AR /VR in der Produktentwicklung

20. Bayreuther 3D-Konstrukteurstag

August 2018

© INNEO Solutions GmbH

INNEO®
That's IT.

INNEO®
That's IT.

VIRTUALITY CONTINUUM

MIXED REALITY

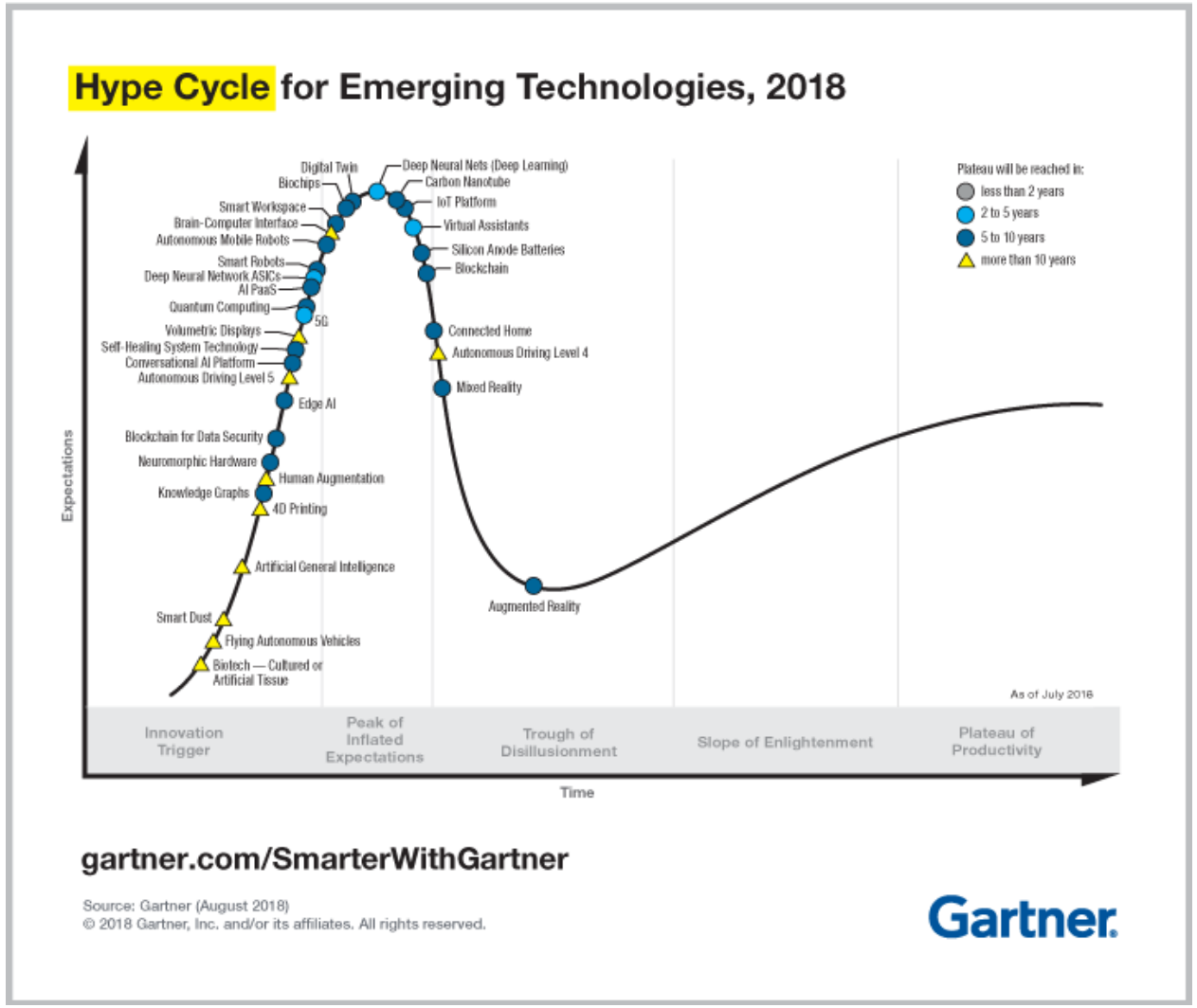
REALITY

AUGMENTED REALITY (AR)

AUGMENTED VIRTUALITY (AV)

VIRTUAL REALITY

Gartner Hype Cycle



Road 2 AR/VR

- 3D Operating System
  - Windows 10
  - IOS 12
- Commercial Augmented Reality
  - AR / VR Web
  - Metaverse
  - Oasis
- USDZ
- glTF/glB

