



Trust im Metaverse



Paul Affentranger
affentranger@afca.ch
www.afca.ch

@TEMET Konferenz
29.03.2023 / About & Beyond Trust

afca.

A woman and a man are wearing VR headsets and looking at a digital architectural model on a table. The woman is on the left, pointing at the model, and the man is on the right, looking at the model. The model consists of several yellow and brown blocks representing buildings, with a tall grey skyscraper in the background. The scene is set in a modern office with large windows in the background.

We extend Realities

afca.

afca
Extended Reality Switzerland
www.afca.ch

Microsoft
Partner | Mixed
Reality

© afca ag, 2023



← DAVOS 2023: COMING TOGETHER

How the World Economic Forum Plans to Bring Leaders Together in the Metaverse



The Forum, in partnership with Accenture and Microsoft, unveils a working prototype of its metaverse Global Collaboration Village.
Courtesy of World Economic Forum

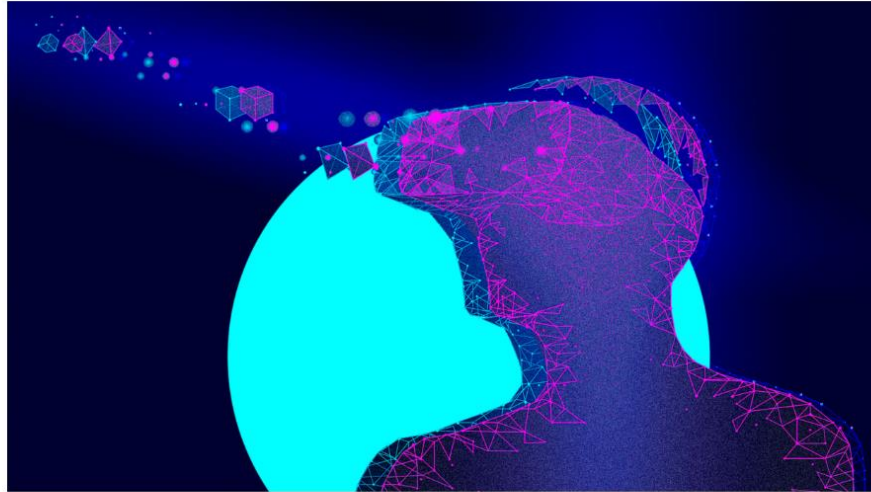
BY **ANDREW R. CHOW** 

JANUARY 17, 2023 4:41 AM EST

02-08-23 | PLUGGED IN

Is the metaverse already dead?

Six reasons why excitement over the metaverse is already fading—and (spoiler alert!) a note of optimism at the end.



[Source image: LuckyStep48/Getty Images]



BY HARRY MCCRACKEN 5 MINUTE READ

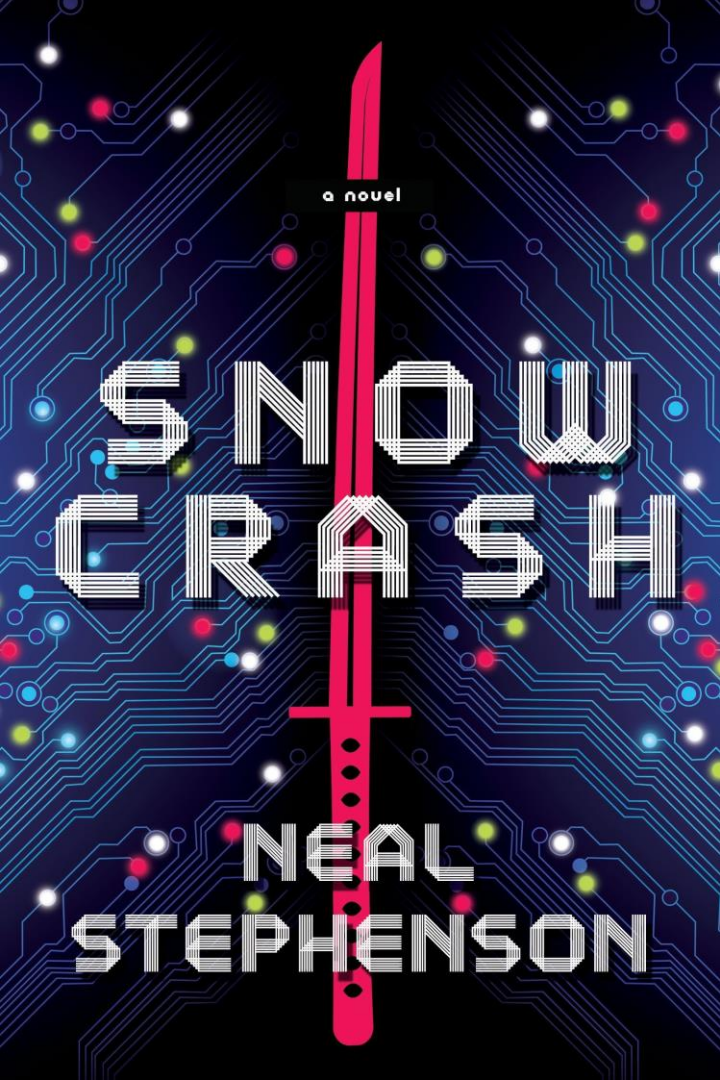
This story is from Fast Company's new *Plugged In* newsletter, a weekly roundup of tech insights, news, and trends from global technology editor Harry McCracken, delivered to your inbox every Wednesday morning. [Sign up for it—and all of our newsletters—here.](#)




