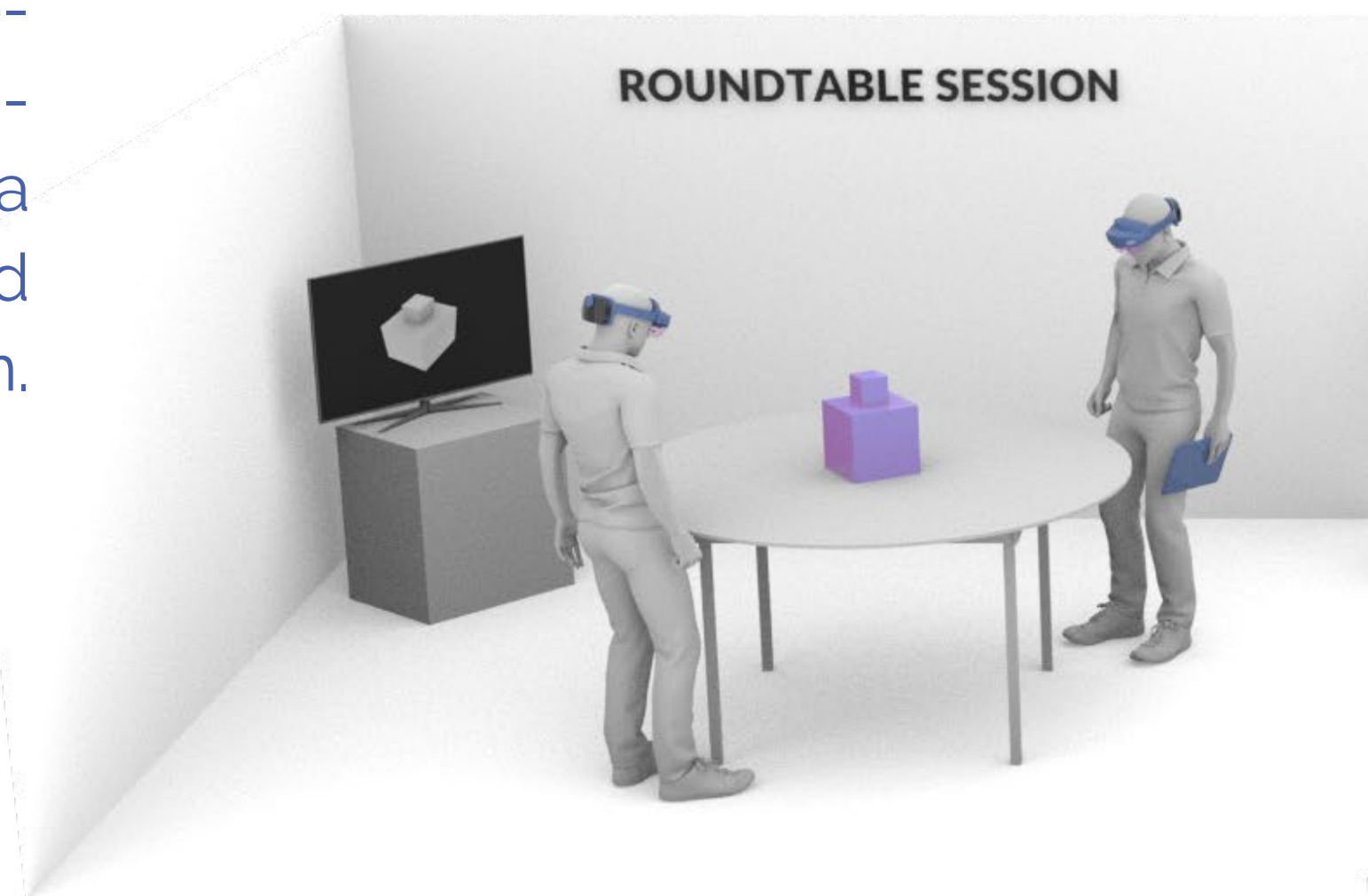


## Scouting and set dressing

Discuss and edit your set design and layout in multiuser sessions. Regardless of being in a studio, in an office or connected to a client in another location.