Einstieg VR / AR

Hardware

- Mobile device
  - Smartphone
  - Tablet
- Cardboard
- VR Ready PC

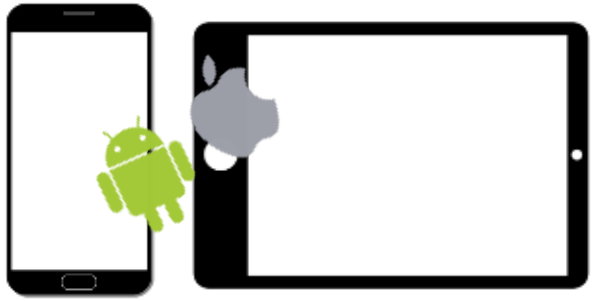
Software

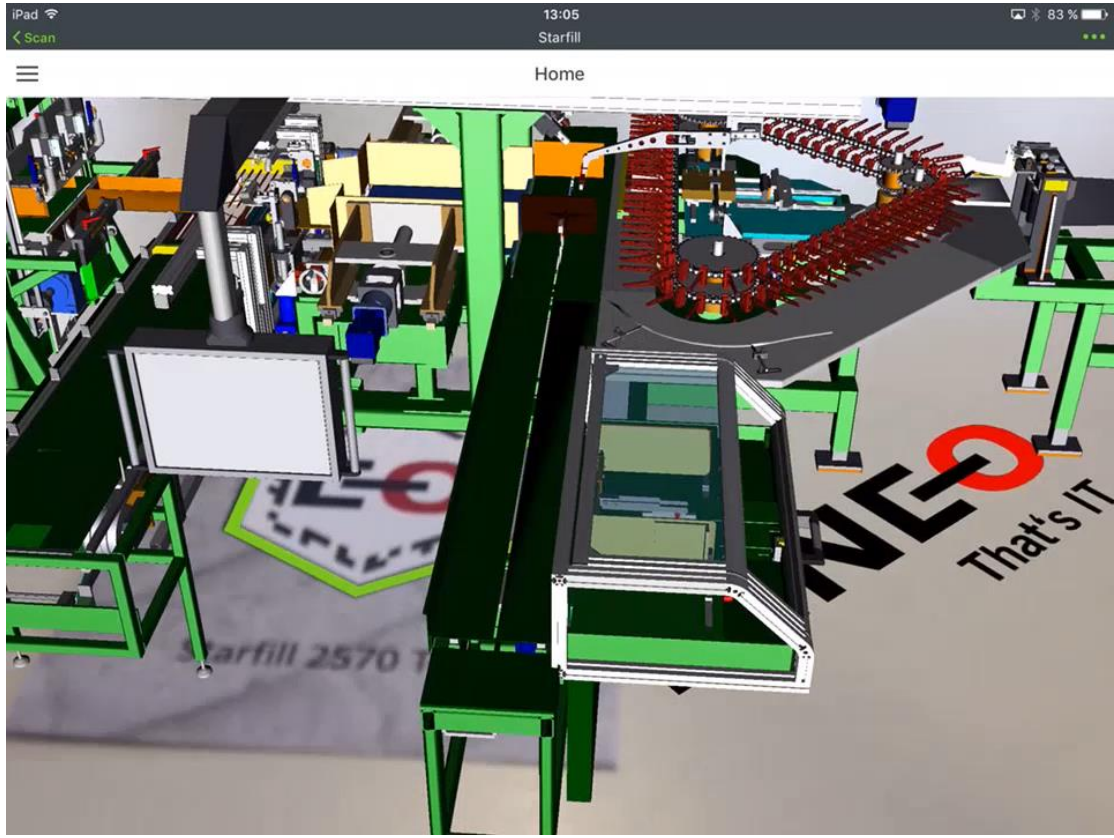
- Windows 10
  - Mixed Reality Viewer
  - glTF/glB
- Creo 4.0
- AR Quick Look
  - IOS 12
  - .usdz file format
- Sketchfab
  - Free / 15 € – 79 € /Month
- eDrawings/Pro
  - 10,99 € / IOS
  - 1,59 € + in-app/Android

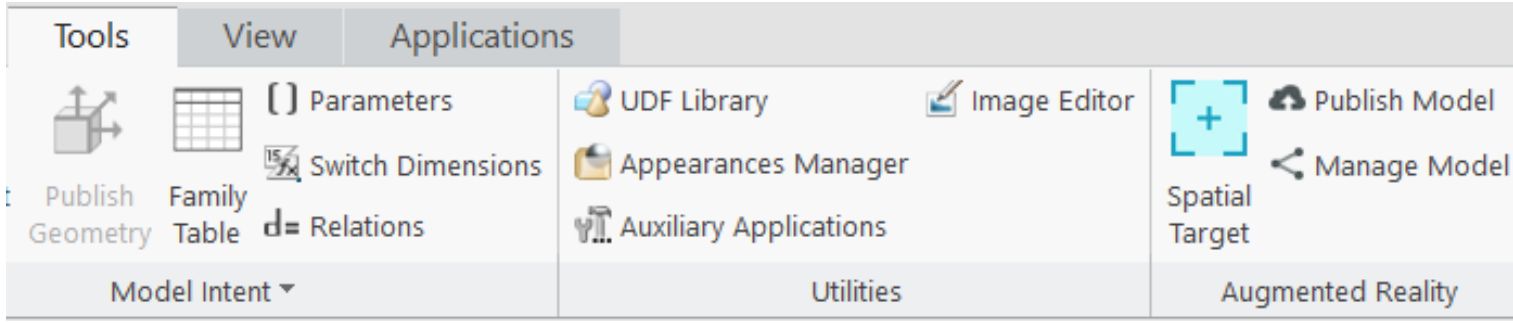
chrome canary

Creo 4.0

- Creo 4.0 M010
- PTC Login
- Default view
  - Drehen
  - Zoomen
  - Sichtbarkeit







AR VR MR Landscape

UNREAL ENGINE

vuforia® studio™

unity

KeyShot® by Luxion

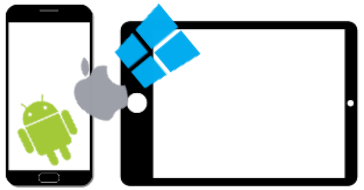
AR

Seated VR

Room VR

MR

Mobile



HMD

High-res HMD for interiors

- ~5k- resolution
- ~170°-210° field of view
- ~130°field of view

Vrgineers

STARVR ONE

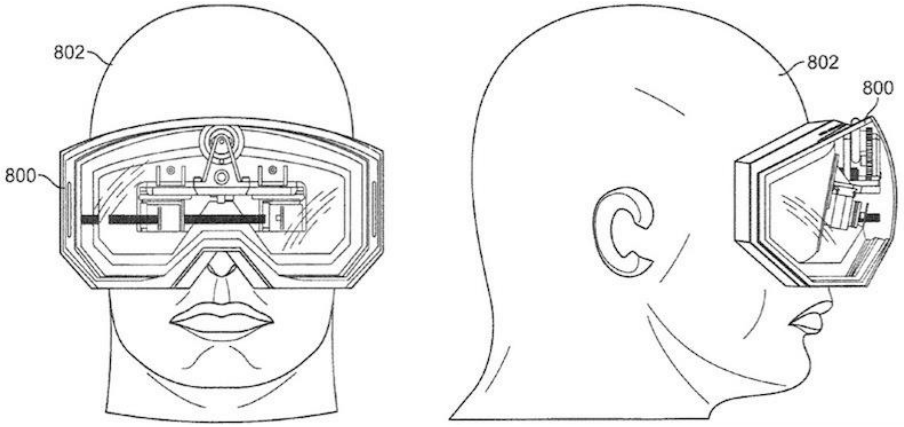
STARVR ONE XT

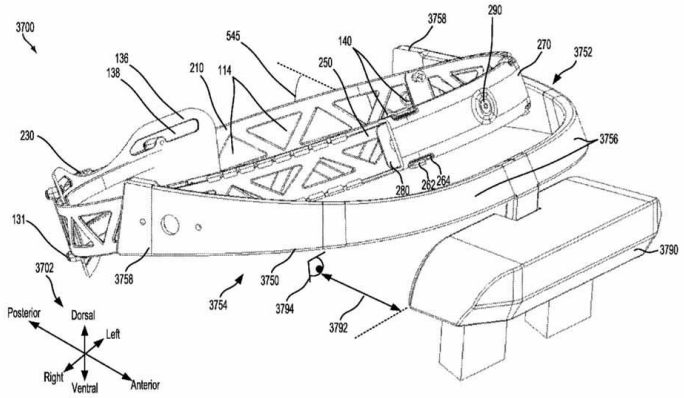
AR HMD

- HoloLens
  - FOV
  - Pricing
  - Weight
  - Power
- Meta 2
  - Teathered
  - Tracking
  - Huge
- Magic Leap One