We always overestimate
the change that will occur
in the next two years and
underestimate the change
that will occur in the next
ten.

Don't let yourself be lulled
into inaction.

Bill Gates



Snow Crash
Science-Fiction-Roman
von Neal Stephenson
1992

A vibrant, futuristic metaverse scene. In the foreground, a woman with a large afro hairstyle and a yellow and purple outfit is gesturing with her hands. To her right, a man in a purple suit and helmet is also gesturing. In the background, there's a cityscape with a volcano erupting, a large skull in a body of water, and various other avatars in colorful outfits. The scene is filled with digital elements like floating screens, glowing lines, and a blue sky with a cityscape in the distance.

The metaverse is a vision for the future of the internet, where the boundaries between the digital and physical worlds are blurred, and users can explore new forms of social, economic, and creative activity.

Metaverse

HAPPY
NEW YEAR

2022

DXC
TECHNOLOGY

DXC
TECHNOLOGY

Q7. In what 1965 film did actor Christopher Plummer play Captain Jack Travençolo?

DXC VIRTUAL WORLD NEW YEAR'S PARTY

Nathalie Vanchuyse
Head of XR

Kevin Clifton

THE VIRTUAL GAME
Instructions:
1. Scan the QR Code with your phone OR open this URL: <https://www.dxc.com/2022/01/01/2022>
2. Enter your Nickname and click the join button.
3. Choose/Type the correct answer before the time runs out!



2022

2022







Lee

12

Point

Density

Strength

Vitality

Agility

Endurance

Speed

Accuracy

Mark

13

Point

Density

Strength

Vitality

Agility

Endurance

Speed

Accuracy



Consumer Metaverse

- Gaming
- Entertainment
- Events
- Social interaction
- Experience
- Buying & selling goods/services



Enterprise Metaverse

- Training & education
- Meetings
- Collaborative working



Industrial Metaverse

- Design & development
- Simulation & optimization
- Operational improvement

Metaverse

=

XR + AI + Blockchain + 3D + IoT

Extended Reality (XR)

AR, MR & VR



From disc...



...to space

From Screen...





...in to the world

360° Picture / Video



Virtual Reality (VR)



Augmented Reality (AR)



AR in Google Suche


- Suche nach «great white shark»
- «View in 3D»
- «Bei mir ansehen»



06:59


OVERVIEW VIDEOS PEOPLE ALSO SEARCH FOR


About



The great white shark, also known as the great white, white shark or "white pointer", is a species of large mackerel shark which can be found in the coastal surface waters of all the major oceans. [Wikipedia](#)

Meet a life-sized great white shark up close.



 View in 3D

Mass: 520 – 1,100 kg (Adult)
Class: [Chondrichthyes](#)
Family: [Lamnidae](#)
Scientific name: *Carcharodon carcharias*

Mixed Reality (MR)



XR

Extended Reality (XR)

