

“Engage”

A Quick Overview of Immersive Experience

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Founded 1993 by George Lucas to
bring together technology and
entertainment visionaries to collaborate on
the future of entertainment technology

Adamantly neutral

- Discussions
- Research
- Collaborations
- Coverage



CURRENT MEMBER COMPANIES



Current Projects

- Project Cloud
- VR/AR Initiative
- Data Analytics / AI Project



First AR headset
Sword of Damocles
1968

Ivan Sutherland with the help of student Bob Sproull



Aladdin Magic Carpet Ride VR DisneyQuest (1990s)



Commercial Definition

VR – Blocks out world



AR – see-thru overlay



VR platforms and markets



Magic Window



**Niche
\$\$\$**

HMD – Head Mounted Display



Cellphone-based VR



Group or Location-based VR

Augmented Reality platforms



Weak AR



Mobile AR



Mira Labs
Prism
\$99



Microsoft HoloLens

Strong AR

Occipital
Bridge
\$399

Spatial audio supports the illusion of reality in VR and AR

Fragments

First-person AR crime thriller
Hololens



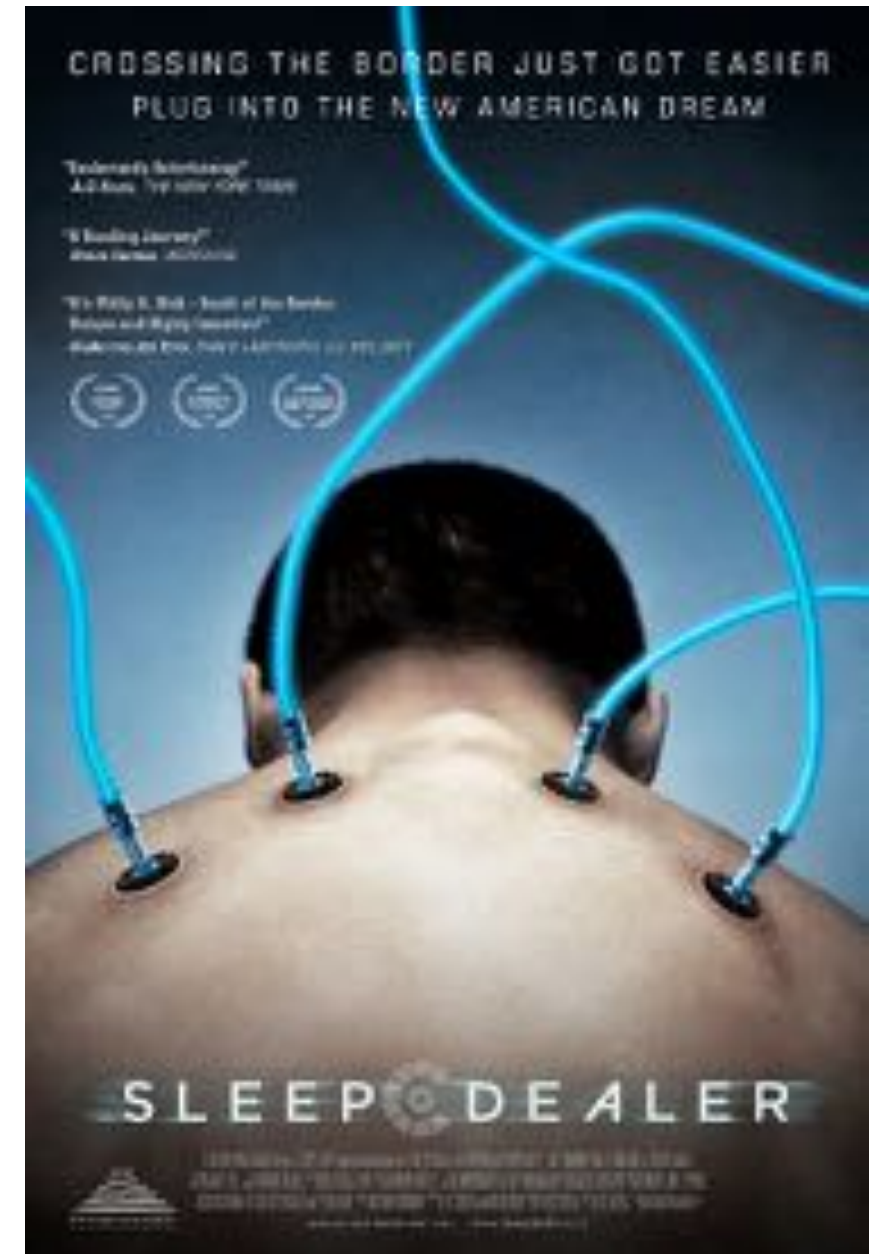
IMMERSION

- Presence
- Interactivity
- Agency

Sleep Dealer (2008)



Writer/Director Alex Rivera



IMMERSION + ENGAGEMENT

- Presence
- Interactivity
- Agency

UX = User Experience Design
is key to successful immersion
and sustained **engagement**

Controls for User Interface (UI)