Next generation MR / HMD

- Remove Reality
- Hololens 2/3
  - Codename Sydney
  - 2018/2019
  - Price?
- Apple 2020?
  - VRVANA
  - Akonia



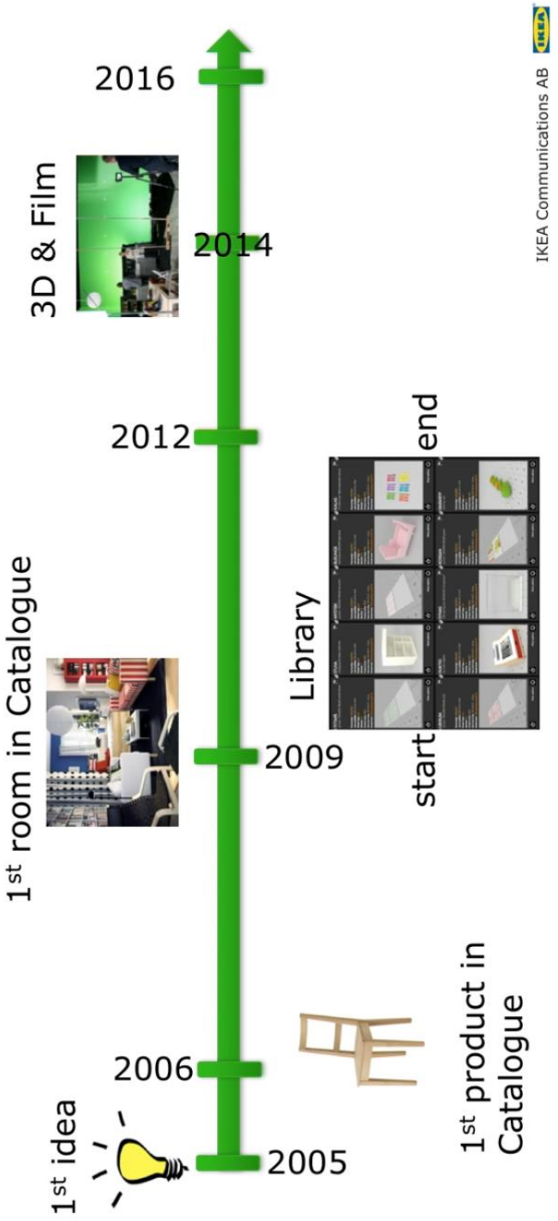


AKONIA HOLOGRAPHICS

VRVANA

CGI – AR Parallel history

- 2006: 1. Bild
- 2009: 1. Raum
- 2012: 25 % des Kataloges
- 2014: 75 % des Kataloges
- 2014: Augmented Reality & Film
- 2015: Virtual Reality
- 2016: 360° Videos
- 2017: IKEA Place ARKit

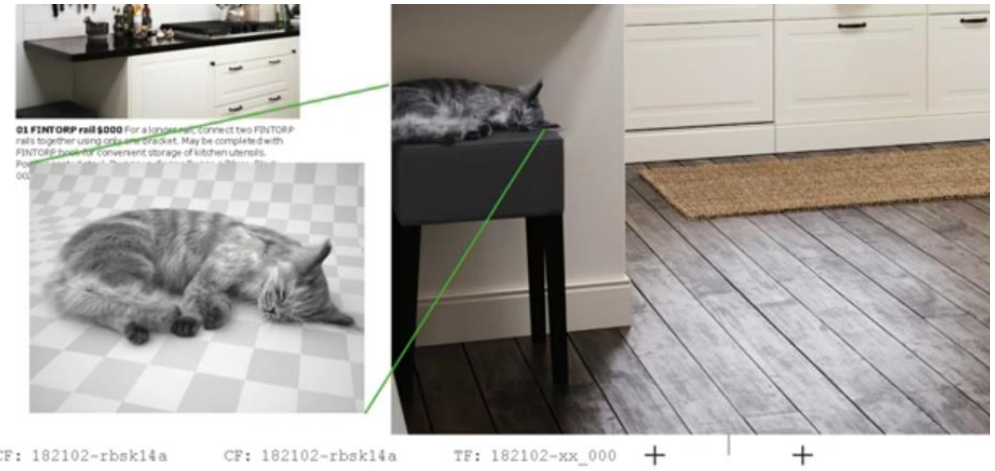


Grund für die Computer-Bilder ist schlicht der Kostenfaktor. Für die Fotos müssten die Möbel rund um den Globus geschickt werden. Die CG-Bilder können jederzeit und überall erstellt und berechnet werden.

Use of 3D MODEL

High resolution model

1	2	3	4	5	6	7	8
Interior Designers **Sketchup**	Single product **rendering**	Room **rendering**	Store Des. In **Autocad Revit**	End-User for **Home Planning**	3D Model for **AR/Cat. App**	3D Model for **VR App.**	3D **(Local IKEA Service Office)**



Built since 2009

Model Library
Count: 32,878

Texture/Pattern Library
Count : 9744

Propping Library
Count : 4056

Material Library
Count : 9160

3D Strategy, gold mining the data

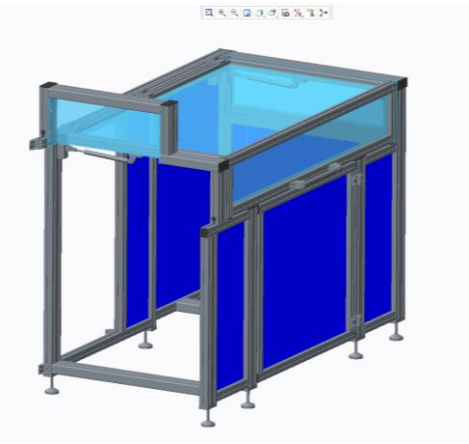
Challenges:

