



AROMNI

The logo for AROMNI is centered on a blue hexagonal background. The word "AROMNI" is written in a bold, white, sans-serif font. The letter "O" is replaced by a solid orange circle. The background features a subtle, radiating pattern of thin, light blue lines that create a sense of depth and motion.

# DIGITAL TRANSFORMATION AND THE INTERNET OF EVERYTHING

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# **Digital Transformation of the Real World and the Internet of Everything (IoE)**

## **Societal Impacts of IoE**

**IoE**

**will be the Internet of Everyone**

# Digital Transformation of the Real World and IoE



# THE REAL WORLD



Extreme Tech, 2012

<https://patents.google.com/patent/US20110066646A1/en?assignee=ydreams&oq=ydreams>

# REAL AND DATA WORLDS

## Bridging the Real and Data Worlds

People and  
other living organisms

Real and Data Worlds  
are bridged by

Places

Computer Vision

Objects

Other Sensors

Experiences

Natural Language

### The Real World

### The Data World

Real time data

Data on the Real  
World is  
commonly  
accessed using  
WWW URLs

System data

Online Behaviour

# BRIDGING THE REAL AND DATA WORLDS

**Augmented Reality (AR) has been mostly additive but...**

<https://hbr.org/2017/11/a-managers-guide-to-augmented-reality>



# BRIDGING THE REAL AND DATA WORLDS

**AR can help enrich and index the Real World in the Data World based on Augmented Positioning System (APS) \***

It will complement GPS and IPS providing precision to the users Field of View's point clouds

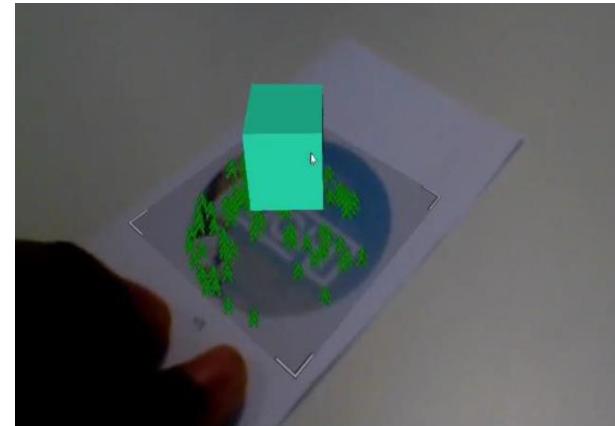
It will provide a canvas to enrich the Real World

It will provide the foundations for Smart Tags, the key bridges between the Real and Data Worlds

\*US Patent Pending

# BRIDGING THE REAL AND DATA WORLDS

APS provides accurate estimates for coordinates of point clouds in the Field of View of users whose position is known via GPS or IPS. It may use a variety of depth perception analytical methods\*. It may be used to infer virtual anchor points for the augmented World. It can be used in both long and short range situations



\*<https://patents.google.com/patent/US20080192048A1/en?assignee=ydreams&oq=ydreams> and <https://patents.google.com/patent/US20100194863A1/en?assignee=ydreams&oq=ydreams>