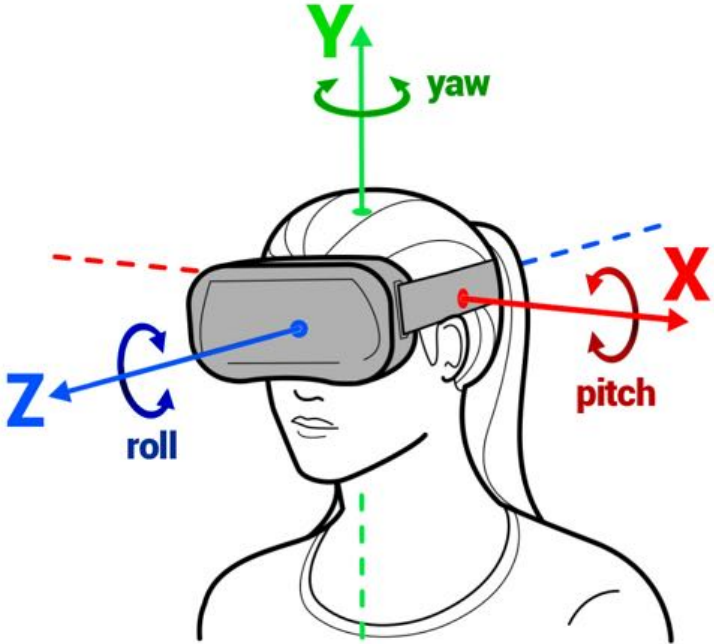


Hand + body gestures



Manometer

Head position



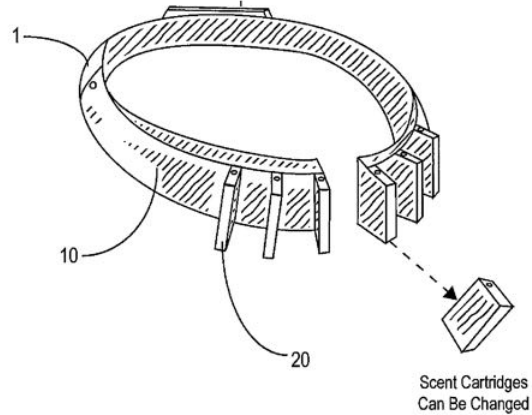
Voice Control

Eye tracking

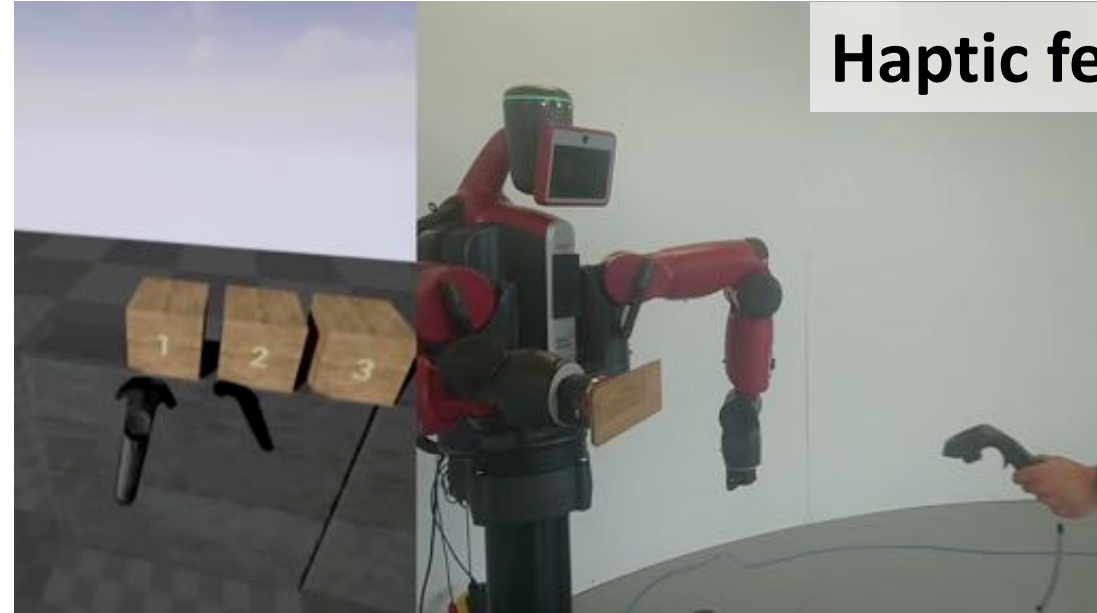


Sensory Feedback In Development

Scent necklace / collar



Taste



Haptic feedback

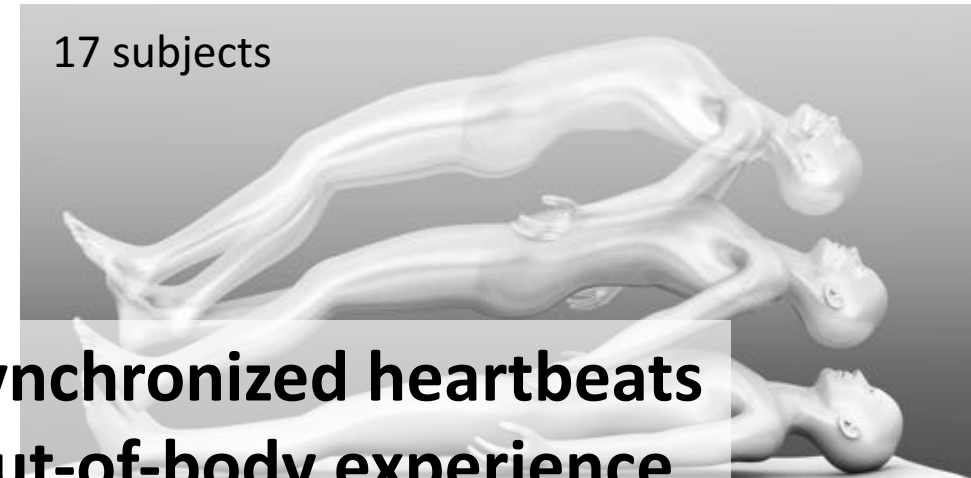


Galvanic
Vestibular
Stimulation

EEG



17 subjects



Synchronized heartbeats
Out-of-body experience

Facebook is building brain-computer interfaces for typing

4/19/17

Do We Have a Right to Mental Privacy and Cognitive Liberty?

Scientific American, Observations, by Marcello Ienca, International Neuroethics Society, 5/3/17

“brainjacking”

Possible solutions – clearly define and codify

- *The right to psychological continuity*
- *The right to mental integrity*
- *The right to mental privacy*
- *The right to cognitive liberty*

How has VR/AR been used

Art versus Commerce

Immersion

- Presence
- Interactivity
- Agency

+

Engagement

'I want to stay here'

+

Scale

Gallery vs mass market

“Carne y Arena (Virtually Present, Physically Invisible)” By Oscar Winners Alejandro G. Iñárritu and Emmanuel Lubezki

“The big mistake of VR is that it has been considered an extension of cinema,” said Iñárritu. “It has been considered a promotional tool. It has been devalued. This is an art in itself.”

“If the studios don’t get into it, they will be irrelevant soon,” he said.
“Filmmakers will be very attracted to this.”



Agency Immersive Journalism



Rick and Morty VR - promo video

The Royal Shakespeare Company Paves Way For AR Theater

The Tempest

← Realtime projection

← Mocap actor

Live MoCap-costumed actor on stage
Projectors around theatre



Apple ARKit and Peter Jackson



- **The soul of geo-location AR is the social experience and how it augments people's lives.**
- Why can't the real world take on the qualities of a theme park? You are in the experience, moving from portal to portal.
- There is no tutorial. We encourage people to interact with each other.
- **The best avatar is a real human.**



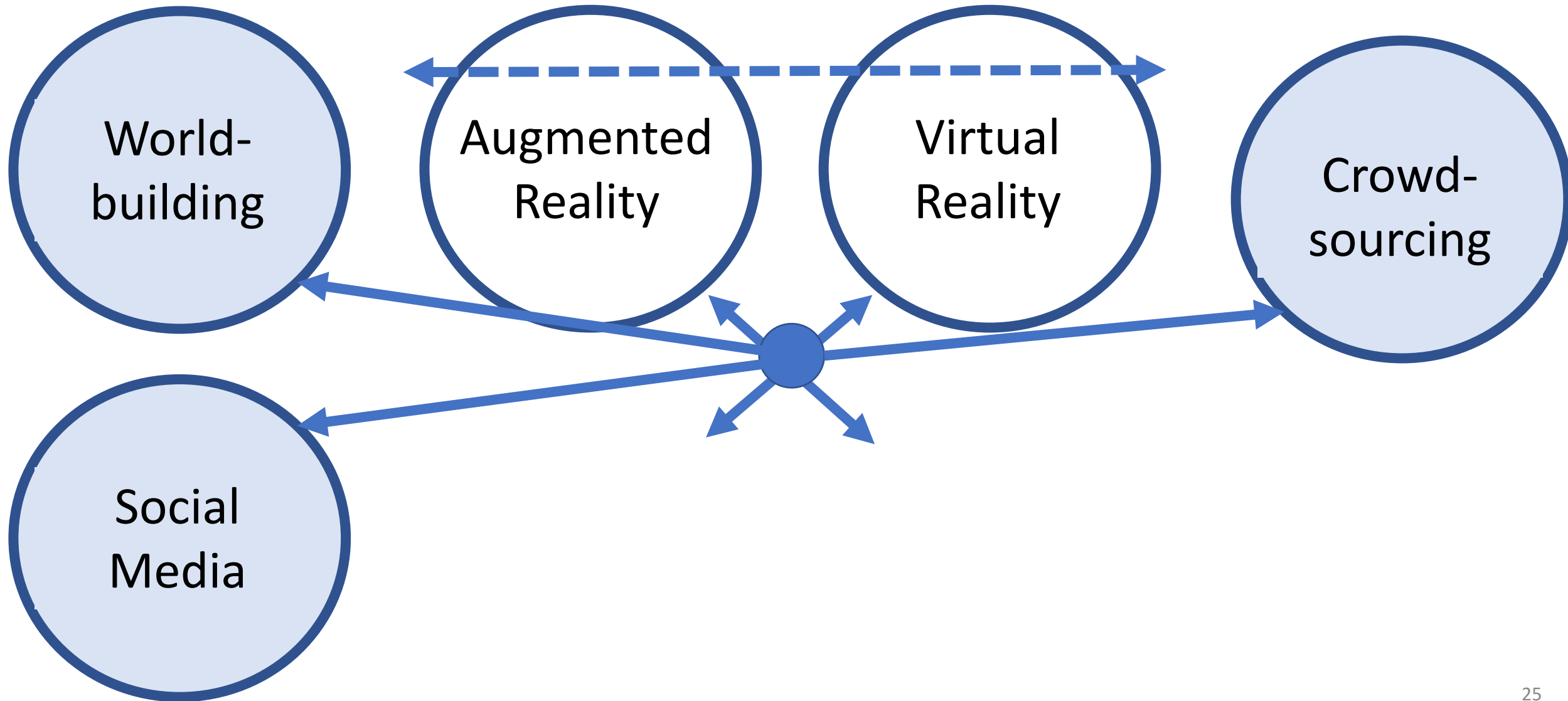
Flint Dille

Creative Lead, Niantic Labs

Creator of Ingress and Pokemon



Look at the intersection of



“Super IP”? World Building

Storymaking + Engagement

- Becomes self-generating -



Tencent 腾讯



Not new, but virtualized



Claims by a participant against another participant

- damage a virtual good or render it unusable
- rape an avatar / traumatize the human