- Data reduction
  - VR
  - AR
  - MR
- New File Formats
  - glTF/glB
  - USDZ
  - FBX
- Data enhancement
  - Material
  - Textures
  - Animation
  - …

vuforia® studio™ unity UNREAL ENGINE blender™

Visualisierungskette

Entwicklung → Dokumentation → Montage → Marketing → Vertrieb → Produktmanager → Interne / externe Kommunikation…



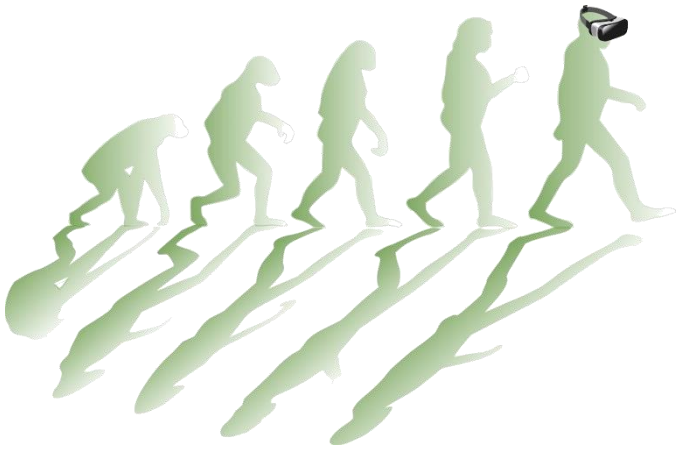
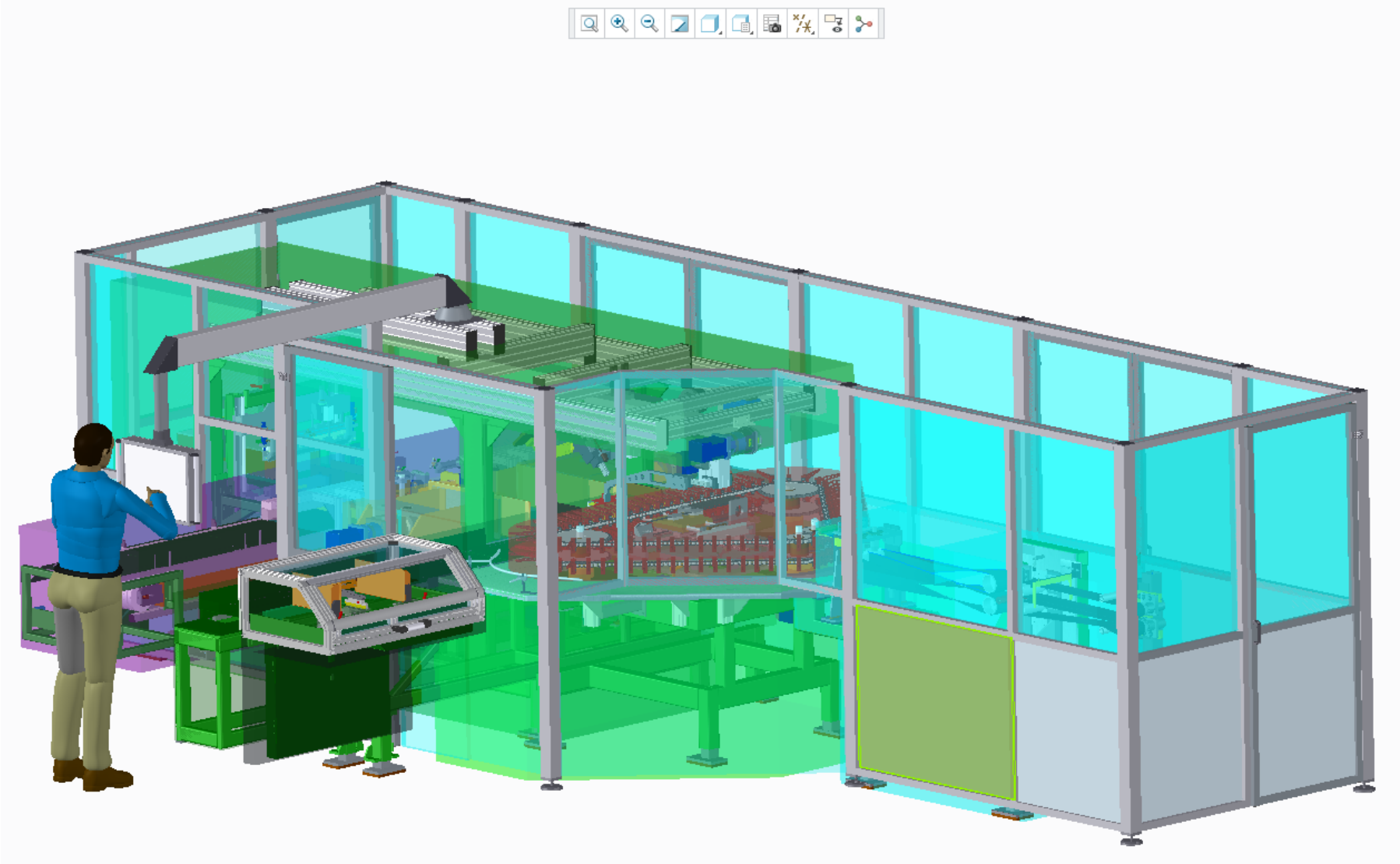


Bild → Animation → Stereo → 360° → Seated VR → FBX → KeyVR → glTF → Unity / Unreal …

INNEO® That's IT.

