



The Standards People

IoT Conference 2023

The Future Of Governance in the Autonomous Age

Presented by:



Gabriel Rene
CEO VERSES / Executive Director of SWF



THE DREAM

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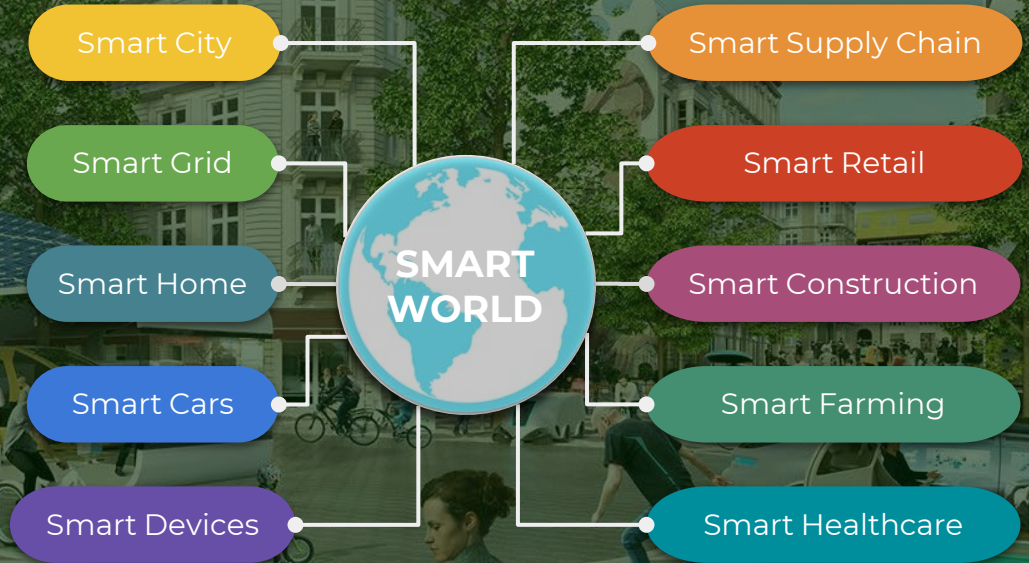


AUTONOMOUS AGE

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“Smart” Everything. Enterprise, Industrial, Government, Consumer.

**Smart
Connected
Automated
Secure
Sustainable**



TECH POWERED

Billions are being spent on WEB 3.0 technologies



AI & Machine Learning



Automated Vehicles



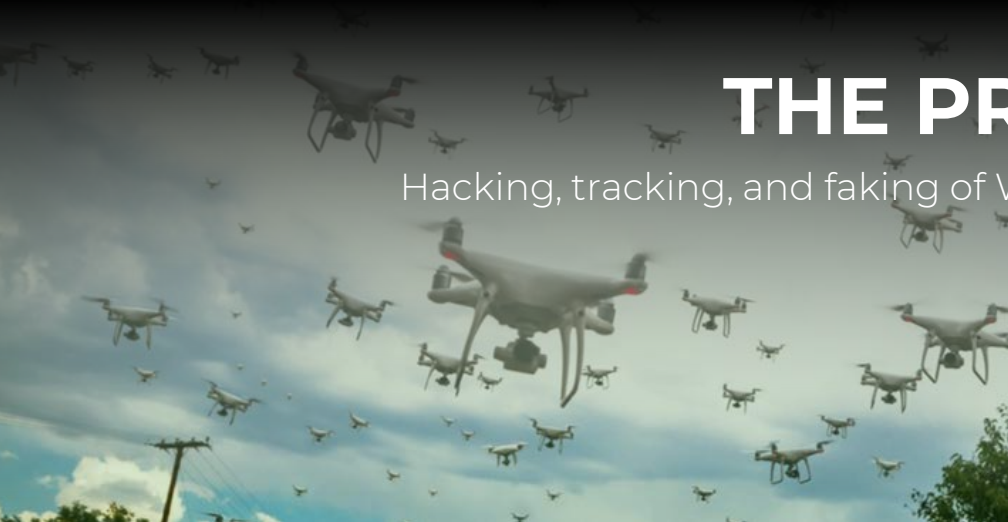
IoT & Robotics



Augmented & Virtual Reality

THE PROMISE

Hacking, tracking, and faking of Web 2.0 will be a thing of the past.