High Fidelity – social VR
video

Ambient Computing

*Redefining “Entertainment”—continuous, always available services provided in the most convenient and unobtrusive way**

Personalized blended reality
Pervasive connectivity

- Mostly augmented reality
- Virtual reality for special cases

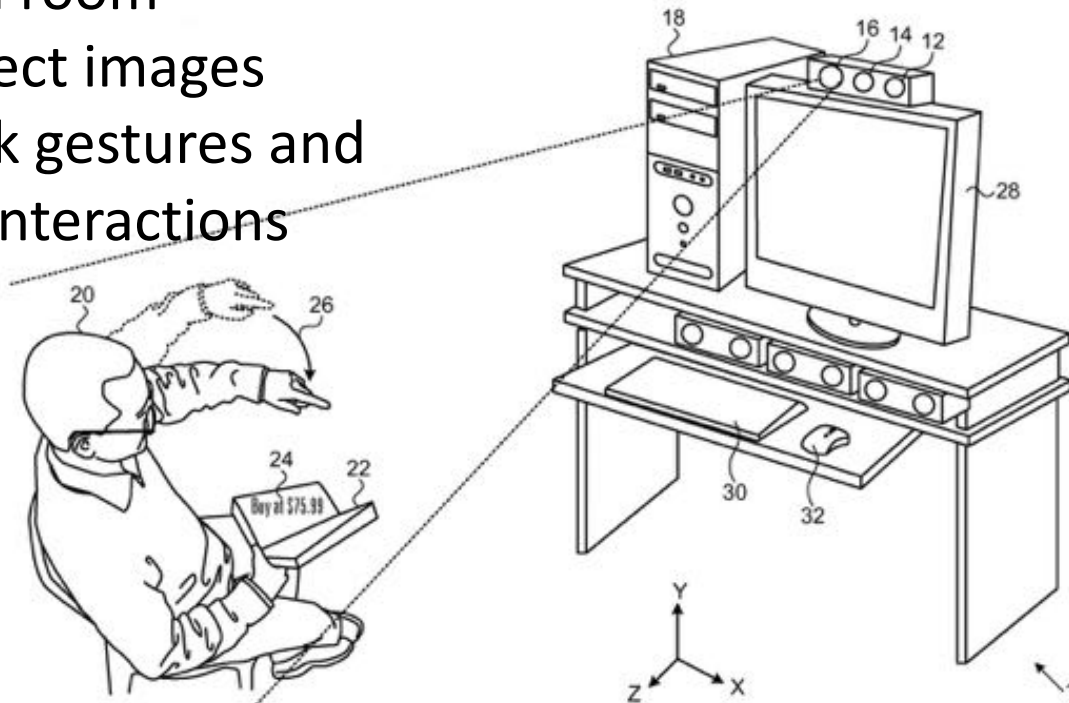
“adaptive projection”

Apple patent

Scan room

Project images

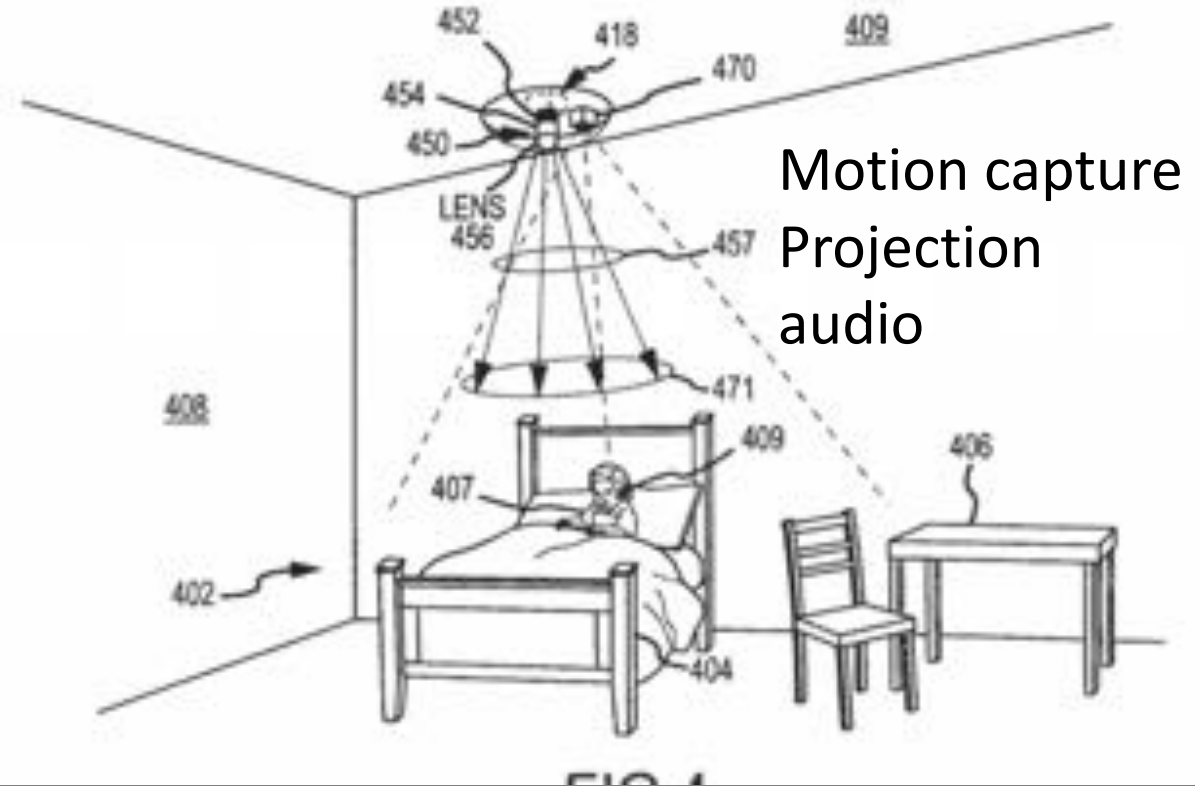
Track gestures and interactions



Hotel room

interactive environment

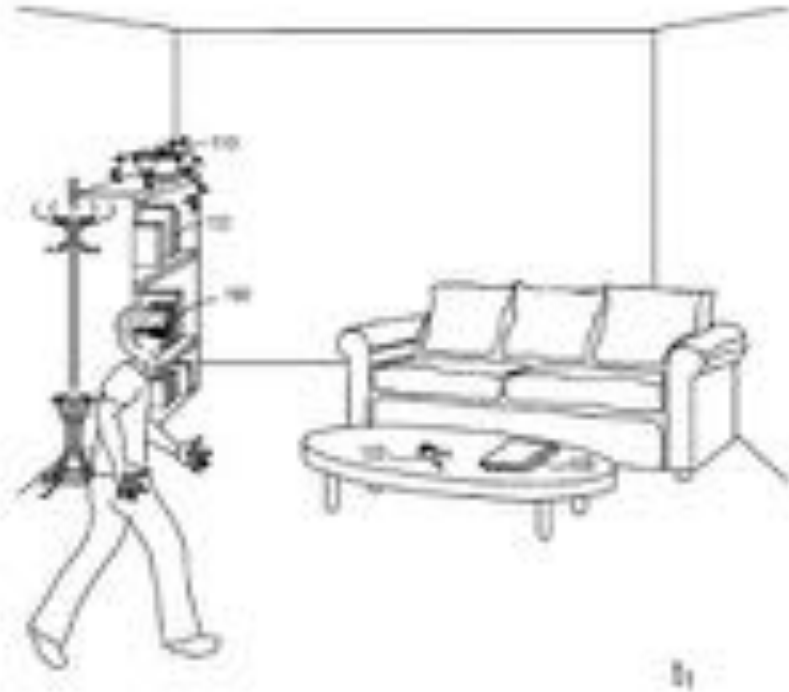
Disney patent



Instead of us reaching out to touch devices,
devices will reach out to us to deliver experiences

Microsoft patent

HMDs that identify and track every object and its state



"Where did my son leave my keys?"