Visualisierungskette

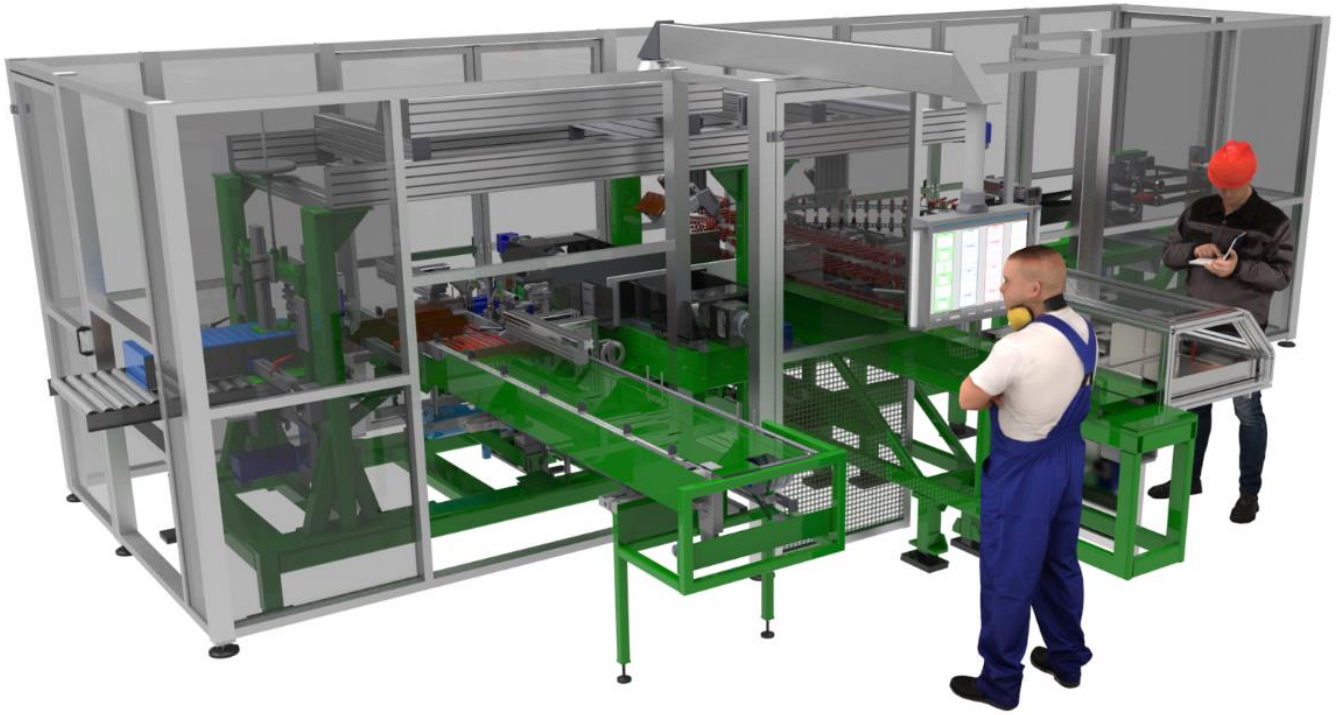
- CAD-Abbildung
- Produktbild
- Baugruppenbild
- Animation
- Seated VR
- 360° Video
- VR
- AR



DOSCH DESIGN

Visualisierungskette

- CAD-Abbildung
- Produktbild
- Baugruppenbild
- Animation
- Seated VR
- 360° Video
- VR
- AR



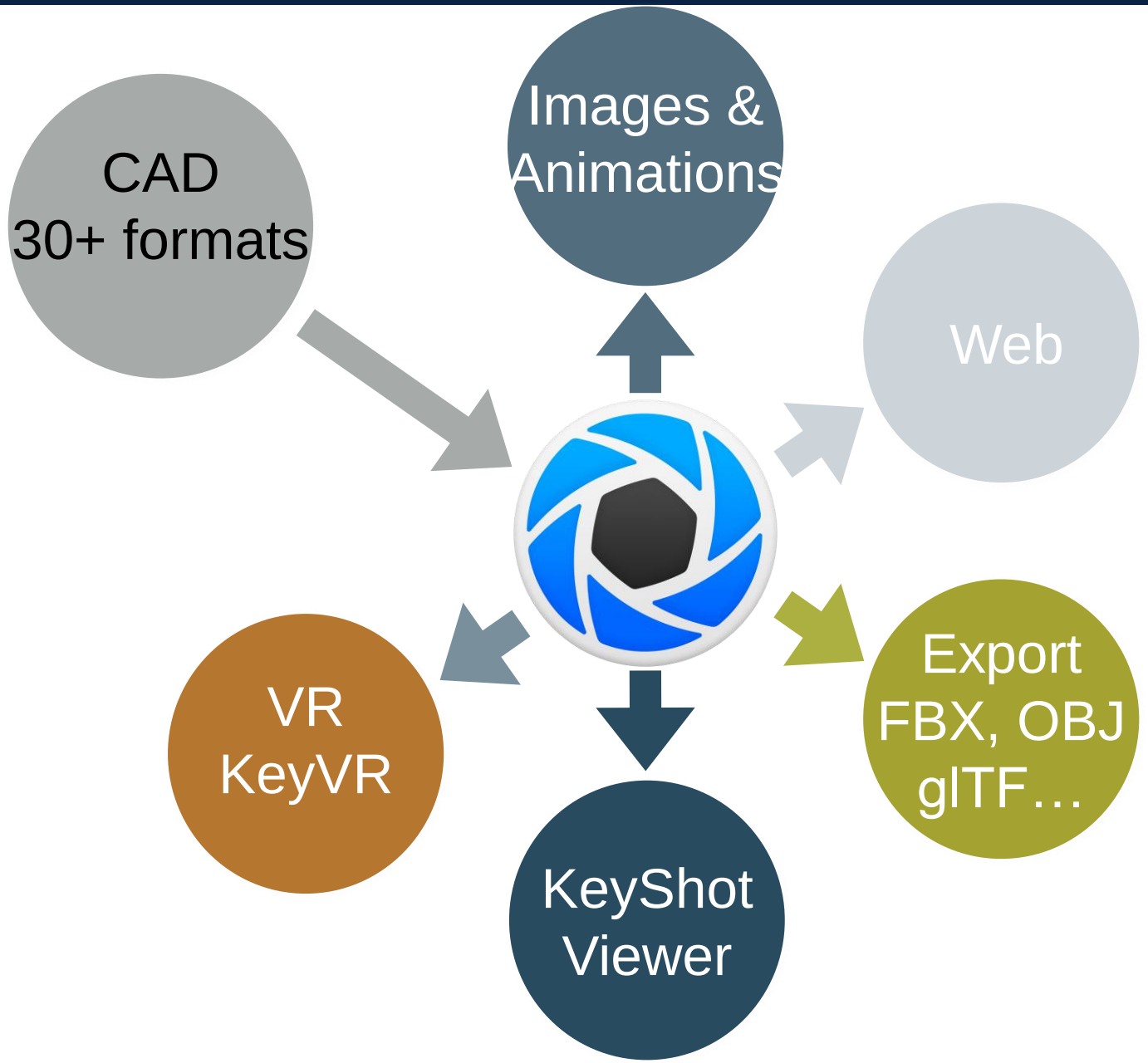
DOSCH DESIGN

glTF (gl Transmision Format)