Physical
Reality

Digital
Reality

AR

Augmented Reality



MR

Mixed Reality



VR

Virtual Reality



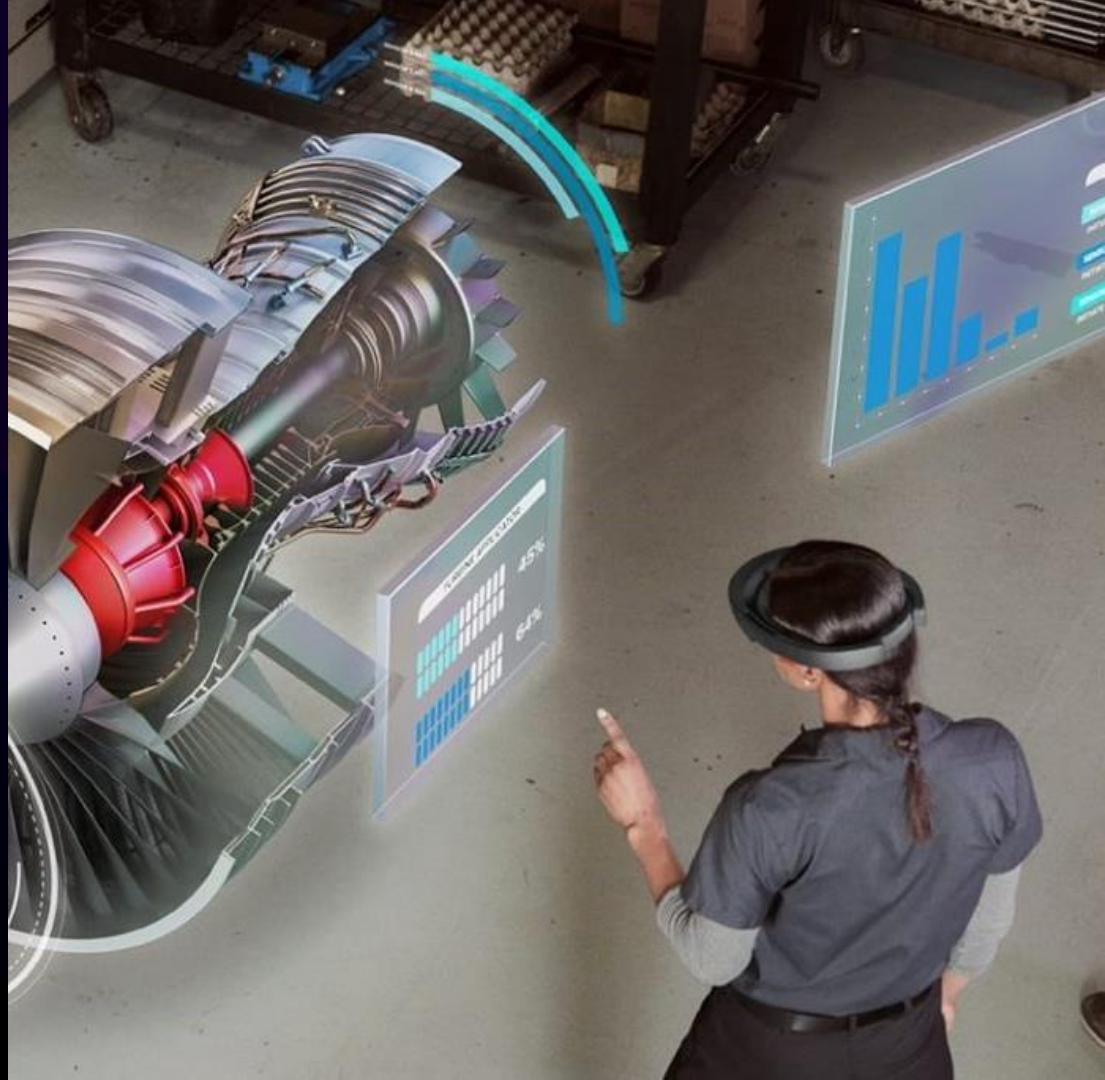
Presence

Feels real



3D Data

- User interaction in 3D
- Data / Objects in 3D
- Avatars
- Spatial understanding