# BRIDGING THE REAL AND DATA WORLDS

## APS providing the canvas to enrich the Real World

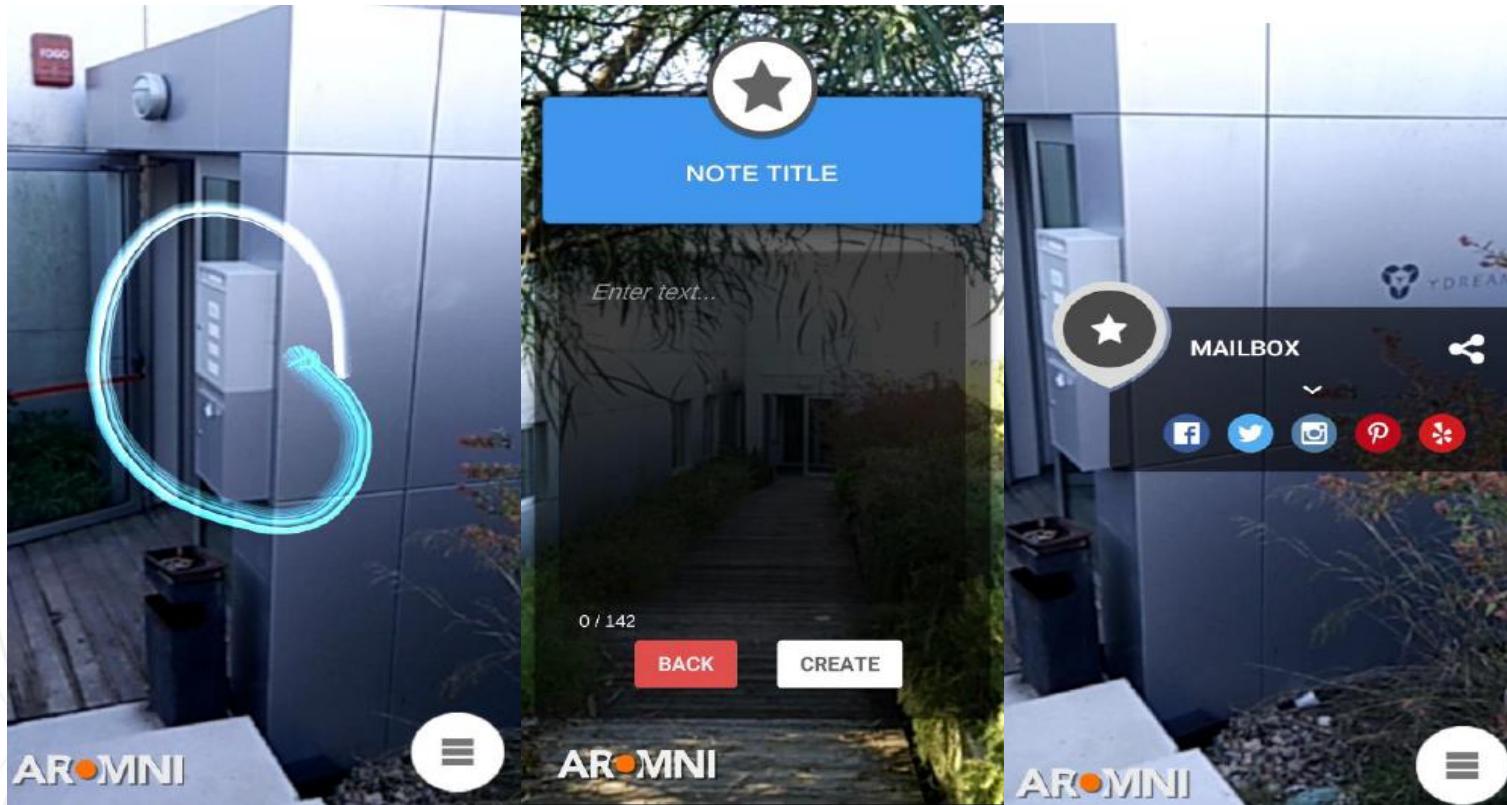
clockwise: 3D virtual drawing; large scale projections; inserting virtual elements in real scenes; Cloud Atlas' special effects



# BRIDGING THE REAL AND DATA WORLDS

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APS the foundation for Smart Tags\*



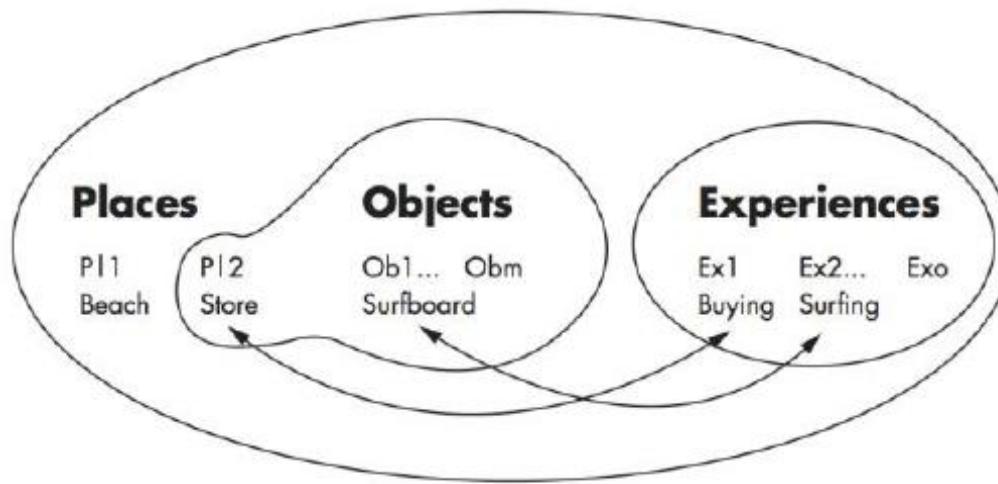
Tagging to bridge the Real and Data Worlds: APS positioning, labelling, two way communication, sharing, machine learning and other computer programs