Tasks can include:

- Annotating
- Set-laying out
- Prop-dressing
- Blocking action

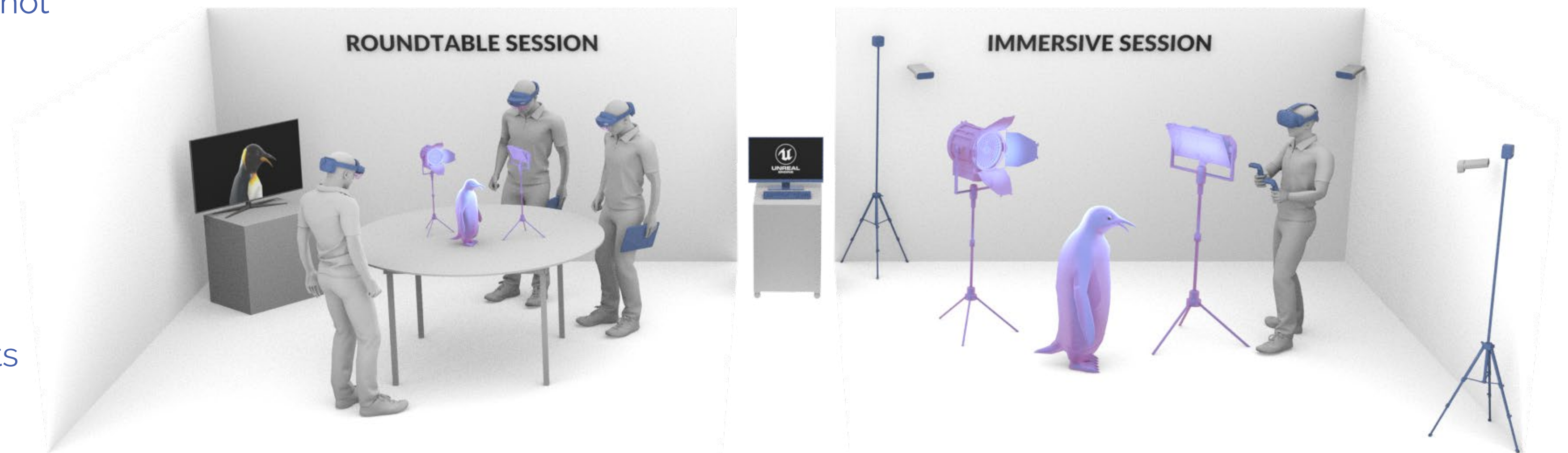


## Lighting

Have a camera operator, a lighting artist and a director interact and work out their base and shot lighting.

Tasks can include:

- Base-lighting locations
- Adding atmospheric Effects
- Post-lighting scenes / shots



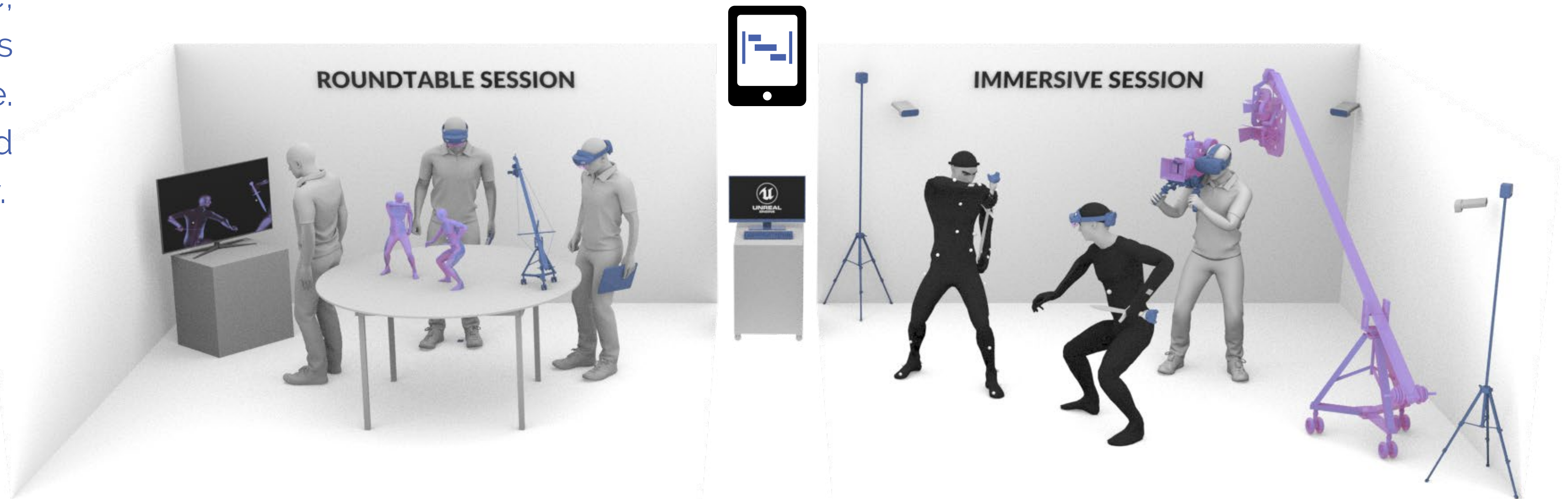


## Capture

Control your camera from within or outside the virtual space, while performance capture is happening at the same time. Have an editor select takes and edit rough cuts simultaneously.