- Released 19 October 2015
- Open Source
- Open Source converter available

- Geometry
- Texture
- Animation
- Morph
- PBR

KeyShot® 8


CAD
30+ formats
Images &
Animations
Web
VR
KeyVR
Export
FBX, OBJ
glTF…
KeyShot
Viewer

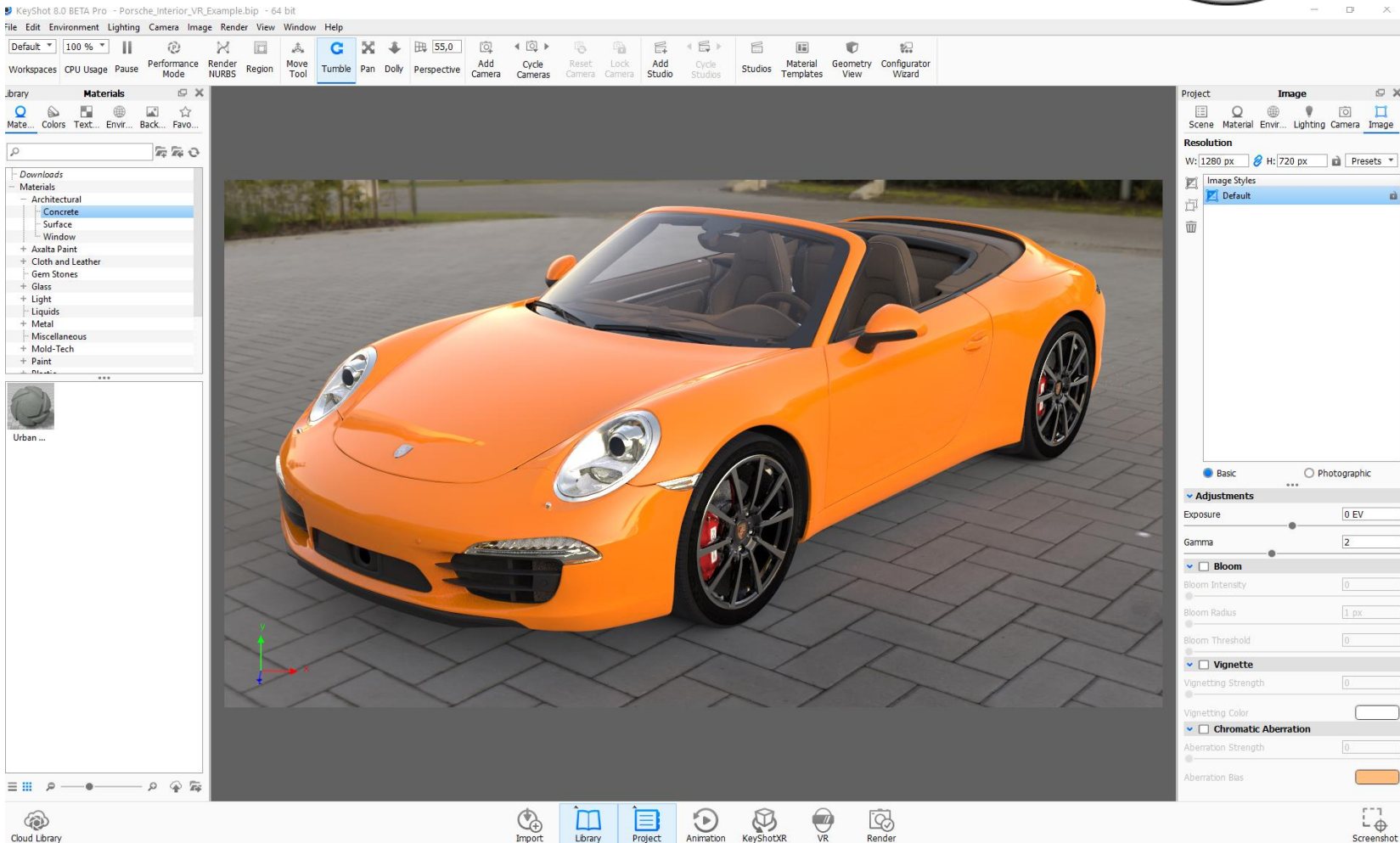
VR

- GPU Rendering with Luxion
- 90 fps (final image every 11 ms)
- Dynamic head tracking