Talk about business models

Black Mirror
On Netflix

Who is making money – for-profit conference promoters

3 bus models; I pay, you pay, they pay

Obvious – subscription/membership, in-experience e-commerce, contextualized advertising and marketing

- a strong ENGAGEMENT tool for community building, monetization, and retention
- Charities - Empathy machine plus AI – motivates you to want something you didn't know you wanted

Non-obvious

– Pokemon \$ by driving traffic into Starbucks,

- shop-able hot spots

- 'try before you buy,' real and digital worlds blend, physical objects

- AR clothing – moves naturally (folds and stretches) when projected onto your

image

- Eye-tracking – brands are paying consumers to watch ads (back-channel tracking)

- Immersive – ads follow you

Modiface
AR make-up app
SoundHound
voice recognition



Topics for...

Discussion?

Recommended Practices?

Industry Standards?

Government Regulations?

“The Basics of Successful VR Design”

Health and safety



Image Source; Brown, Ram Ramakrishnan

Ethics / Psychology

Trauma

Presence, Empathy, Proximity, and
Children

‘Emotional intensity’ controls or ratings?

Social / Psychology

Personal space controls or ratings?



Social Norms and Responsibilities (+ Legal issues)




“Pokemon Go is just some markers on a map.
The politics is **someone else's problem**,...”

Brendan Keogh, Australian Journalist

Online gamer died on Poolbeg Pier ‘capture’ mission

5/12/16 Irish Times



Backlash to the backlash

Free range AR versus other rights

Geo-Fencing

Milwaukee, Wisconsin, Sued for Requiring Permits on Augmented Reality Games in City Parks

Complaint

- Impinges on free speech
- Prior restraint
- Unconstitutionally vague; does not explicitly state what speech requires a permit

Artist virtually vandalizes Jeff Koons' Snapchat artwork to protest "AR corporate invasion"

Artist created an identical 3D *AR Balloon Dog* covered in graffiti and geo-tagged it to the exact coordinates of Snapchat's original



"It is vital to start questioning how much of our virtual public space we are willing to give to companies..." Sebastian Errazuriz (Oct. 5, 2017)

Artist 'corrects' omissions at Bush Library thru AR



Technology is morally neutral.
Look forward to alternate histories
from all points in the political spectrum
invading your world.

Is graffiti that only exists in the virtual world a crime?

Artist Ellen Chenoweth created this AR using LAYAR

2015 'holographic' protest in Madrid, Spain
After Gov't restricted actual protests



Your Expectation of Privacy being redefined by AR worn by others and gathering data



Who owns the
ad surfaces?

You are a node on the internet of things!

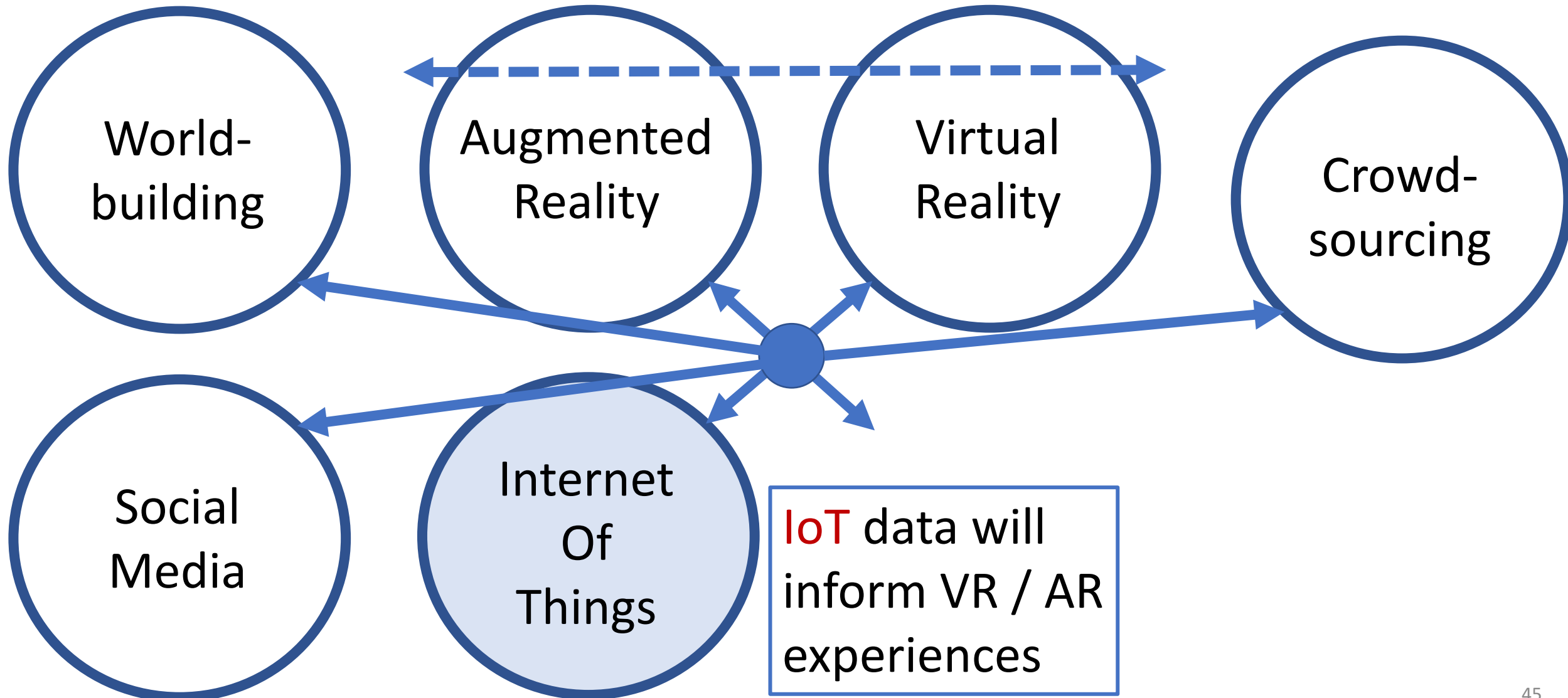
Revisit the click-license?

New Deal on Data (Harvard/MIT)

Back-channel data

- Every move and response is tracked
- Ownership, monetization, ethics,...