\* US Patent Pending

# BRIDGING THE REAL AND DATA WORLDS

## BRIDGING THE REAL AND DATA WORLDS — A HYPERGRAPH BASED VIEW

### The Real World



### The Data World

URLs related to the "Beach", "Store", and "Surfboard" provide access to Websites with too broad information

In the Hypergraph based approach, nodes and arcs are "tagged"

"Tags" provide focused information and can be easily developed and used locally

# THE INTERNET OF THINGS

## ADDING AND "TAGGING" INTELLIGENCE IN OBJECTS



- **Augmented reality**

By image recognition:  
"it is a bottle"

By reading the bar code:  
the cost is 50c

By using a QR CODE:  
extended descriptions, images,  
videos

- **Sensorization**

RFID: may provide detailed product information including the possibility of positioning

Additional sensors: may provide quality related information such as Ph and temperature

- **Robotics**

Sensors/actuators/processors  
— A bottle may have a robotic exo-skeleton



# THE INTERNET OF BIOLOGICAL THINGS

## Macroscopic level

Identify and "tag" animals and plants

<https://www.youtube.com/watch?v=OkH11ZiIL9E>



## Microscopic level

"Tag" molecular biology

<https://tinyurl.com/y7gns634>



IOE



For other forward looking displays see <http://www.bbc.co.uk/rd/about/vision>

# IOE

## **ARIA, a browser for IoE\***

APS, Smart Tags and Hypergraphs

Bridging the Real and Data Worlds, Internet of Things,  
and Internet of Biological Things