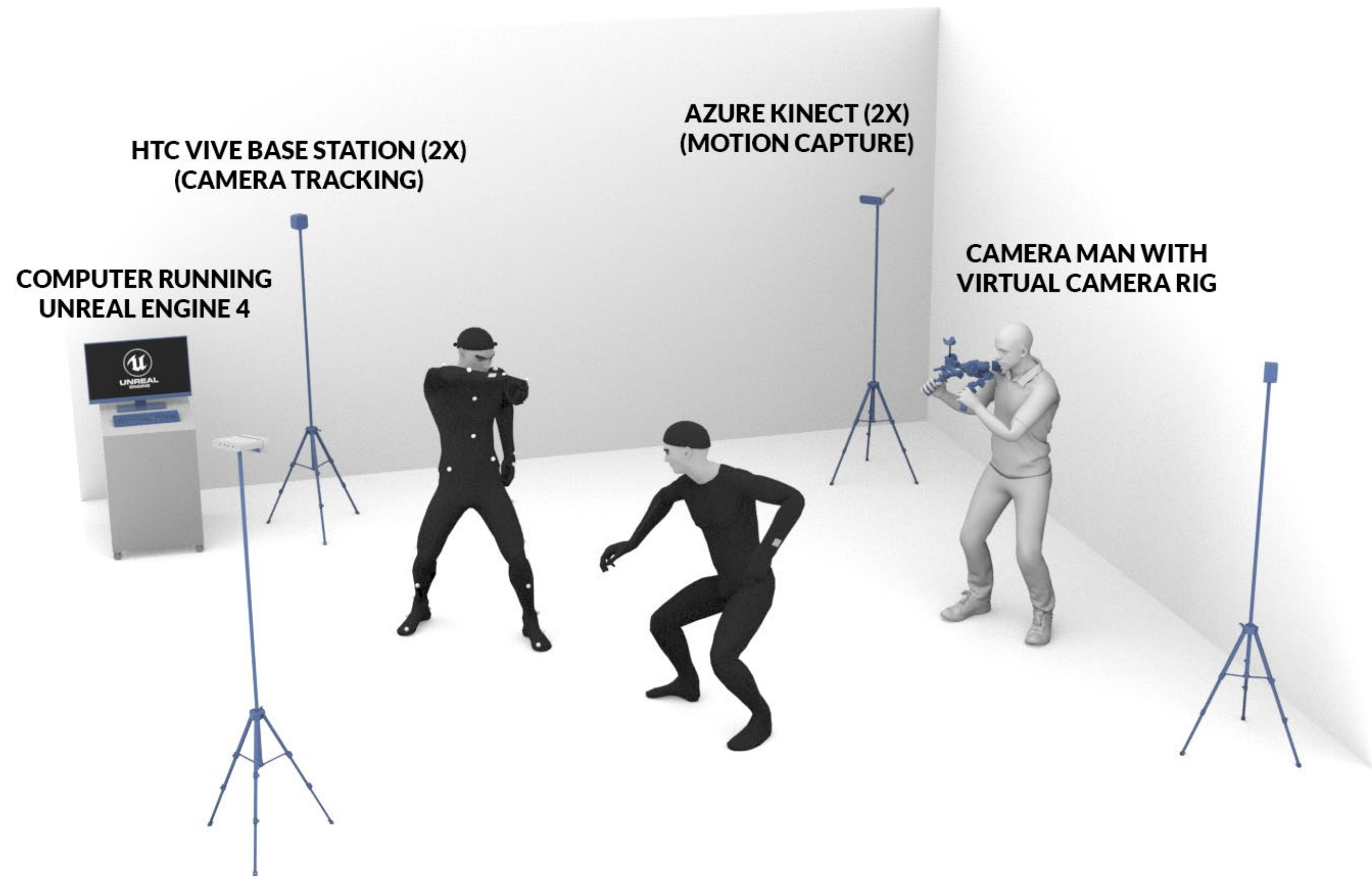
Tasks can include:

- Performance capture
- Virtual camera
- Layered recording
- Live playback & animation review