Look at the intersection of





Carnival Cruises launches medallions that replace keys, wallets, tickets



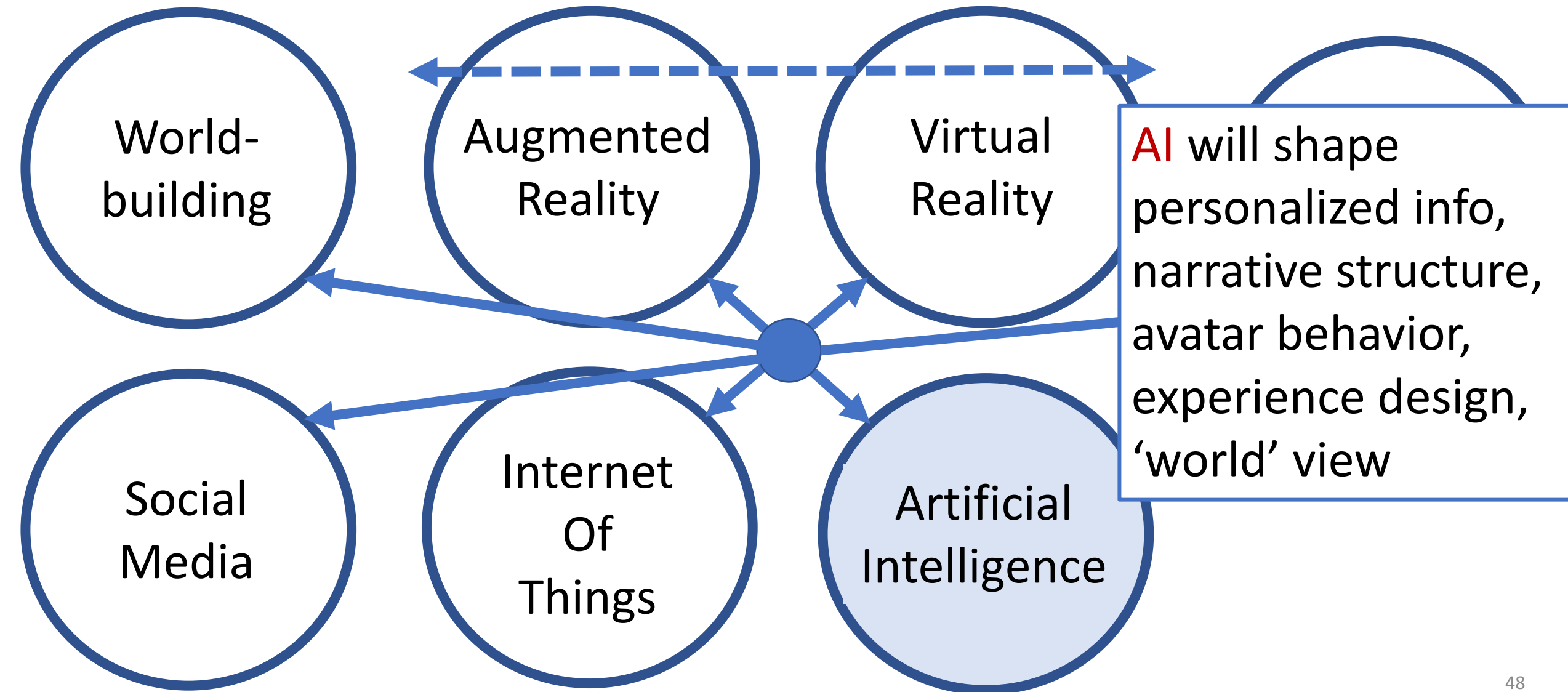
Regulatory discussion topics

Internet of Things

Security as a process, not a product

- Data integrity (ex. scientific research)
- Health and Safety (ex. medical devices)

Look at the intersection of

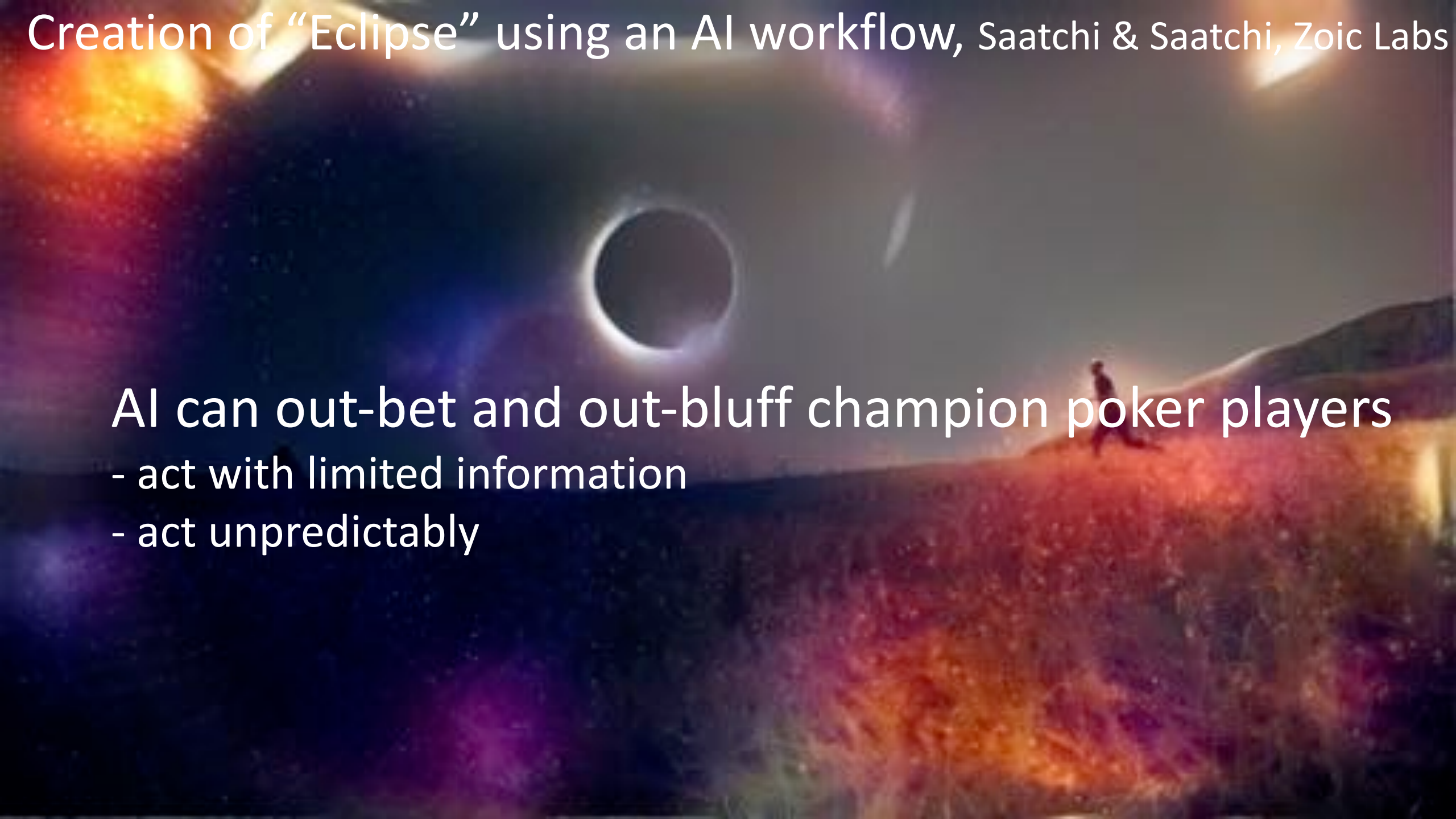


Gatebox Personal AI Assistant (Video)

Creation of “Eclipse” using an AI workflow, Saatchi & Saatchi, Zoic Labs

AI can out-bet and out-bluff champion poker players

- act with limited information
- act unpredictably



We now live in a 'post-evidence world'

All reality is virtual.