Unique user experience

Improved search

Blockchain integration

IPFS based

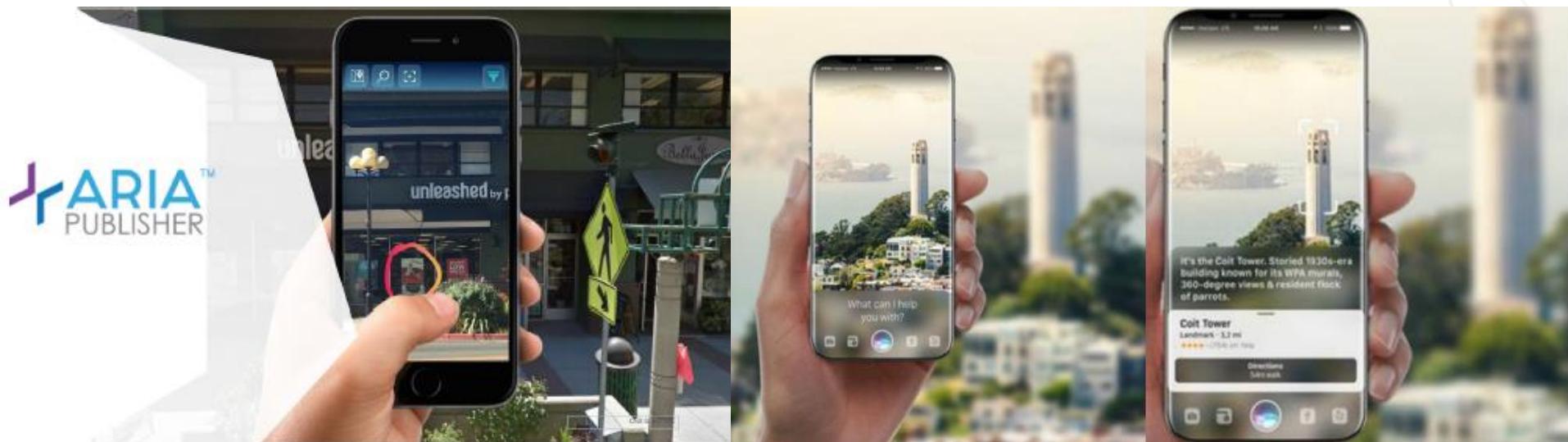
\*US Patent Pending



# IOE

AROMNI

## ARIA's unique user experience



<https://youtu.be/TSWZLUv-vhk>

## ARIA's unique user experience



### Object Capture

as it did when the artist recorded it. Our human recording devices capture the full sound in today's digital audio tracks.

**Circle the object you want to capture**

The man who knows: Grammy® Award-winning artist, producer and sonic perfectionist Dr. Dre. In search of headphones that truly reveal what's in the mix, Dre joined forces with the audio experts at Monster. Together, they've built headphones for the ultimate high definition listening experience—for sound so real it's like you're right in the room with the artist.

With advanced speaker design and powered isolation™ technology, Beats delivers all the power, clarity, and deep bass today's top artist and producers want you to hear. Step into the studio—presenting Beats™ by Dr. Dre.™

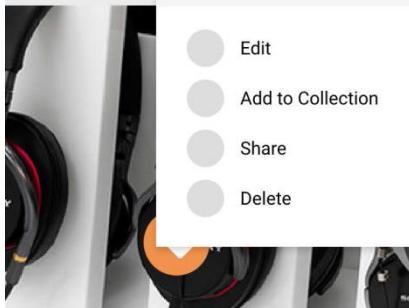


studio.  
MONSTER

[aromni.com](http://aromni.com)

High Definition Powered Isolation™ Headphones

← Son Tag Options ×



Description text goes here and can include voice recording, links, photos, and videos

[voice recording]

[video]

Website to learn more info: [sony.com/headphones](http://sony.com/headphones)