Avatars



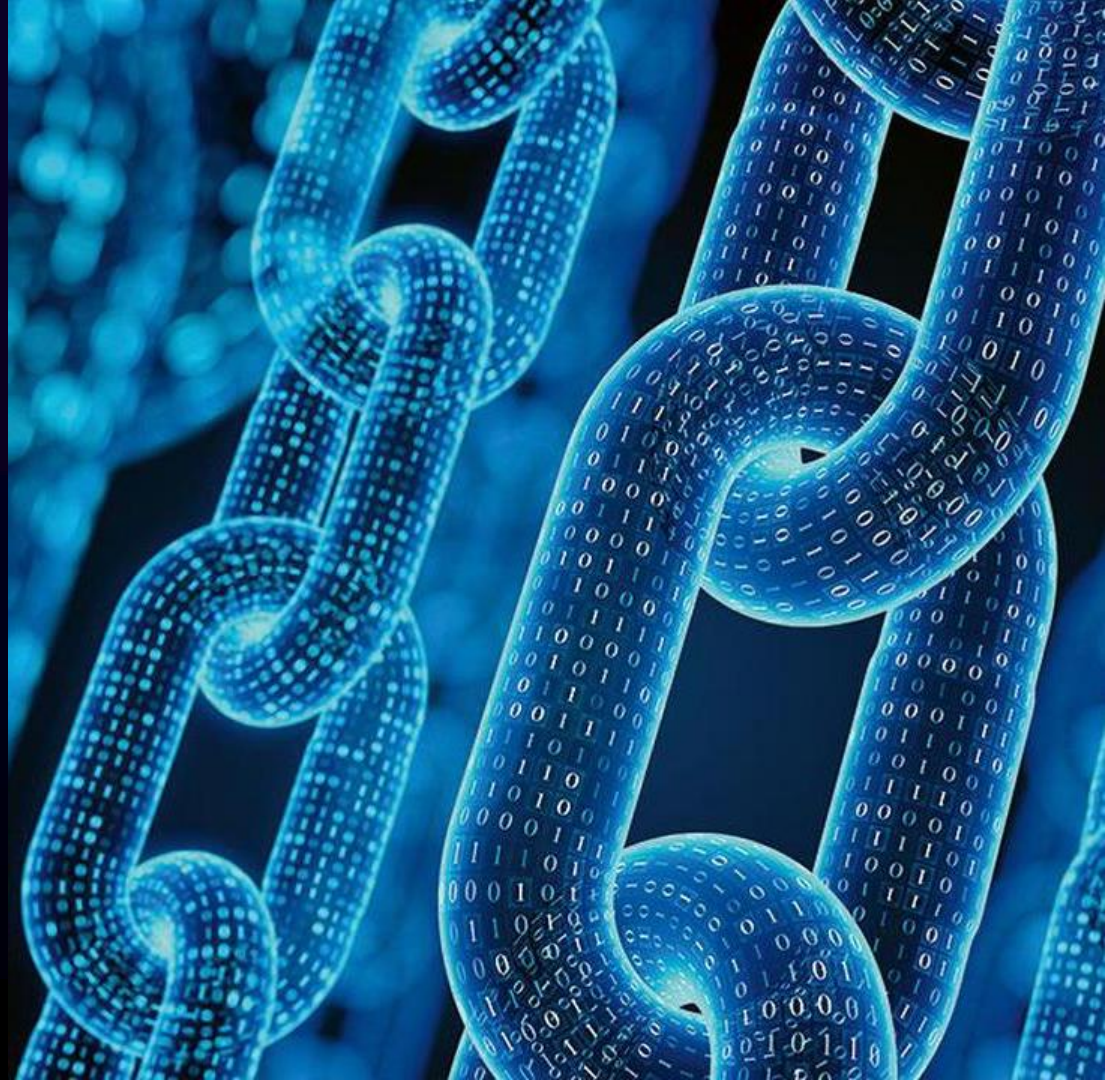
Blockchain

Blockchain is a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system.

Crypto Currencies like bitcoins are based on Blockchain.

Invented in 2008

Unhacked



What to Wear in the Metaverse

Dressing for a virtual world is going to be both enormously liberating and potentially very, very messy.





Buy Land

Artificial Intelligence (AI)

Tracking

Conversational UI / Assistant

Accurate avatars

World understanding

Digital Humans

Genrate virtual World



Internet of Things (IoT)