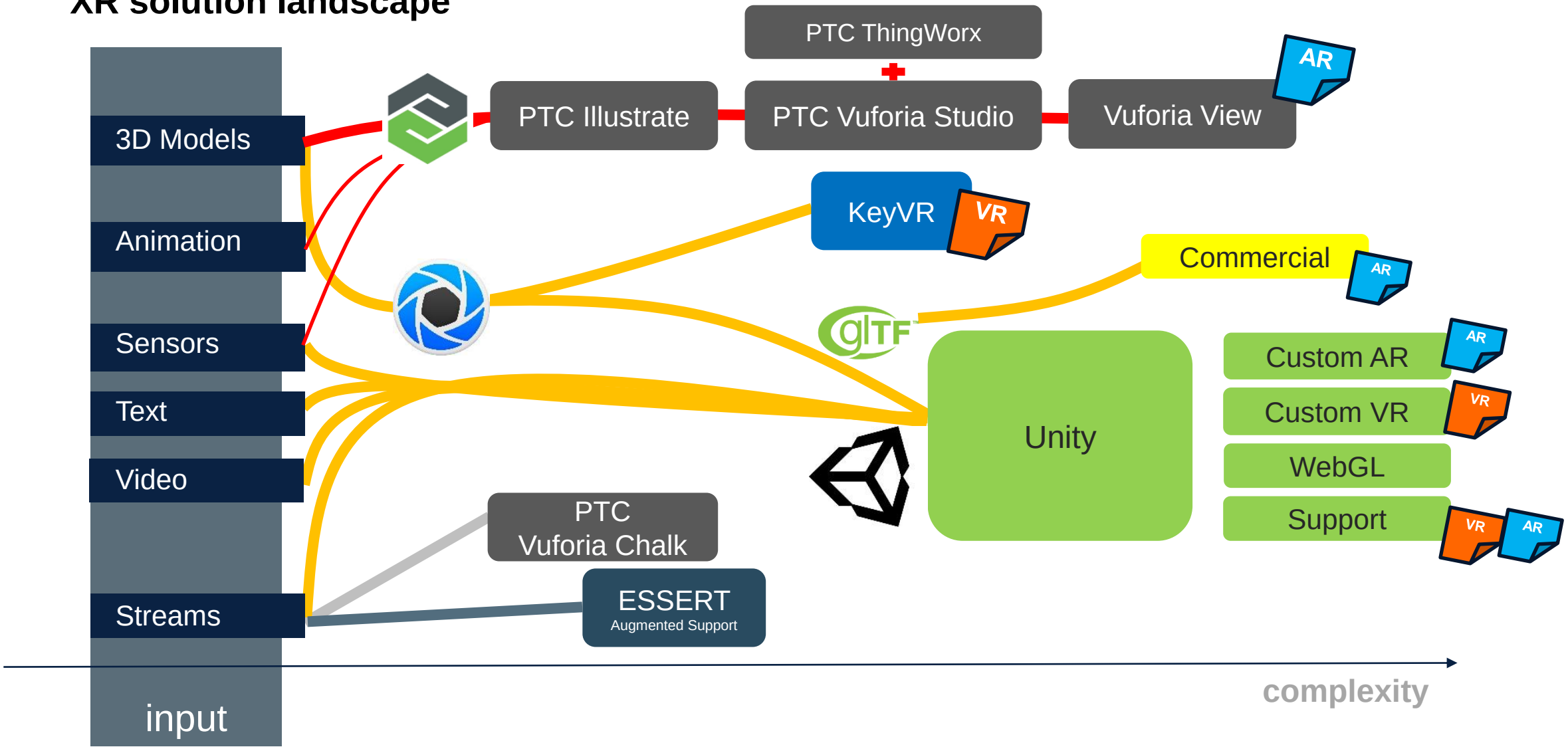
- Setup Scene in KeyShot
- 3D objects and parts
- Model-sets
- Cameras
- Animations
- Materials / Multi-materials
- Texturing
- Physics

Tech Preview

- KeyVR



XR solution landscape

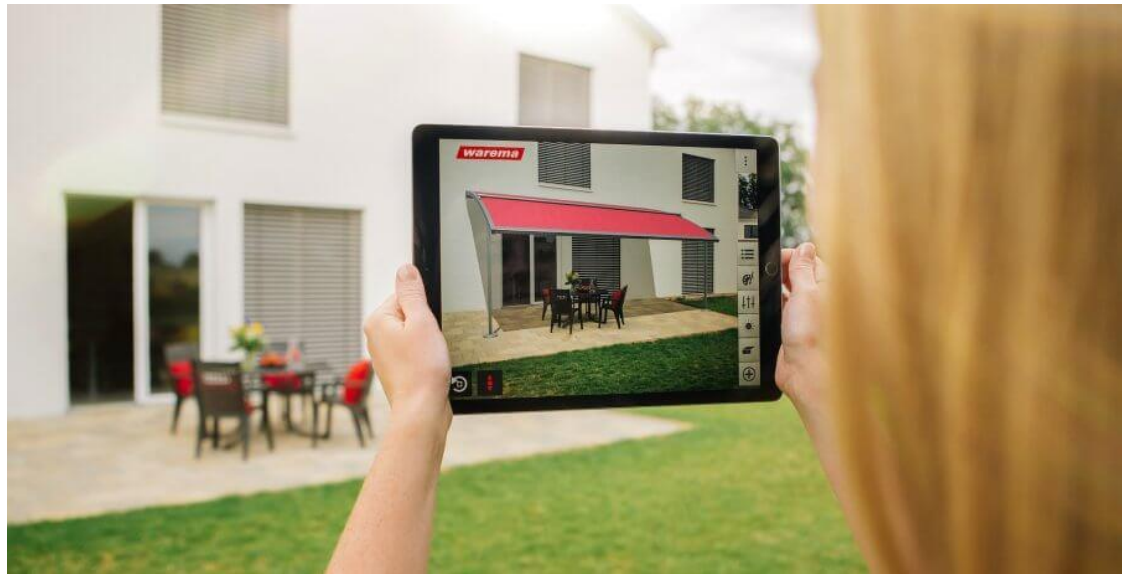


Realisierte Projekte VR / AR

- Warema Designer
  - Video: https://www.youtube.com/watch?v=GyRHyNo03hI
  - Apps:
    https://**itunes.apple.com**/de/app/warema-designer/id1352235699?mt=8
    https://**play.google.com**/store/apps/details?id=com.warema.designer