DOWNLOAD APP

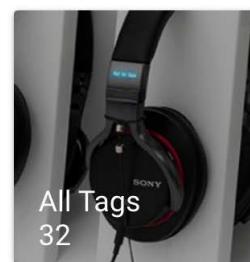


### Add to Collection



Sony headphones

New Collection



All Tags  
32



headphones  
1



name  
8



name  
5



name  
1

# IOE

## ARIA's unique user experience

### Innovative AI agents

<https://www.youtube.com/watch?v=AmIKYMD08x8>



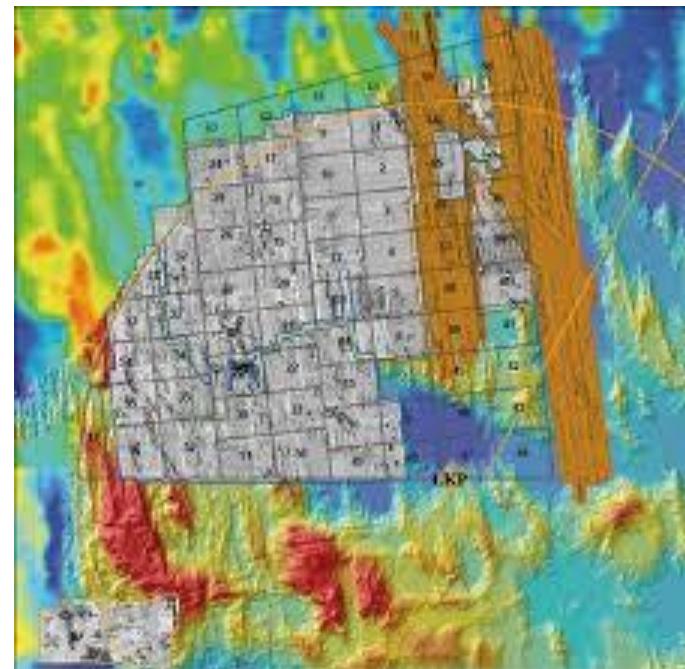
## ARIA's improved search\*

Hypergraph based  
network algorithms

Bayesian search  
missing objects

Generative search  
knowledge discovery  
genetic programming

\*US Patent Pending



Source: [www.informs.org](http://www.informs.org), 2018

## IOE

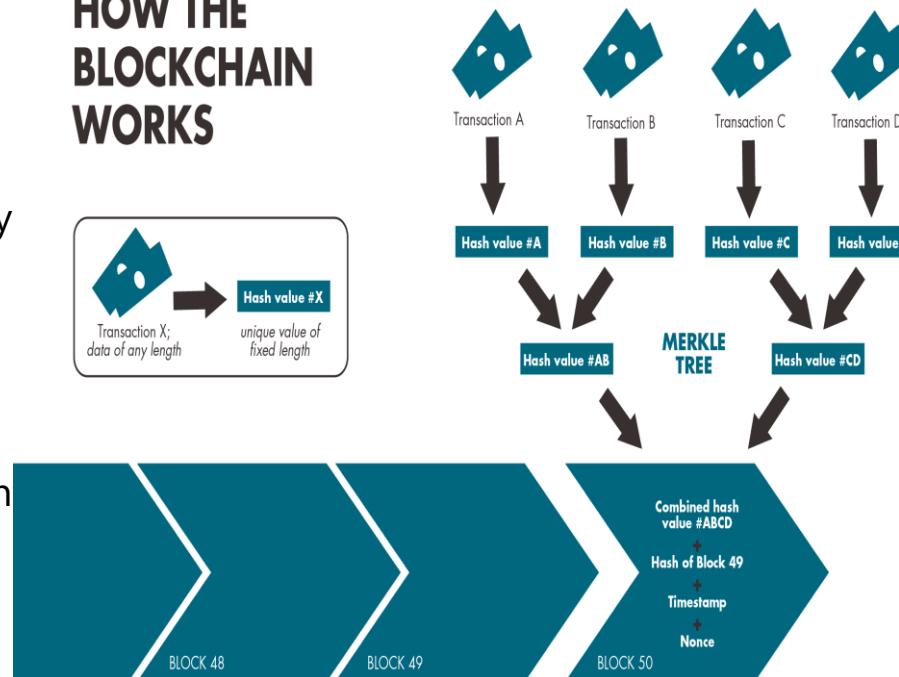
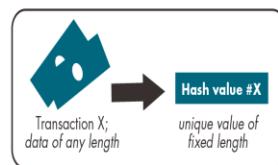
**ARIA's blockchain integration**

Selected smart tags may be registered using hyperledgers

Integration of tagged objects in mediated blockchain services (i.e., Universal Sharing System by slock.it; e-commerce and other transactions)