THE VALUES

Social, Racial, Gender, Ability, Climate Equity, Justice, Health etc.

THE PARTNERSHIPS

Dynamic Public/Private Partnership between Government, Industries and NGO's



Generative AI took the world by storm

ACCELERATING GROWTH IN TECHNOLOGY

Time it took to reach 100 million users worldwide:

Telephone: 75 years

Mobile phone: 16 years

World Wide Web: 7 years

iTunes: 6.5 years

Twitter: 5 years

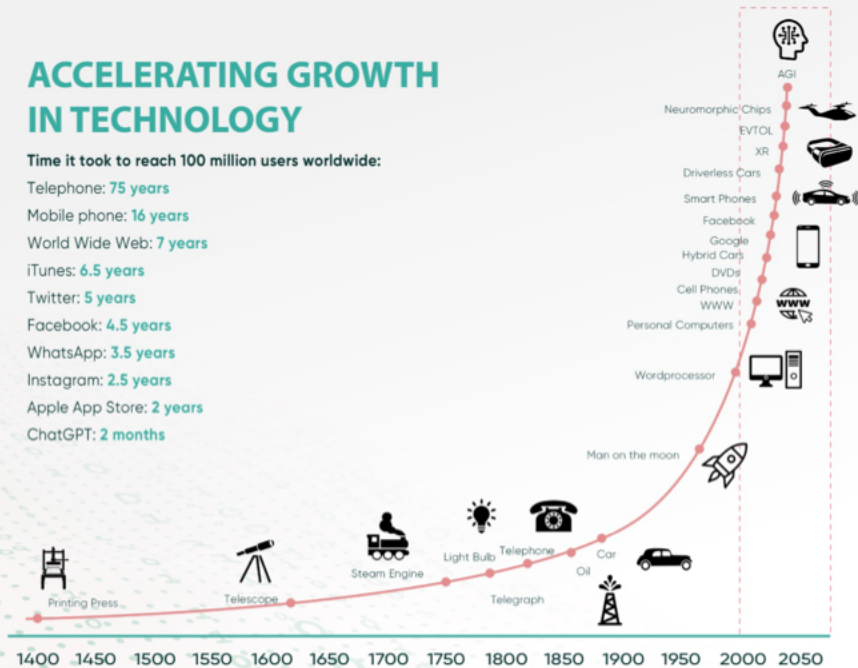
Facebook: 4.5 years

WhatsApp: 3.5 years

Instagram: 2.5 years

Apple App Store: 2 years

ChatGPT: 2 months



Automation & Efficiency
Augmented decision making
Scientific and medical advances
Solving world scale problems
Good for CONTENT creation

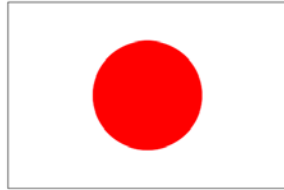


Safety & Accountability,
Ethical alignment & bias
Accuracy & privacy
IP rights and fairness
Suboptimal for ACTIVITY
Management

REGULATIONS ARE COMING..