Facebook has acquired technology to remove or add objects in videos, even live ones, and add effects to them.
8/11/17 Mashable



Extract
phonemes to
synthesize voice

Create face from
a few photos



Synthesizing Obama: Learning Lip Sync from Audio

SIGGRAPH2017



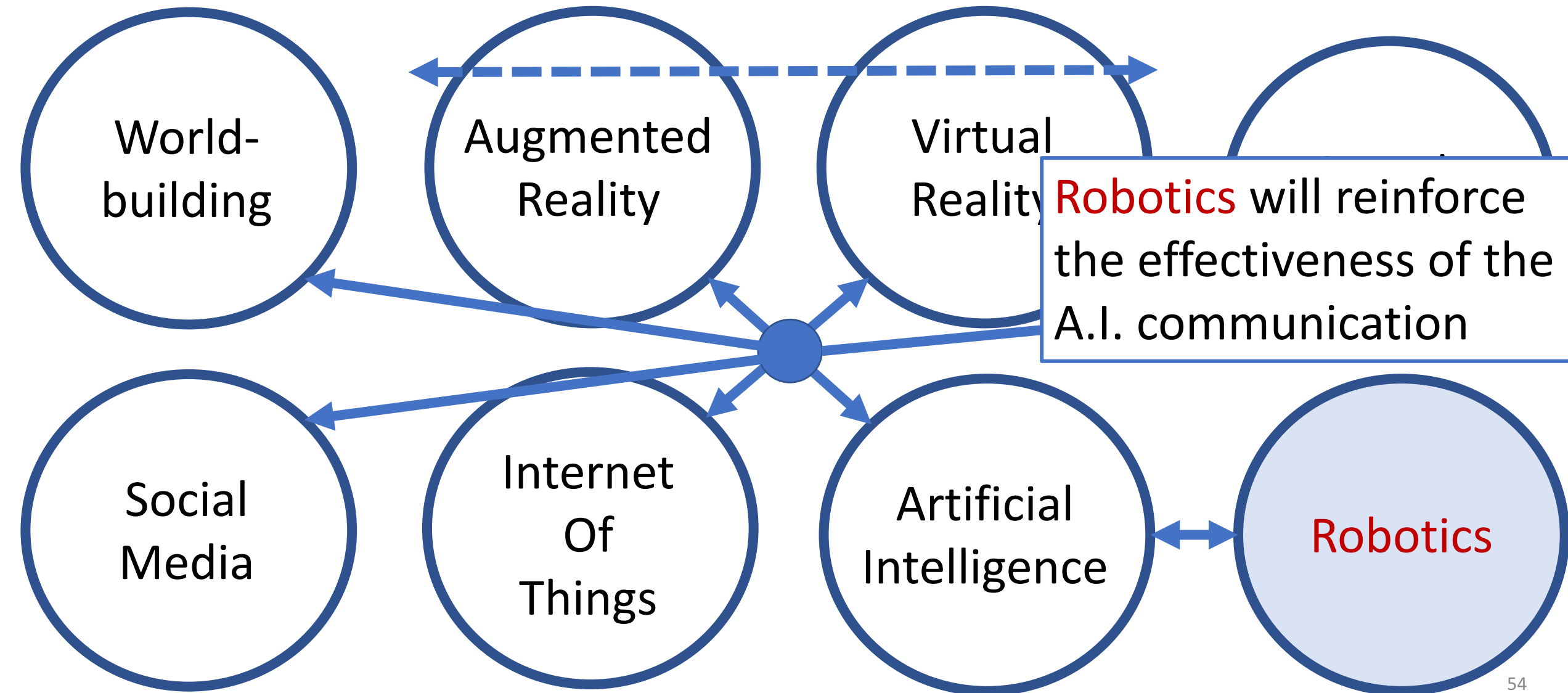
Regulatory discussion topics

Artificial Intelligence

Do we have a right;

- to know when voice/sound, image/video, data are altered to change meaning or faked?
- to understand how data and information is filtered?
- to an audit trail to understand the framework for decisions?

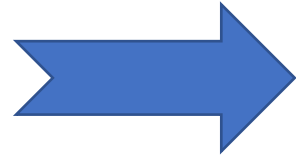
Look at the intersection of



Growing Elderly Population Creates New Opportunities for Technology

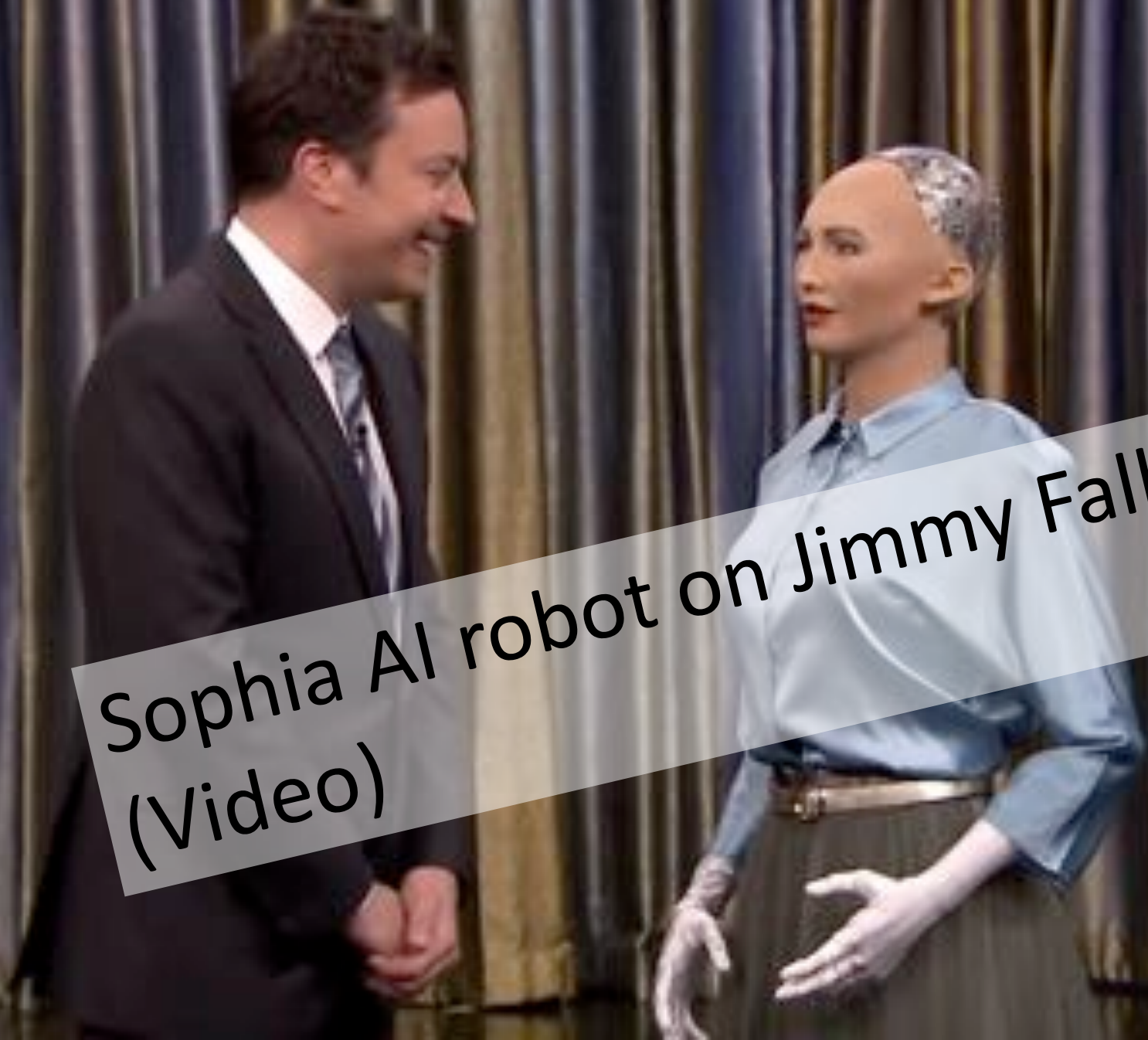
Personal AI Assistant
(Video)