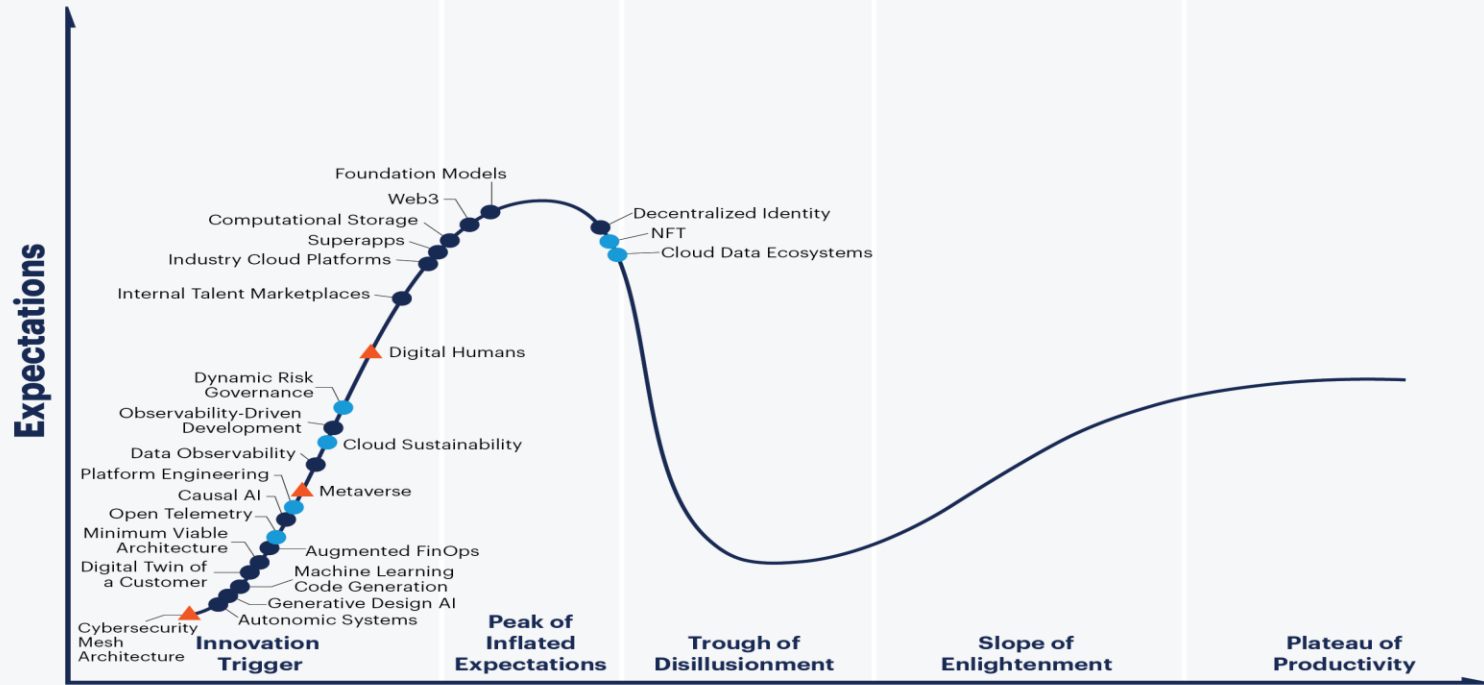
The Internet of things (IoT) describes physical objects (or groups of such objects) that are embedded with sensors, processing ability, software, and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks.

8.74 billion in 2020

25.4 billion IoT devices in 2030



Hype Cycle for Emerging Tech, 2022



Plateau will be reached:

○ less than 2 years

● 2 to 5 years

● 5 to 10 years

▲ More than 10 years

⊗ Obsolete before plateau

As of August 2022

gartner.com

Source: Gartner
© 2022 Gartner, Inc. and/or its affiliates. All rights reserved. Gartner and Hype Cycle are registered trademarks of Gartner, Inc. and its affiliates in the U.S. 1893703

Gartner



Mainframe 1943



PC 1981

Computing Generations



Smartphone 2007



Ambient Computing 202X

Ambient Computing 202X

Ambient Computing

(also: pervasive or ubiquitous computing)

- Computer «disappears»
- We interact in (3D) World
- Digital & real world come together
- Growing 30% / year



Early Stage

The next five years will still be the emergent metaverse and pre-metaverse stage.

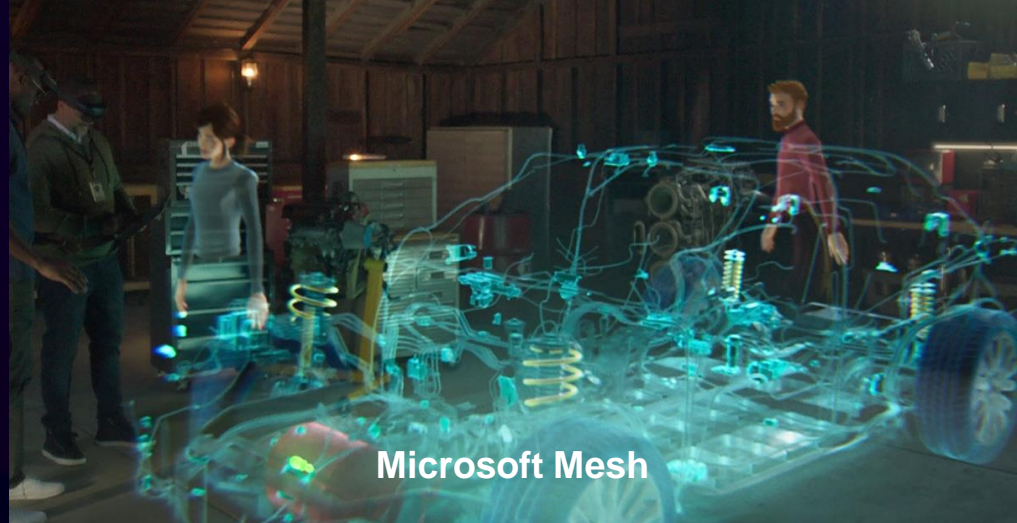
(Tuong Nguyen, Gartner)



Virtual Worlds



Collaboration



Microsoft Mesh



Mozilla Hubs



Meta Horizon Workrooms

Microsoft Mesh





Kreuzlingen

Zürich

VR Spass für alle

Erlebt eine einzigartige Unterhaltung, stärkt euren Teamgeist und beweist Köpfchen, Mut und Schnelligkeit.