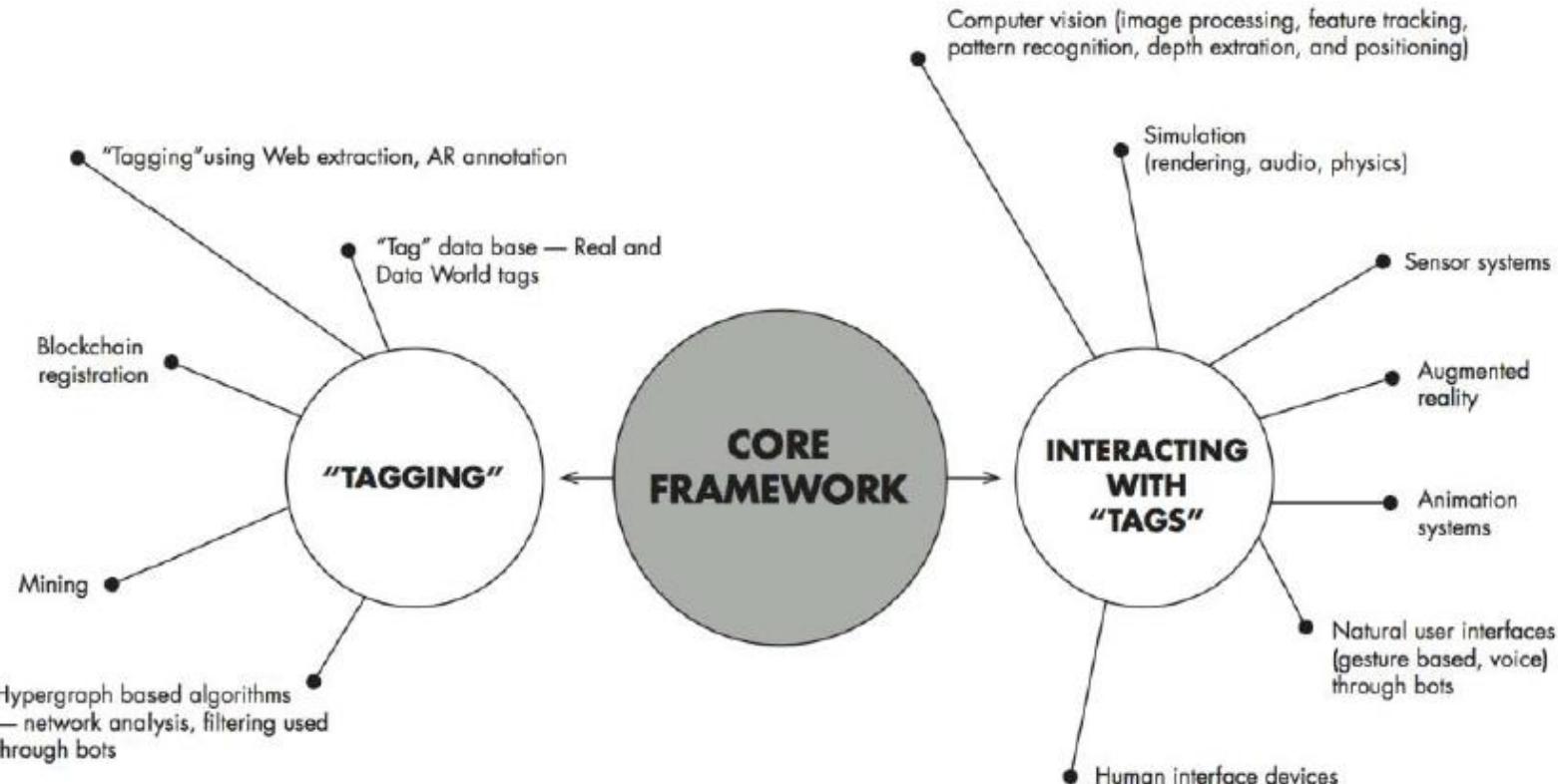
Smart contracts to manage global collaborative development efforts

ARIA's may foster the use of tokens to draw adoption

**HOW THE BLOCKCHAIN WORKS**

Reproduction of an original figure in "The Great Chain of Being Sure About Things" by the Economist

## IOE

**ARIA — COORDENATING  
CORE BASED PLATFORM \***

ARIA's infrastructure will rely on IPFS, <https://ipfs.io/>

\*US Patent Pending

# Societal Impacts of IoE

## *The Inventors Space*



# SOCIETAL IMPACTS

## The Citizen's Internet

World as a browser

Micro-geography

Improved search

Improved privacy issues

Universal sharing system

Distributed versus broadcast\*

Hyperlocal economies

USN: Universal Sharing Network

Trustless Trust: Trust without Trust



A radically simplified user journey  
Open the app > Find object > Pay for it > Use it

Source: [slock.it](http://slock.it)

\* Catarina Mota. Bits, Atoms, and Information Sharing: new opportunities for participation.  
<http://hdl.handle.net/10362/14505>, 2015

# SOCIETAL IMPACTS

## The Citizen's Internet

**Local democracy**

**Local media\***

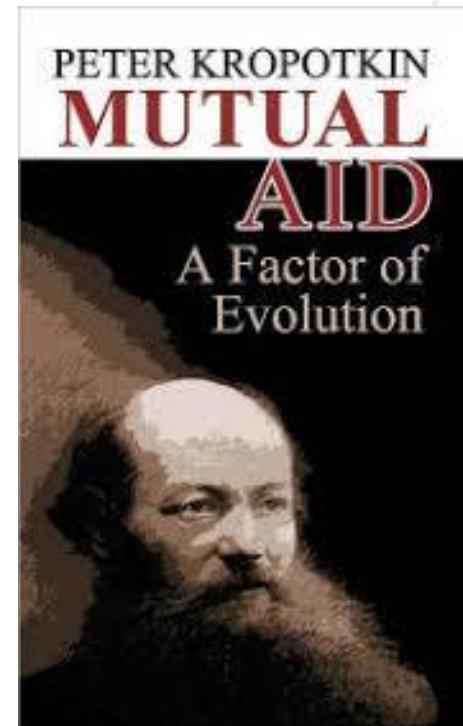
**Local arts & crafts**

**Energy and water saving**

**Reduction, reuse and recycling**

**Sanctuaries for the poor**

**Peter Kropotkin\*\*and Abbie Hoffman's  
utopian dreams may come alive**



\*<https://www.coindesk.com/insightful-ico-telecom-giant-telenor-wants-to-disrupt-media-with-tokens/>