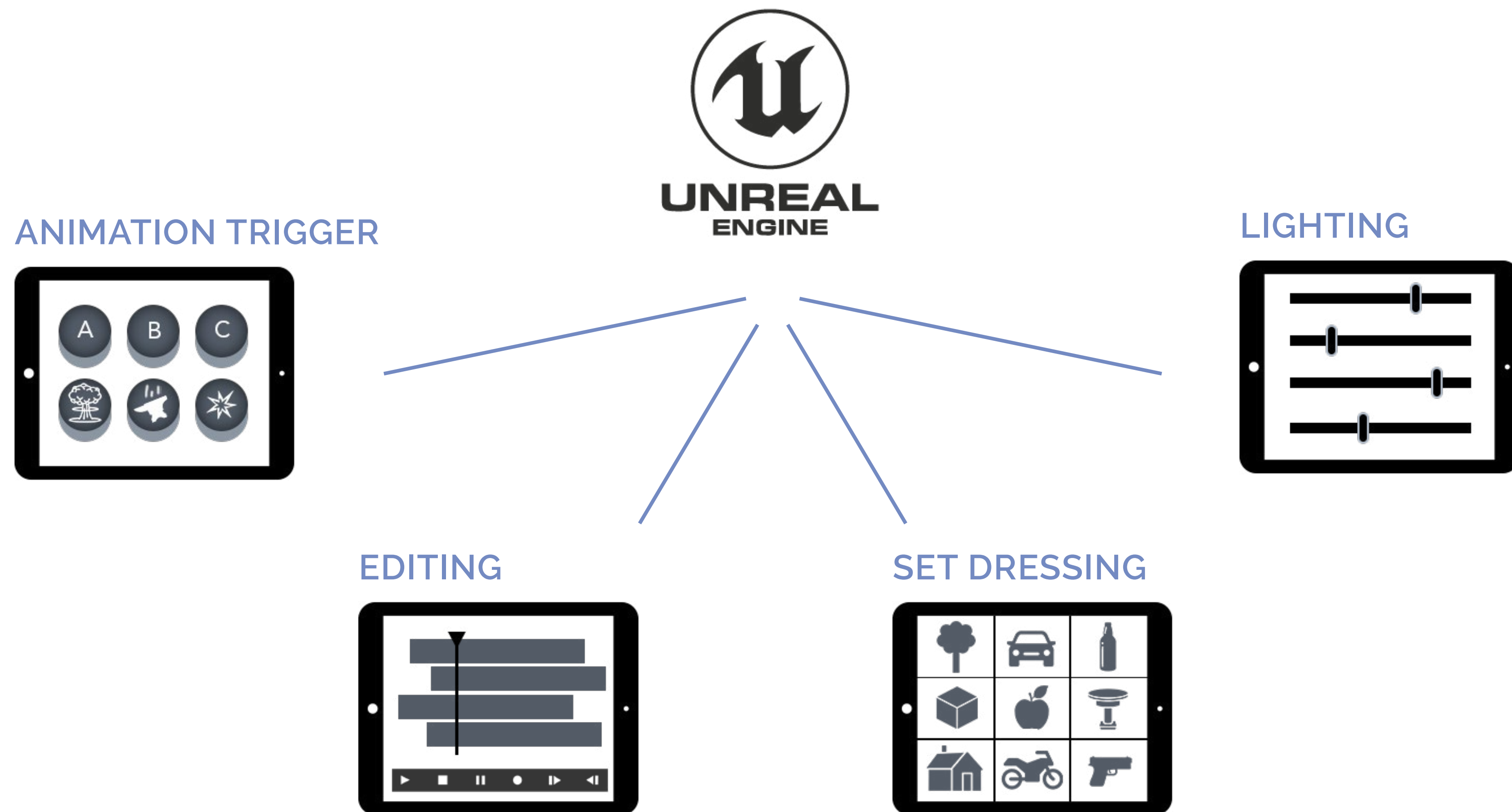
## Minimalistic Capture Setup

As a low-cost alternative we are currently prototyping a minimalistic approach for doing full body motion capture using two Microsoft Azure Kinects and a tracked virtual camera and/or an iPad.



## Session Prep

Assign different roles to the active users in a session and prepare interfaces that will be shared throughout all devices (iPads and virtual UIs in XR).