Für gross und klein bieten wir Einzelrunden, sowie vergünstigte Doppelbuchungen an. Am Mittwochnachmittag haben wir jeweils einen Spezialpreis für Familien.

Unser Schutzkonzept





Industrial Metaverse

XR Advertising



XR «Filter»



The Future



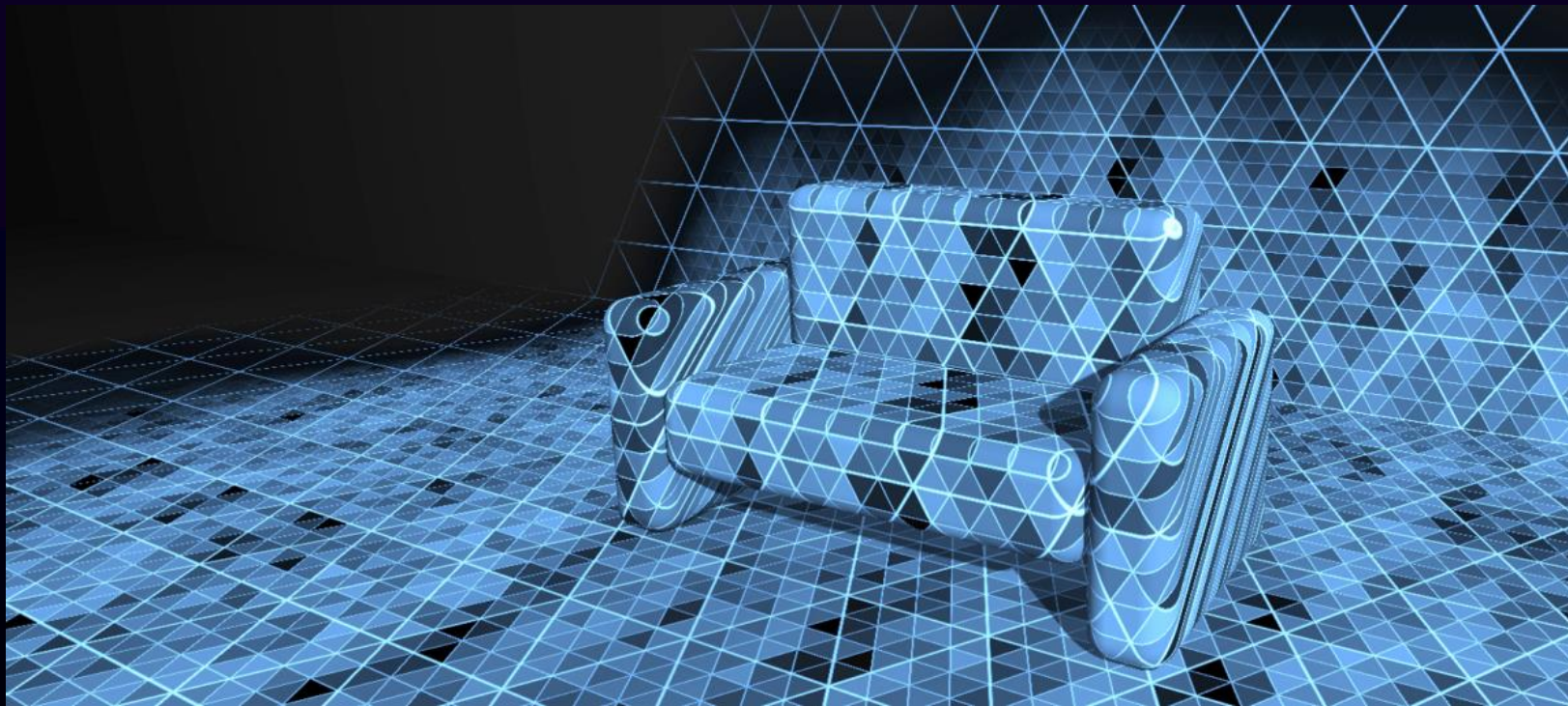
“This metaverse is going to be far more pervasive and powerful than anything else. If one central company gains control of this, they will become more powerful than any government and be a god on Earth.”