\*\*<http://www.ephemerajournal.org/contribution/peter-kropotkin%E2%80%99s-anarchist-vision-organization>

# SOCIETAL IMPACTS

## Smart cities

ARIA's platform  
will facilitate driving  
and sharing electrical cars

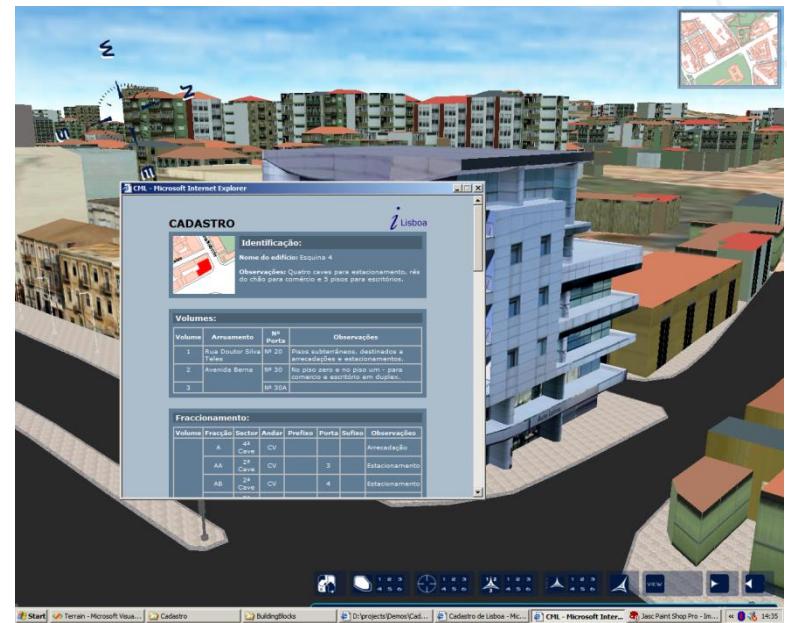
ARIA's will also enable their  
use as sensors



# SOCIETAL IMPACTS

## Smart cities

ARIA will feed Smart Tags on urban infrastructure by parsing and learning from heterogeneous data bases