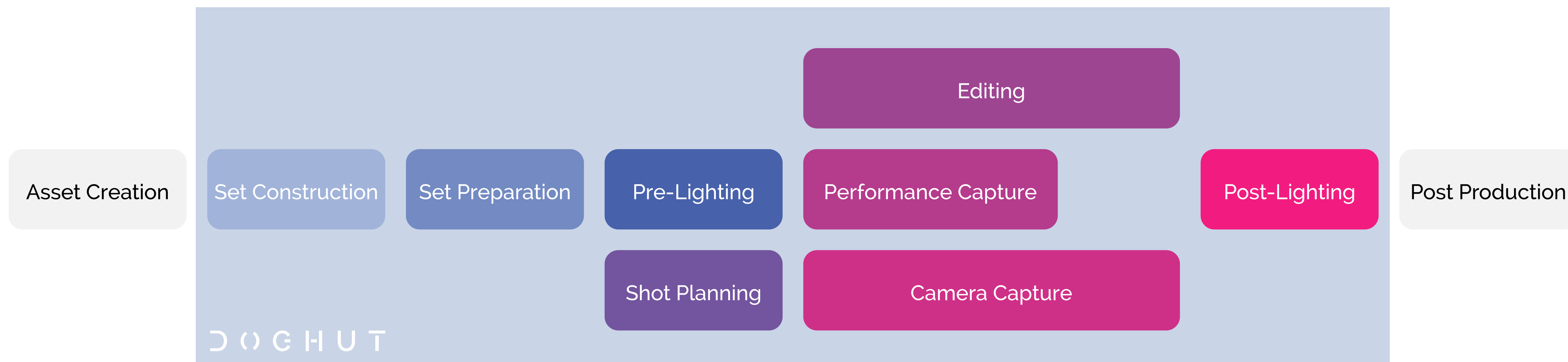


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# Workflow Improvements

## Workflow

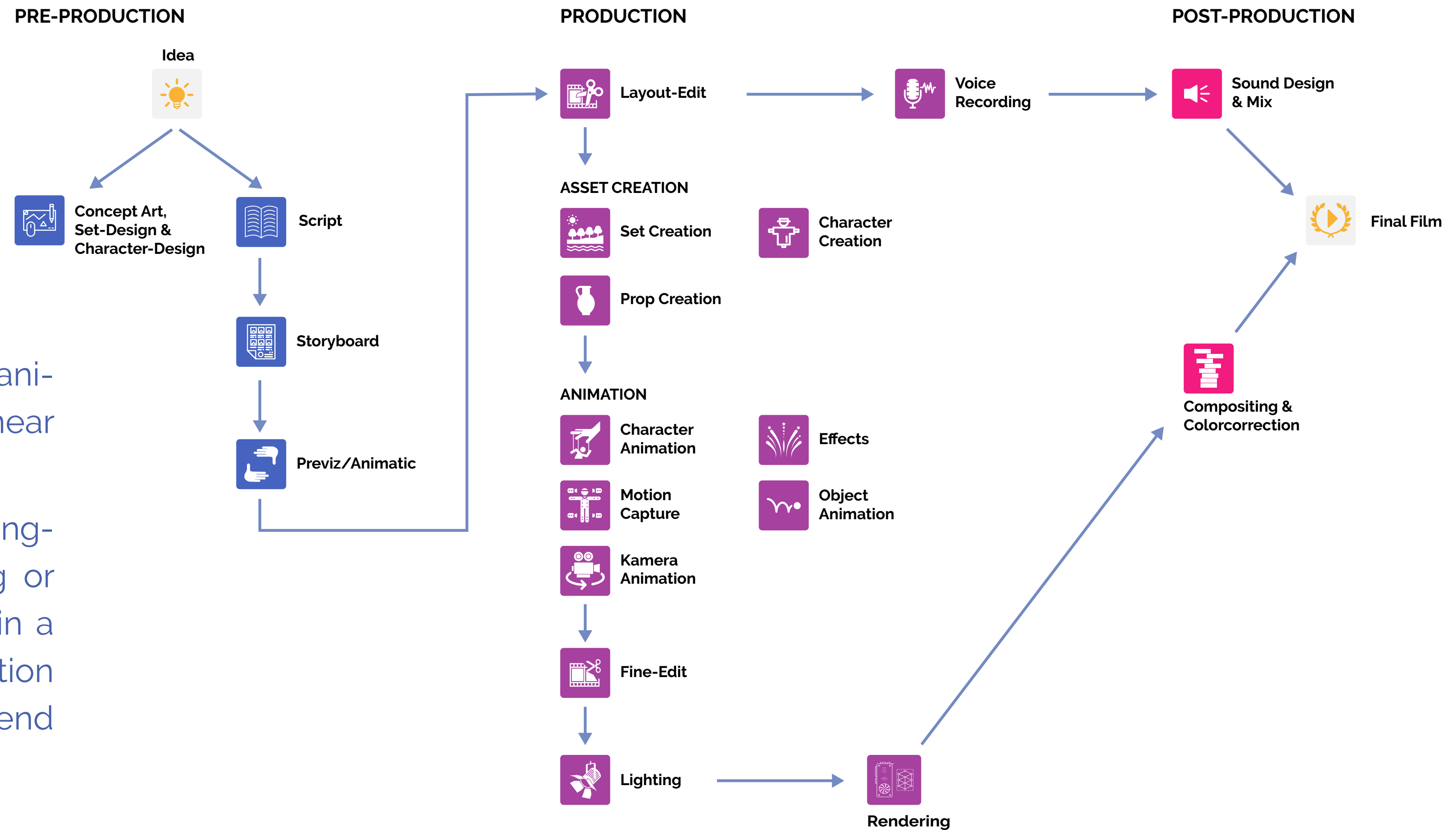


DOG H U T takes over after asset creation and provides a dynamic environment for artistic teams, with several processes potentially happening at the same time. The results are handed back over to the studios post-production pipeline, if necessary.