Character
Animation
Technology



Robotics

Facial / Musculature controls



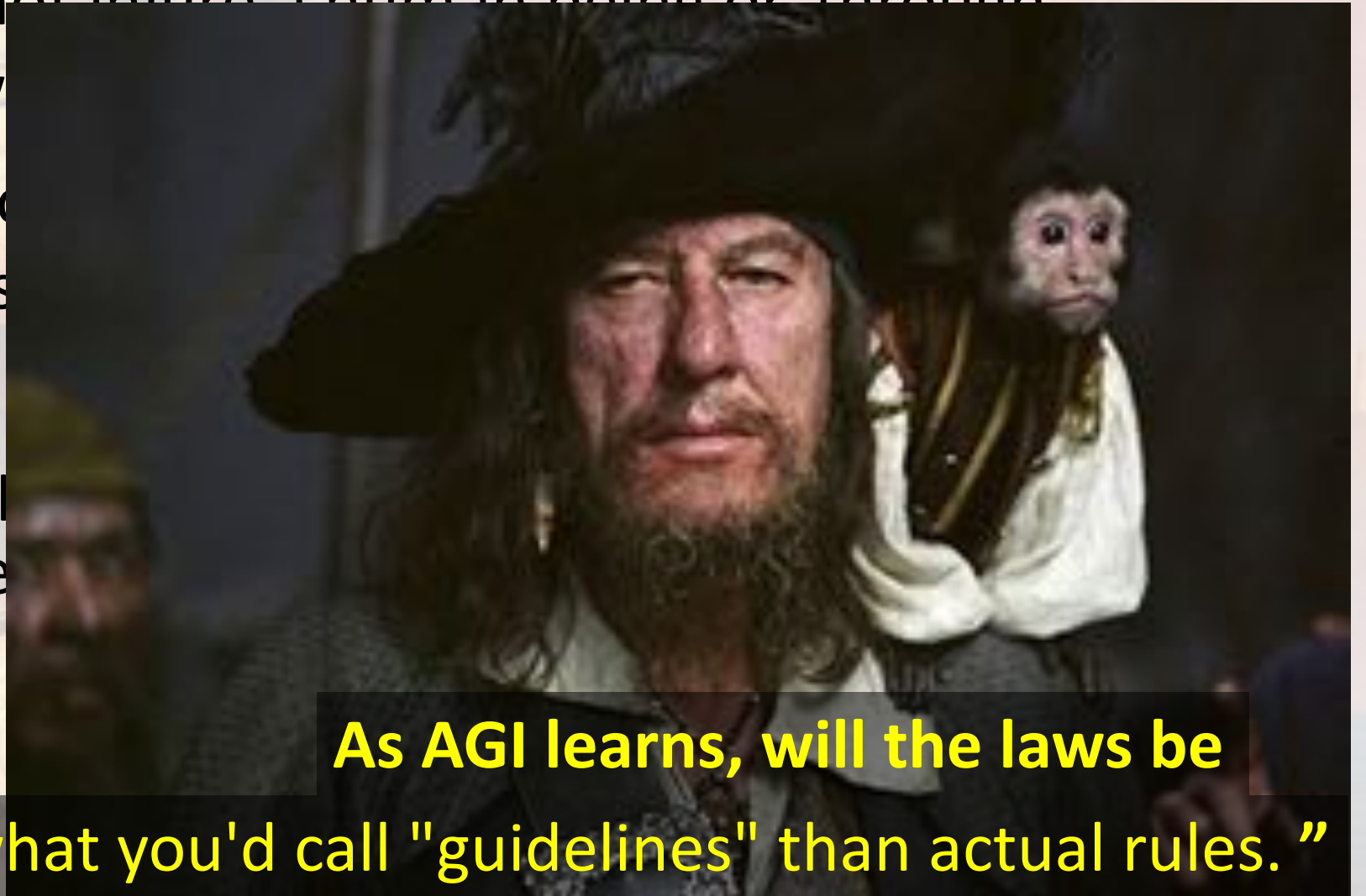
Sophia AI robot on Jimmy Fallon
(Video)

Azimov's 3 Laws of Robotics

1. A **robot** may not injure a human being or, through inaction, allow a human being to come to harm.
2. A **robot** must obey orders given it by human beings except where such orders would conflict with the First Law.
3. A **robot** must protect its own existence as long as such protection does not conflict with the First or Second Law.

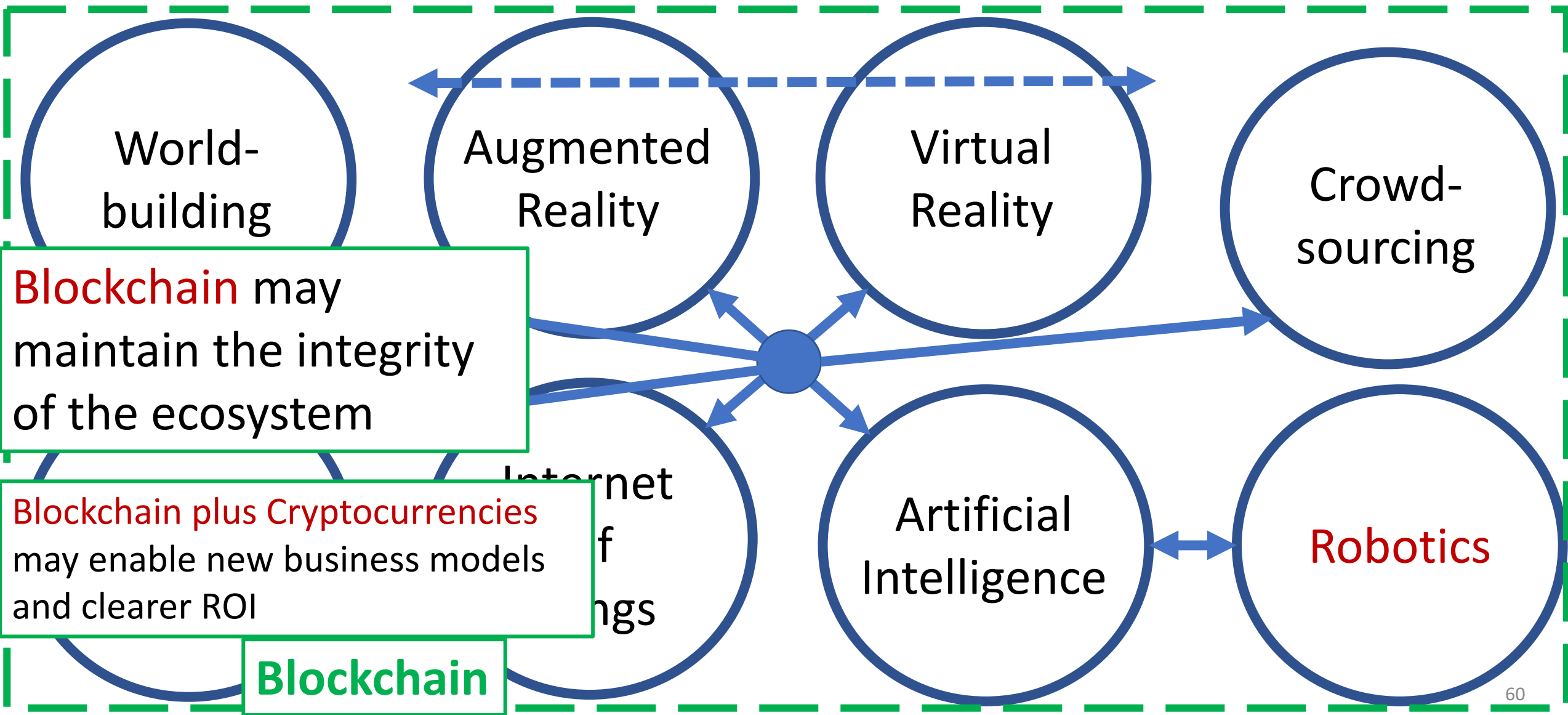
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As AGI learns, will the laws be
“...more what you'd call "guidelines" than actual rules.”

Look at the intersection of



- 
- 
- ☐ *Information Wants to Be Free*
 - ☐

☐ *Information Wants to Be Free*



■ Information also wants to be expensive.