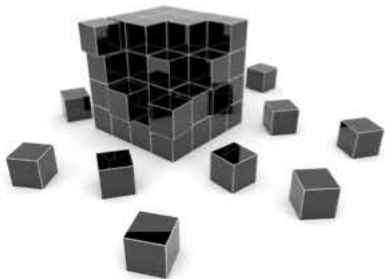
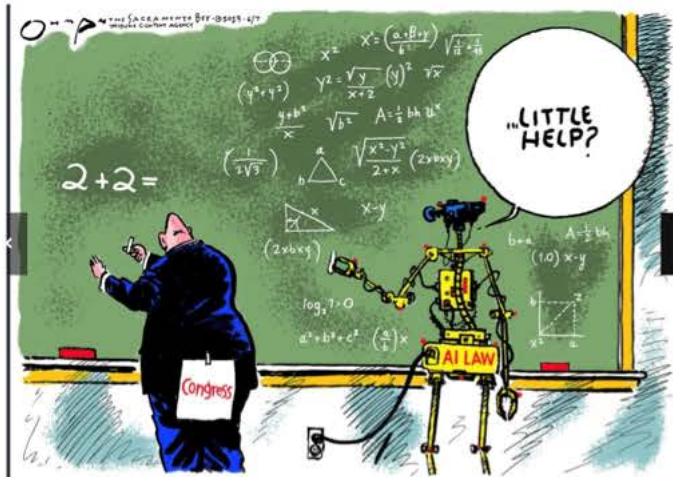
European Commission