Tim Sweeney, Epic Games

Feels real



Spatial Mesh / Spatial Understanding



Eye Tracking



Photorealistic Avatars



ROZY OH
NOW

**“I'm Rozy Oh
and I don't age”**



Safe, Secure, and Trusted?



Trusted Metaverse

Transparency

Security

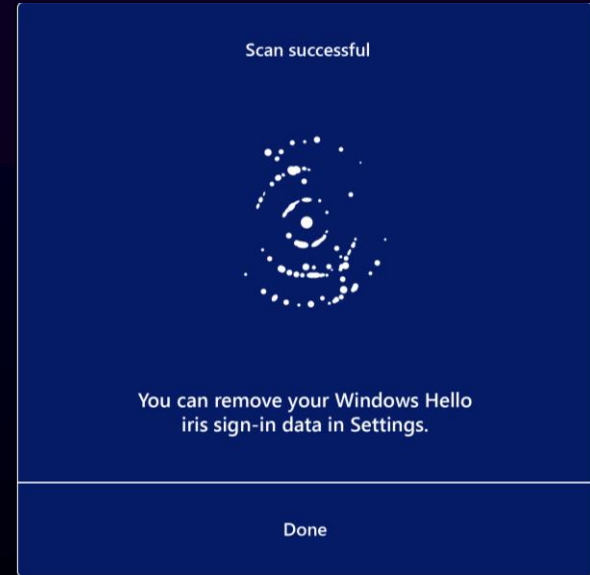
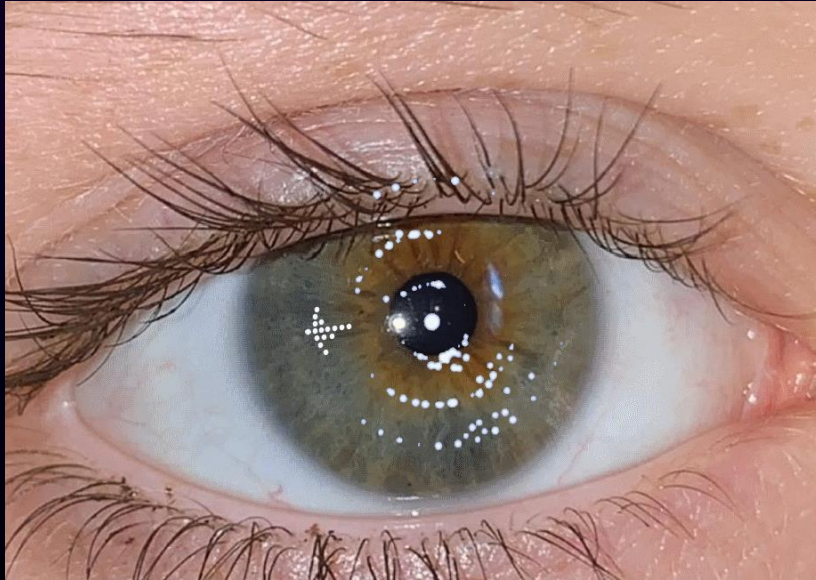
User-driven

Reputation
systems

Interoperability

Standards

Iris – sign-in



W3C: WebXR Standard

- 12.5 Event Types
- 13 **Security, Privacy, and Comfort Considerations**
 - 13.1 Sensitive Information
 - 13.2 User intention
 - 13.2.1 User activation
 - 13.2.2 Launching a web application
 - 13.2.3 Implicit and Explicit consent
 - 13.2.4 Duration of consent
 - 13.3 Mid-session consent
 - 13.4 Data adjustments
 - 13.4.1 Throttling
 - 13.4.2 Rounding, quantization, and fuzzing
 - 13.4.3 Limiting
 - 13.5 Protected functionality
 - 13.5.1 Immersiveness
 - 13.5.2 Poses
 - 13.5.3 Reference spaces
 - 13.6 Trusted Environment
 - 13.7 Context Isolation
 - 13.8 Fingerprinting
 - 13.9 Fingerprinting considerations of `isSessionSupported()`
 - 13.9.1 Considerations for when to automatically grant "xr-session-supported"

§ 13. Security, Privacy, and Comfort Considerations

The WebXR Device API provides powerful new features which bring with them several unique privacy, security, and comfort risks that user agents must take steps to mitigate.