Information wants to be free because it has become so cheap to distribute, copy, and recombine—too cheap to meter. It wants to be expensive because it can be immeasurably valuable to the recipient. That tension will not go away. It leads to endless wrenching debate about price, copyright, “intellectual property,” and the moral rightness of casual distribution, because each round of new devices makes the tension worse, not better.

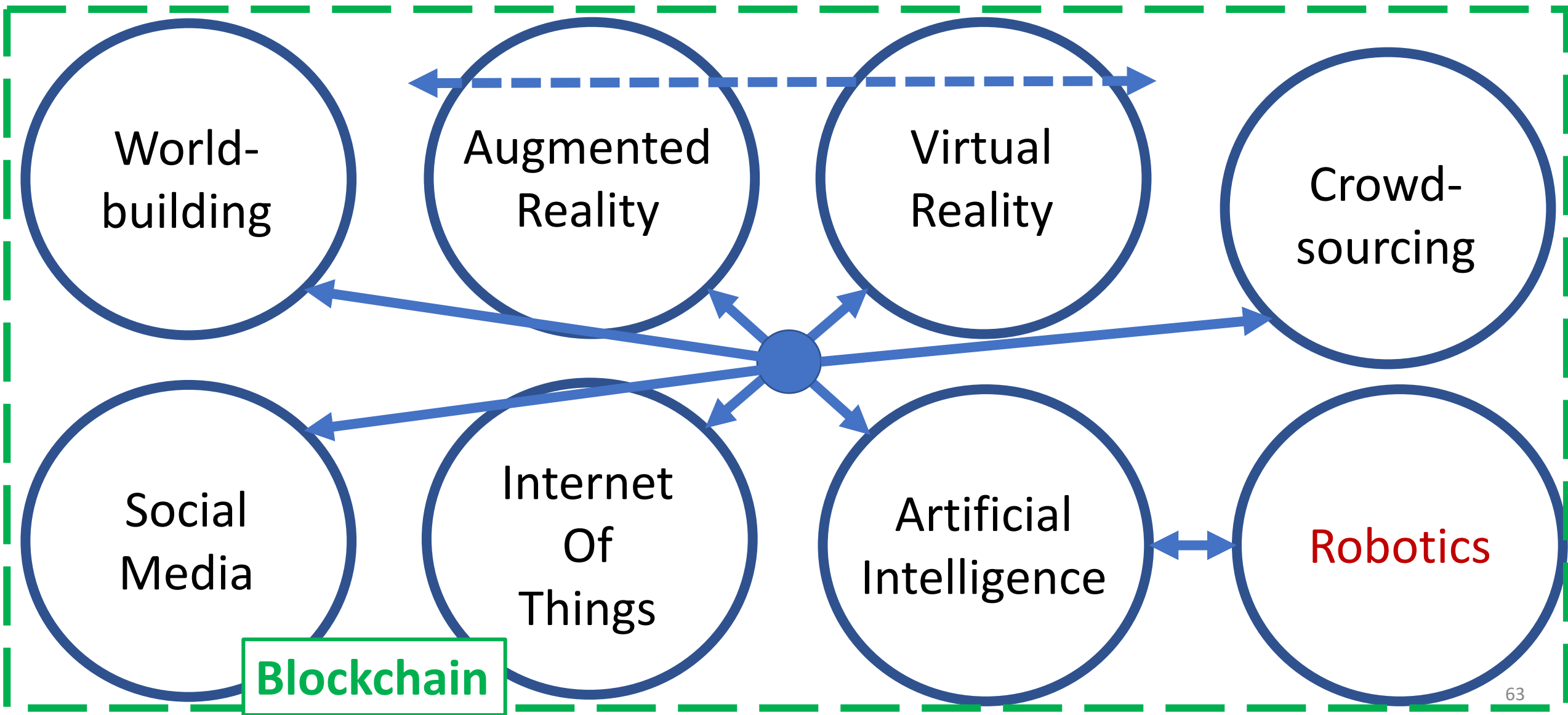
The Media Lab

Inventing the Future at MIT

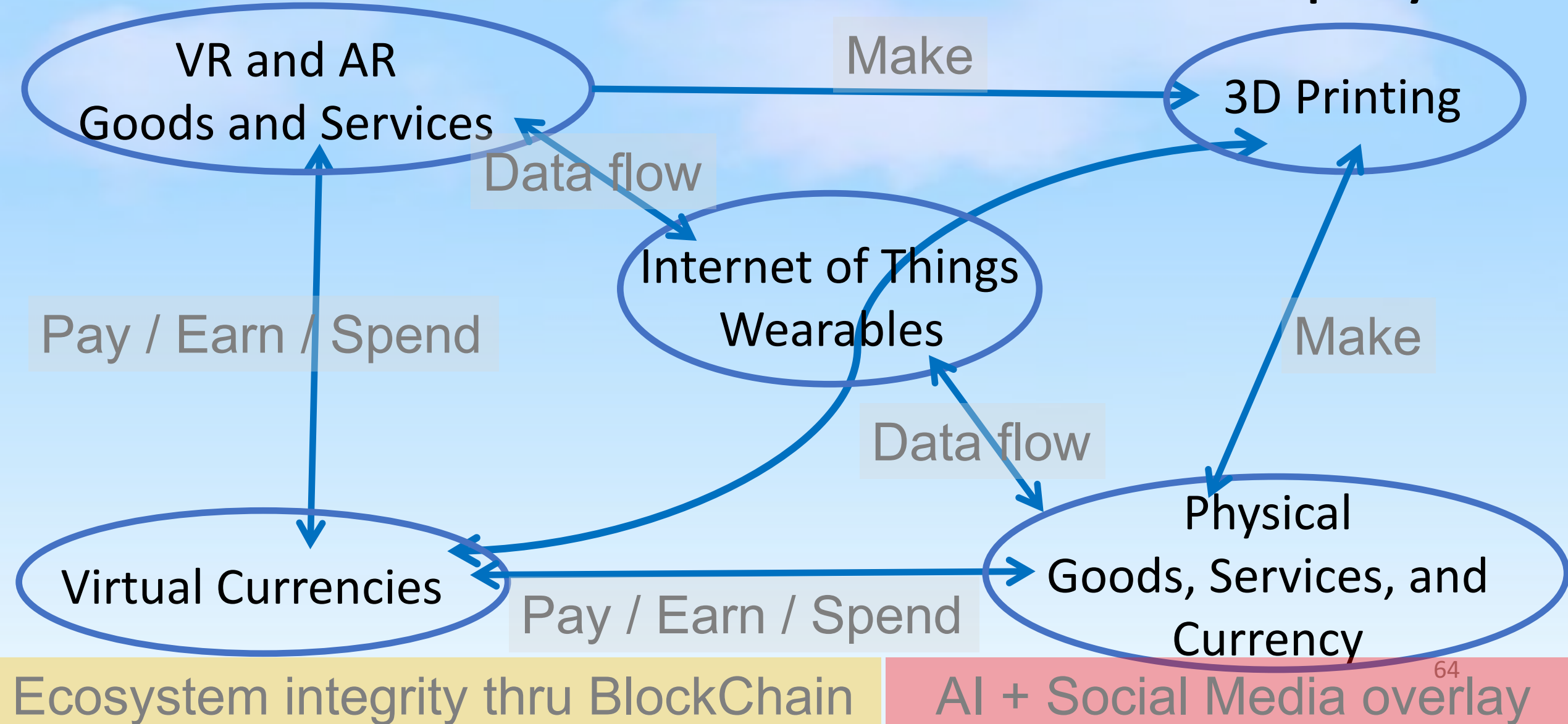
by Stewart Brand

1987

Look at the intersection of



Erasing the boundaries between real and virtual worlds of work and play



These are not *problems*, they are known elements of an emerging ecosystem

Alan Kay – “*Technology is anything that wasn't around when you were born.*”

We are defining the starting point for future generations

Let's have these discussions now, while resistance to new ideas and to change is low

Thank you

“Engage”

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