JAPANGOV
THE GOVERNMENT OF JAPAN



AI REGULATION IS CENTER-STAGE AND CHALLENGING

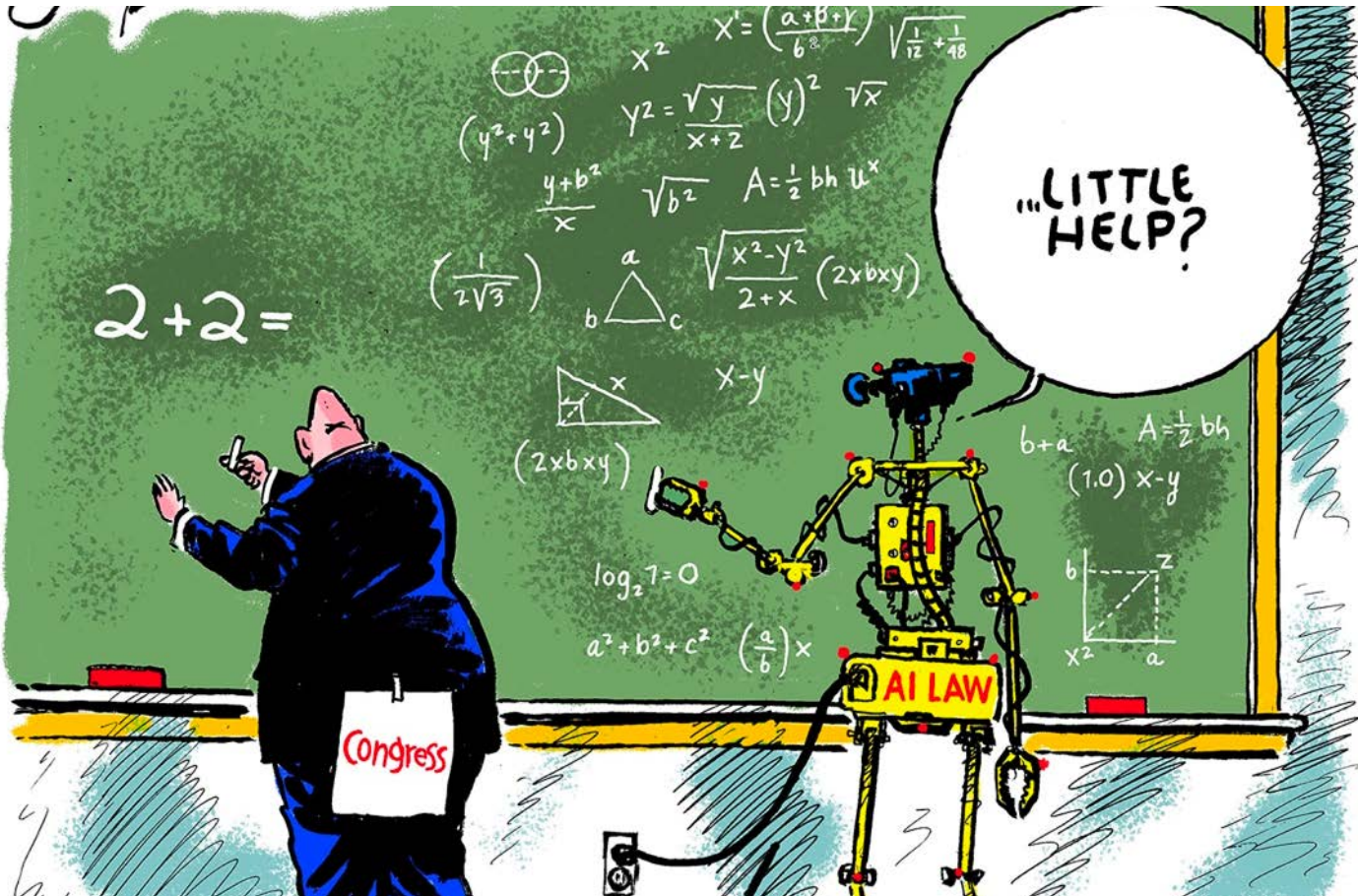


- How can governments keep up and regulate AI systems that are on a path to regulating themselves?
- How can humans stay in the loop to ensure AI alignment with our values, principles, and laws, while guaranteeing fair and equitable services for all individuals and communities?
- How do we encode and enforce AI laws directly in AI systems themselves?

PRINCIPLES



REGULATORS STRUGGLING..



AI is moving towards greater levels of intelligence and autonomy

Artificial Narrow Intelligence (ANI)

ANI describes AIs that are good at a particular task at a level equal or better than a human being.

EXAMPLE

Virtual assistants, such as Siri or Alexa.



Artificial General Intelligence (AGI)

AGI is an AI that can perform any task that a human being can. This is what most of us think of when we think of AI.

EXAMPLE

David, the child-like android from the 2001 movie Artificial Intelligence.



Artificial Super Intelligence (ASI)

This is an intelligence that surpasses anything that human beings can do.

EXAMPLE

Marvel's J.A.R.V.I.S. (Just A Rather Very Intelligent System)

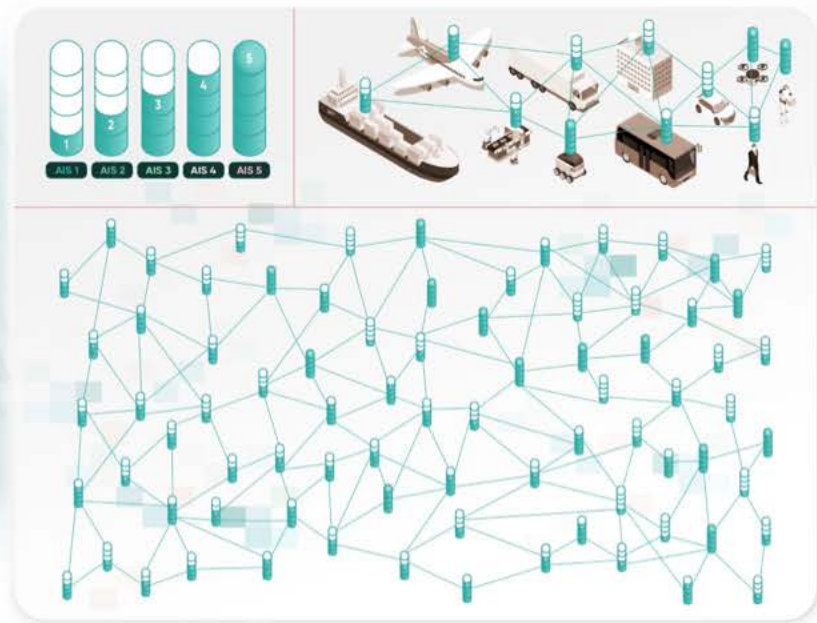


Novel governance frameworks that depend on factors such as **intelligence** capabilities, **autonomy** levels, and **trust** will be unlocked.

These frameworks may range from centralized to federated to distributed governance.

Each framework varies in terms of degree of **control**, decision-making authority, and trust.