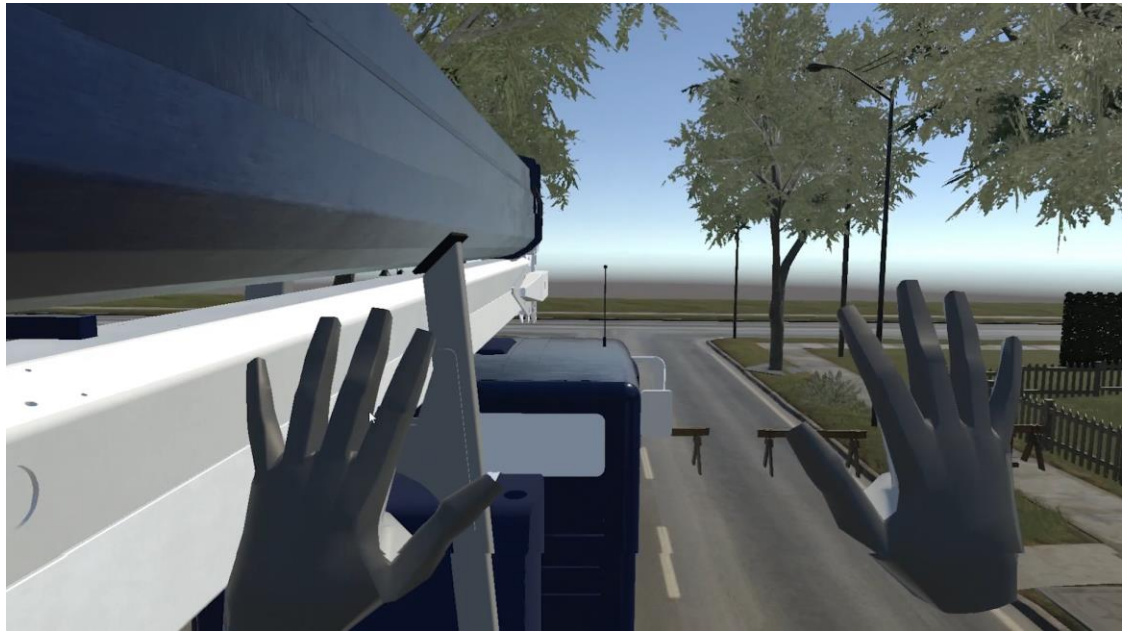
Scan me

Scan me



Realisierte Projekte VR / AR

- Böcker
  - Video: https://www.youtube.com/watch?v=KJAzIuPBpfk



Realisierte Projekte VR / AR

- Fritsch GmbH

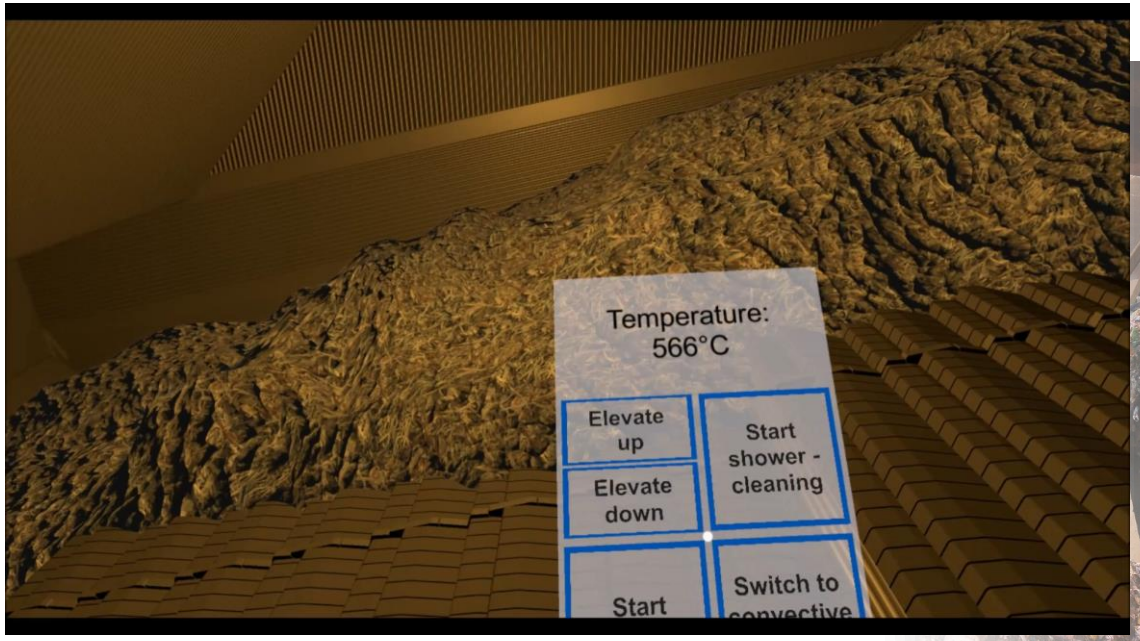
  - Apps:
    https://**itunes.apple.com**/us/app/fritsch-milling-and-sizing/id1388909160?mt=8
    https://**play.google.com**/store/apps/details?id=com.fritsch.millingandsizing&hl=en_US

Scan me

Scan me

Realisierte Projekte VR / AR

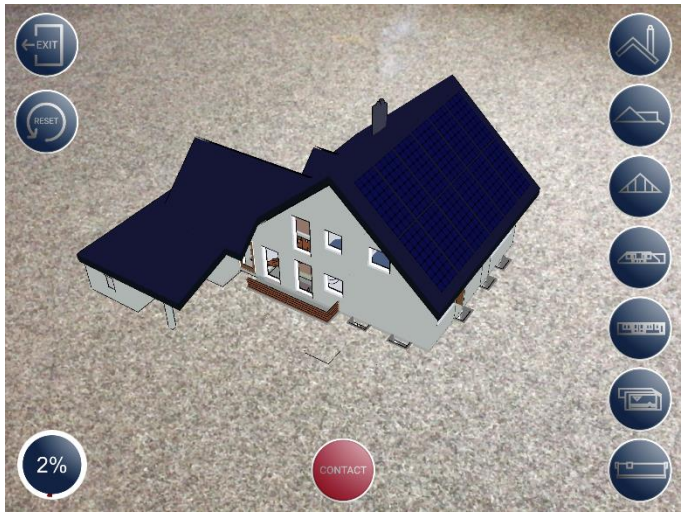
- Steinmüller Babcock



INNEO AR Show Room

- INNEO AR Showroom
  - Haus
  - V8
  - Maschinenbau
  - …

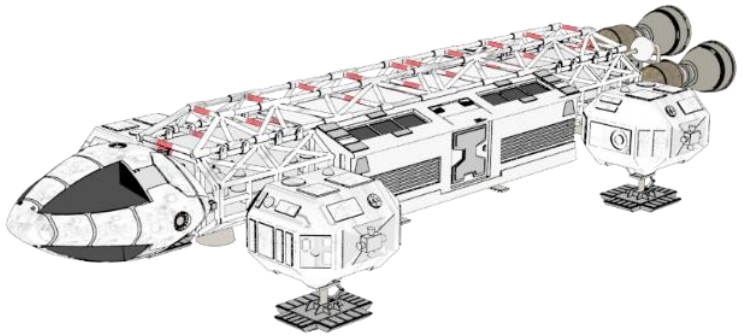
INNEO AR Showroom 4+
Inneo Solutions GmbH
Free



Scan me

INNEO

- 30 years geometry experience
- 2000+ KeyShot customers
- CGI
- PDM / PLM
- VR / AR Projekte
- Hardware
- Training
- Consulting
- Customized Solutions



Am Stand:

- KeyVR
- INNEO Apps
- AR Quick Look
- MR Viewer

- Samsung Odyssey
- Untethered HTC Vive
- iPad Pro

- Nette Gespräche

Questions & Answers

Vielen Dank für Ihre Aufmerksamkeit!

© INNEO Solutions GmbH

INNEO®
That's IT.