# SOCIETAL IMPACTS

## Other vertical markets

Tourism

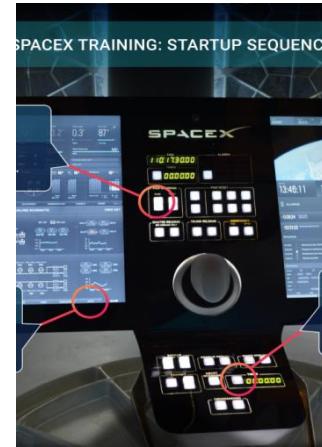
Retail

Health

Utilities

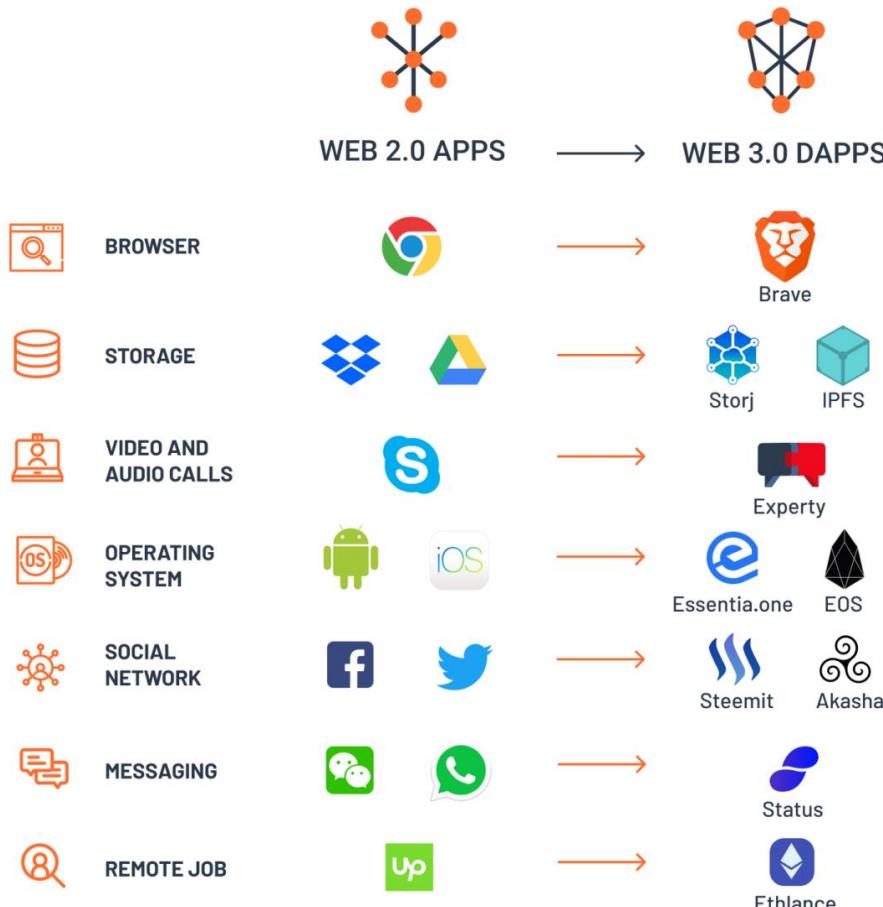
Space

Entertainment



**Internet of Everything will be  
the Internet of Everyone**

# FROM A CENTRALIZED TO A DECENTRALIZED INTERNET



ARIA is a Web 3.0 browser for IoE

Pro privacy, anti-monopoly

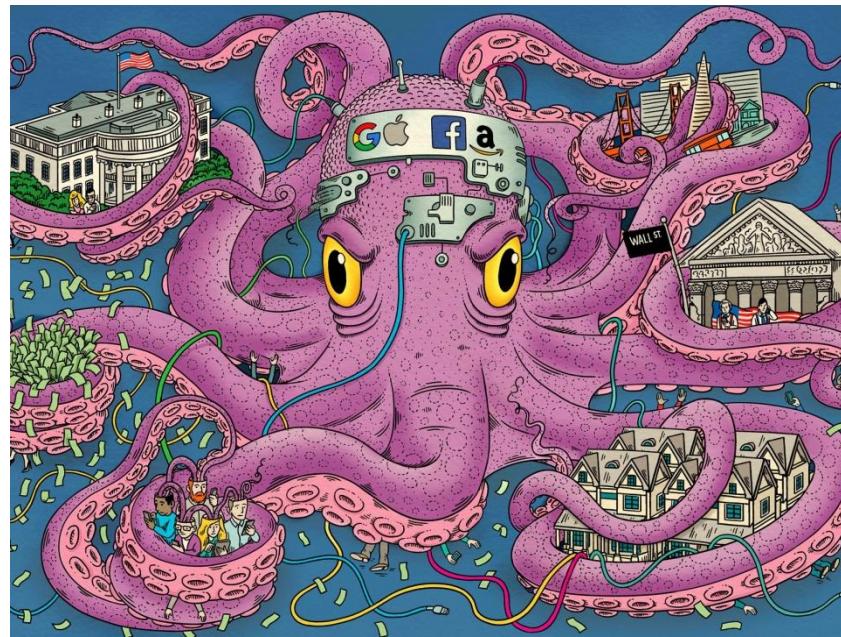
No central point of control

Ownership of data

Permissionless blockchains

Matteo Zago, Why the Web 3.0 Matters and you should know about it, Medium, Jan 30, 2018

# ARIA: a new leveled playing field for and with the World from Europe: a true digital societal transformation



<http://www.esquire.com/news-politics/amp15895746/bust-big-tech-silicon-valley/>

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