AI is moving towards greater levels of internetworking and ecosystems



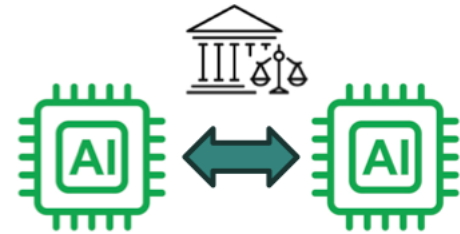
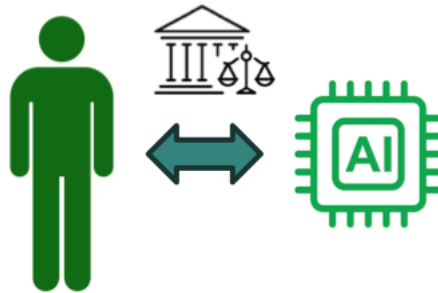
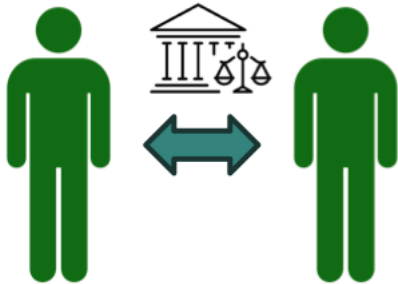
Heterogeneous
Self-improving
Self-adapting
Networking with other AIs,
sensors, and robotics systems
Resulting in **Autonomous
Intelligent Systems (AIS)**

ADAPTIVE SHARED LANGUAGE AS LAW'S PERIMETER EVOLVES

Governance today

Governance tomorrow

Governance after tomorrow



Words
Ambiguous/General
Slow
Negotiation-based

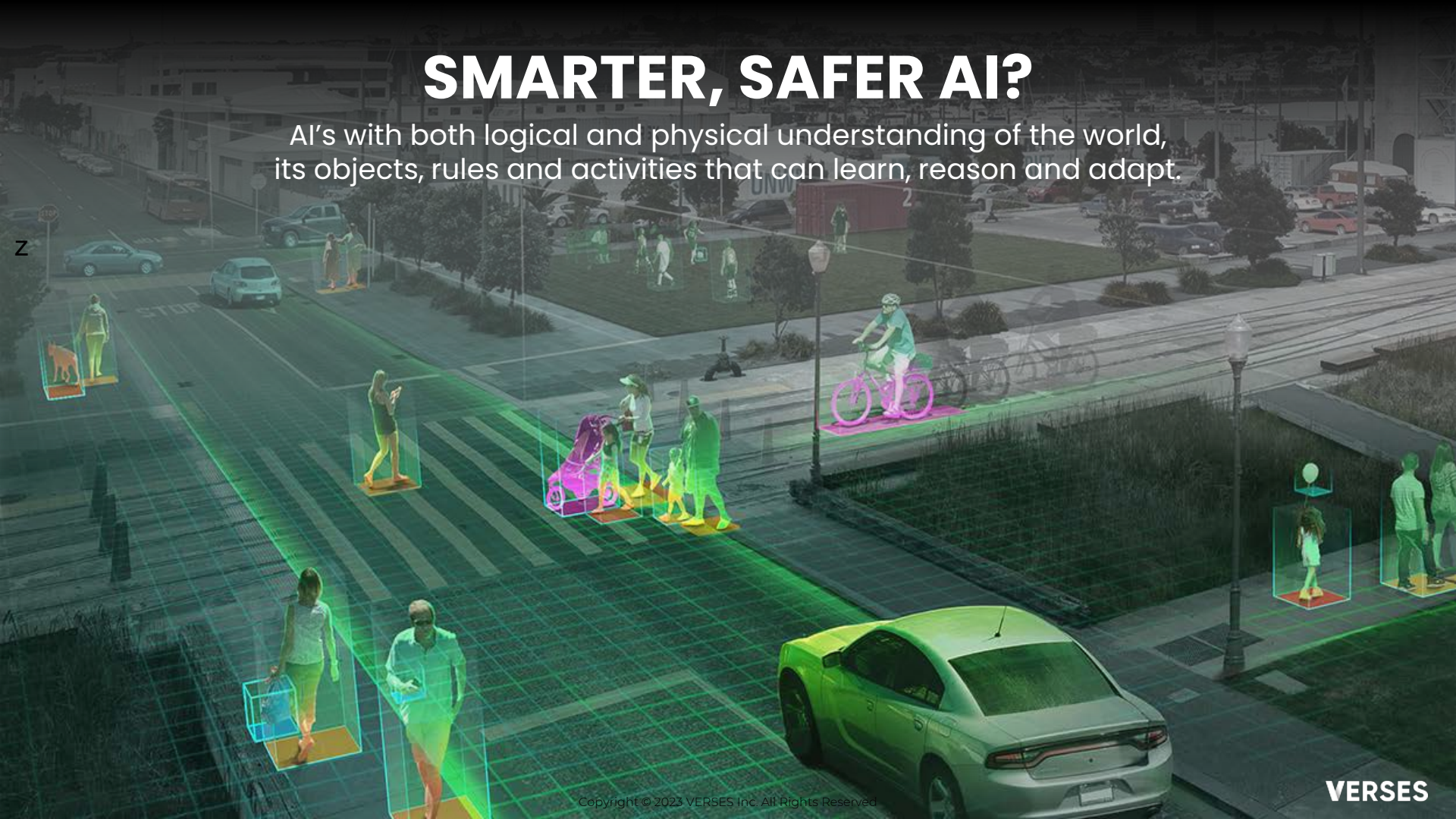
Case Law?
Common Law?