## Traditional Production Workflow

The traditional workflow for animated content creation is linear and slow.

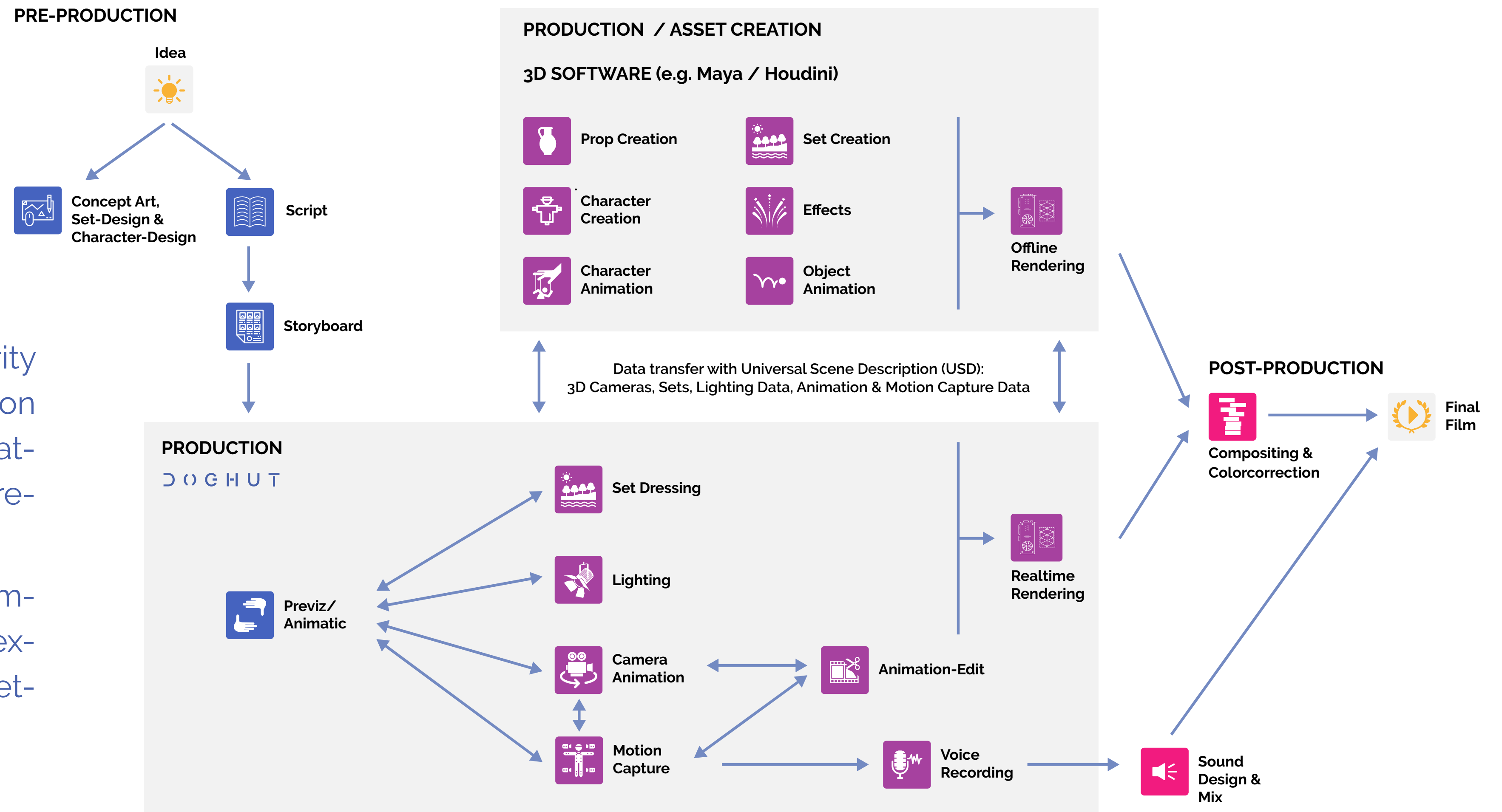
Fundamental conceptual changes to camera layout, editing or story beats will often result in a costly throwback for production when happening towards the end of the process.