§ 13.1. Sensitive Information

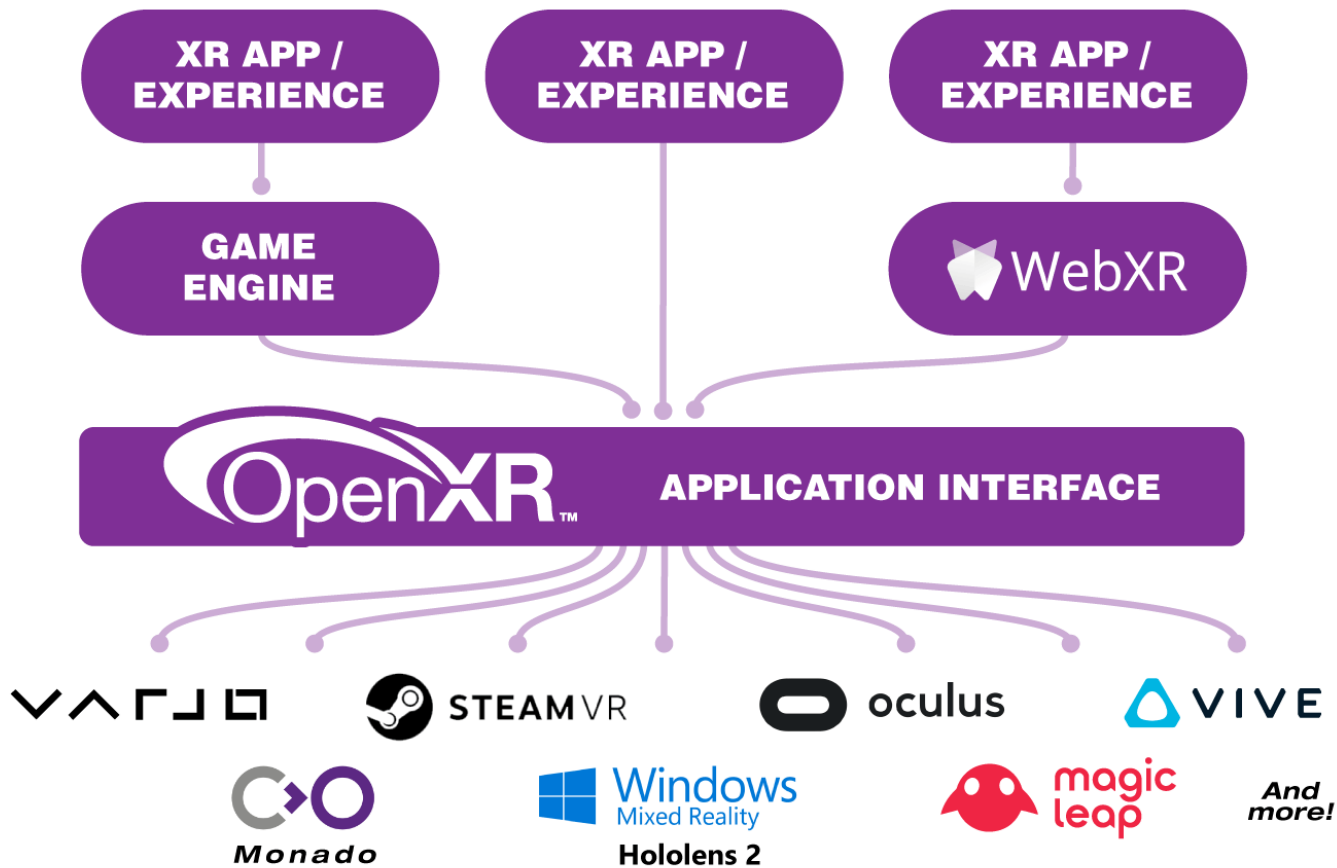
In the context of XR, **sensitive information** includes, but is not limited to, user-configurable data such as interpupillary distance (IPD) and sensor-based data such as [XRPoses](#). All [immersive sessions](#) will expose some amount of sensitive data, due to the user's pose being necessary to render anything. However, in some cases, the same sensitive information will also be exposed via ["inline"](#) sessions.

§ 13.2. User intention

User intent for a given action is a signal from the user that such an action was intentional and has their consent.

It is often necessary to be sure of [user intent](#) before exposing sensitive information or allowing actions with a significant effect on the user's experience. This intent may be communicated or observed in a number of ways.

NOTE: A common way of determining user intent is by [transient activation](#) of a UI control, typically an "enter VR" button. Since activation is transient, the [browsing context](#) requesting an XR session must be an [ancestor](#) or a [same origin-domain descendant](#) of the context containing the UI control, and must recently have been the [active document](#) of the browsing context.



OpenXR provides a single cross-platform, high-performance API between applications and all conformant devices.



hands-on



HoloLens 2





Thank you



Paul Affentranger
affentranger@afca.ch

www.afca.ch