Code
Explicit/Specific
Real-time
Smart contract based

SMARTER, SAFER AI?

AI's with both logical and physical understanding of the world, its objects, rules and activities that can learn, reason and adapt.

Z





1 **P2874™/D1**
2 **Draft Standard for Spatial Web**
3 **Protocol, Architecture and Governance**

4 Developed by the Spatial Web Working Group
5 of the
6 **IEEE Computer Society Artificial Intelligence Standards Committee (AISC)**

7
8
9 Approved <Date Approved>

10
11 **IEEE SA Standards Board**

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Hyperspatial Transaction Protocol (HSTP) &
Hyperspatial Modeling Language (HSML)

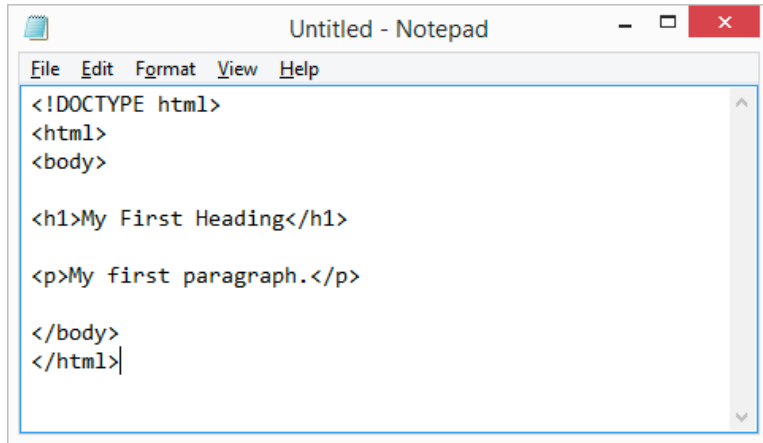
First Draft Specification Unanimously
Approved by IEEE Spatial Web Working
Group December 2021