## Improved Production Workflow

DOGHUT breaks up linearity and enables a dynamic decision process, that is focused on flattened hierarchies and high-frequency review loops.

Creative decisions produce immediate results and playful experimentation leads to better-informed choices.



## Virtual Camera

The first iteration of a virtual camera shoulder rig for Unreal Engine 4.25 including physical buttons, dials and joysticks connected to an Arduino as well as a touch interface transmitting inputs over WIFI through the OSC protocol. Released as an open source project.

More information at:

[www.doghut.de/virtual-camera](http://www.doghut.de/virtual-camera)



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# Research and Development



## RnD Environment: Proposed Tools & Hardware



CAMERA GRIP-EQUIPMENT:  
SHOULDER-MOUNTS, DOLLIES, JIBS



VIVE PRO VR HMD



HOLOLENS 2 MR HMD



AZURE KINECT



IPADS (UI) &  
IPHONEX (FACE MOCAP)



XSENS MVN  
ANIMATE MOTION  
CAPTURE SUIT



MANUS VR GLOVES



VIVE TRACKER



HTC 5G HUB

## RnD Phases

Our development timeline stretches over an initial period of 12 months and is broken down into four phases.

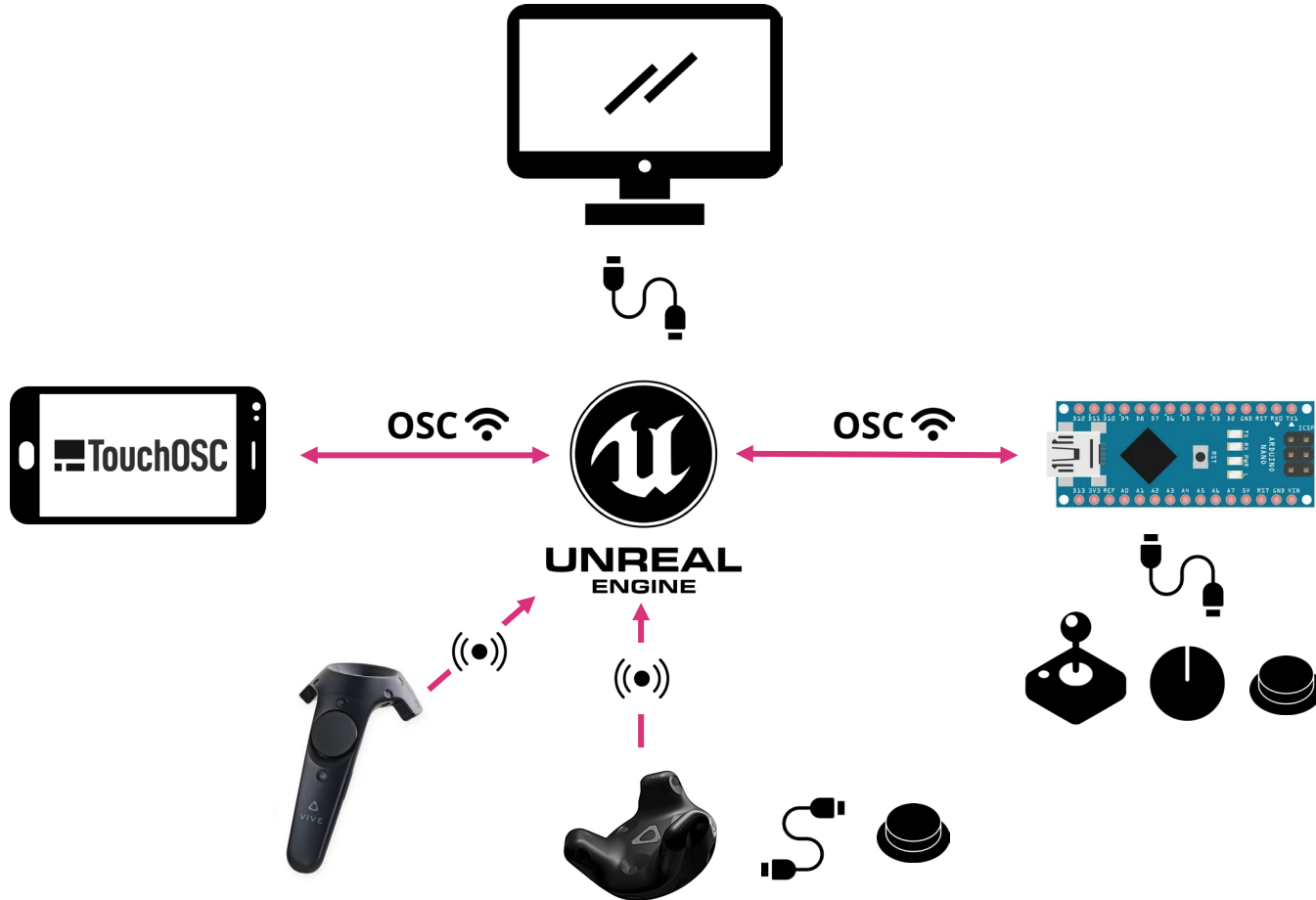
<p><b>RESEARCH</b></p> <p>Current Hardware Interfaces Perspectives</p>	<p><b>CONCEPT DEVELOPMENT</b></p> <p>User-Workflow Pipeline Integration Development Strategy UI</p>	<p>I</p>
<p><b>TESTING</b></p> <p>Hardware Testing Software Testing</p>	<p><b>UI DESIGN</b></p> <p>Portable/unified interfaces for all devices Configurable Workspaces</p>	<p>II</p>
<p><b>PROTOTYPING</b></p> <p>On selected hardware Basic functions and workspace configurations</p>		<p>III</p>
<p><b>EVALUATION</b></p> <p>What works and what needs to be changed</p>		<p>IV</p>
<p><b>IMPLEMENTATION</b></p> <p>Extend functions of tools Implement all necessary devices</p>	<p><b>OPTIMIZATION</b></p> <p>Bug fixing Performance optimization</p>	

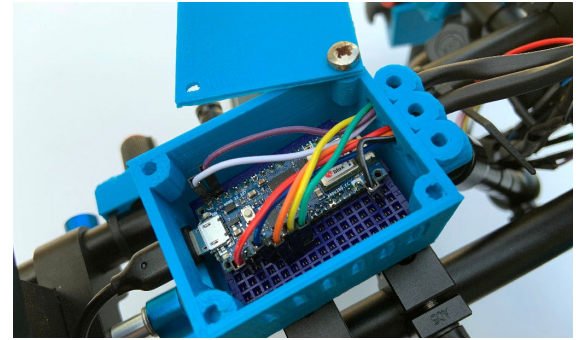
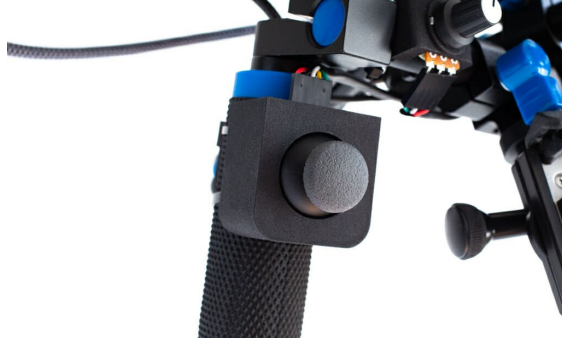


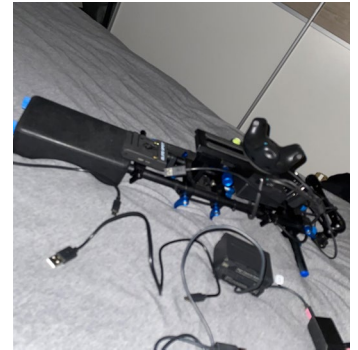
# Developed prototypes (updated July 2020)

# VIRTUAL CAMERA 1.0











## VR SCOUTCAM (coming up)



## VR SCOUTCAM (coming up)





# RIG ATTACHMENT – OCULUS QUEST 2





## LENS ENCODER (coming up)