**“Sociotechnical
Standards”**

The New Web Standards

We invented a new language to model objects and activities in space

HTML



```
Untitled - Notepad
File Edit Format View Help
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>

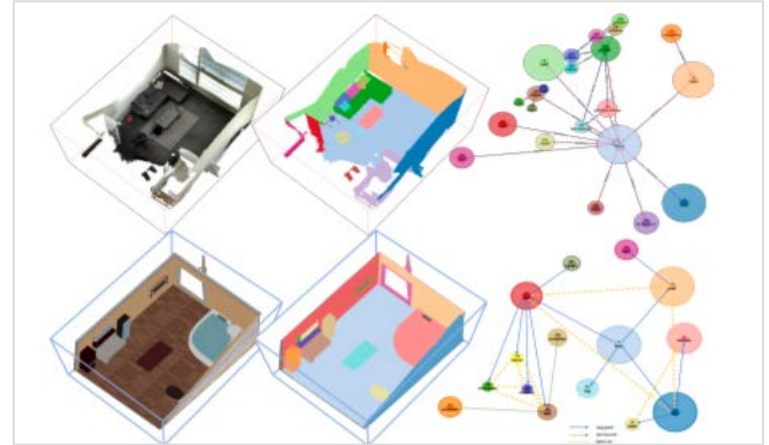
<p>My first paragraph.</p>

</body>
</html>
```

hypertext

A markup language for information on pages

HSML



hyperspace

A modeling language for objects in spaces



European Commission Autonomous Drone Standards and Governance



Flying Forward 2020



AUTONOMOUS LAW



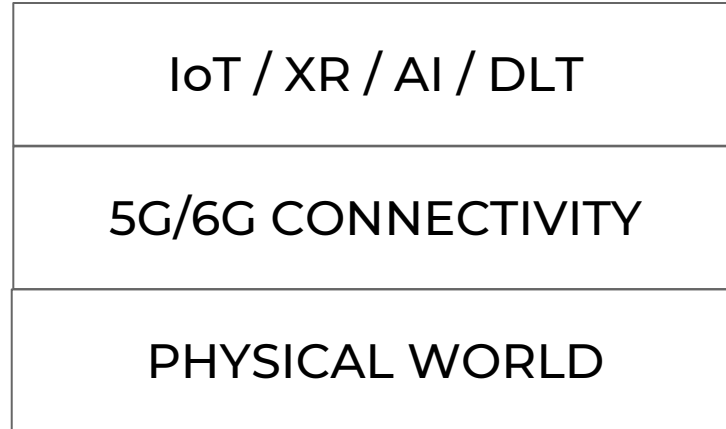
Existing cybersecurity solutions lack *context-awareness*. Conductiv goes beyond **Device Identification** and **Profile Authentication** to make devices become **Policy-aware** and **Location-aware**

As a result, physical activities of IoT devices can be governed and enforceable at the hardware level.

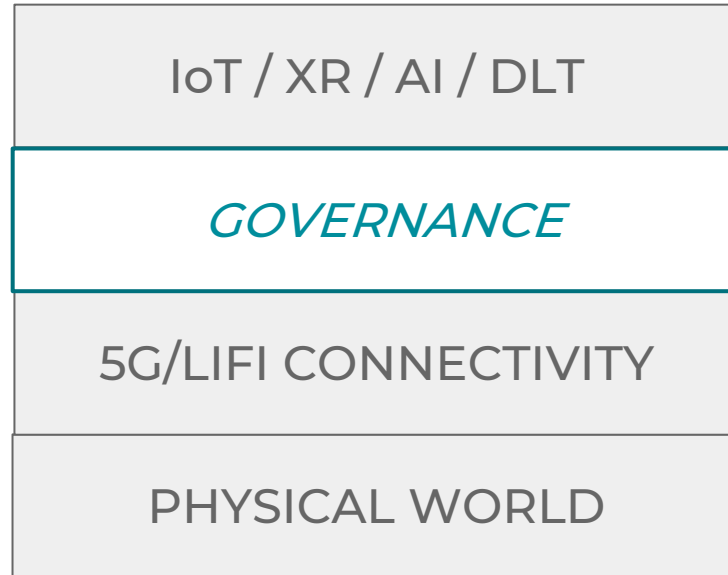
Conductiv provides more than just data security, enabling the **permissioning** and **authentication** of real world activities of the IoT.

-  Authorized landing zone
-  Drones not allowed

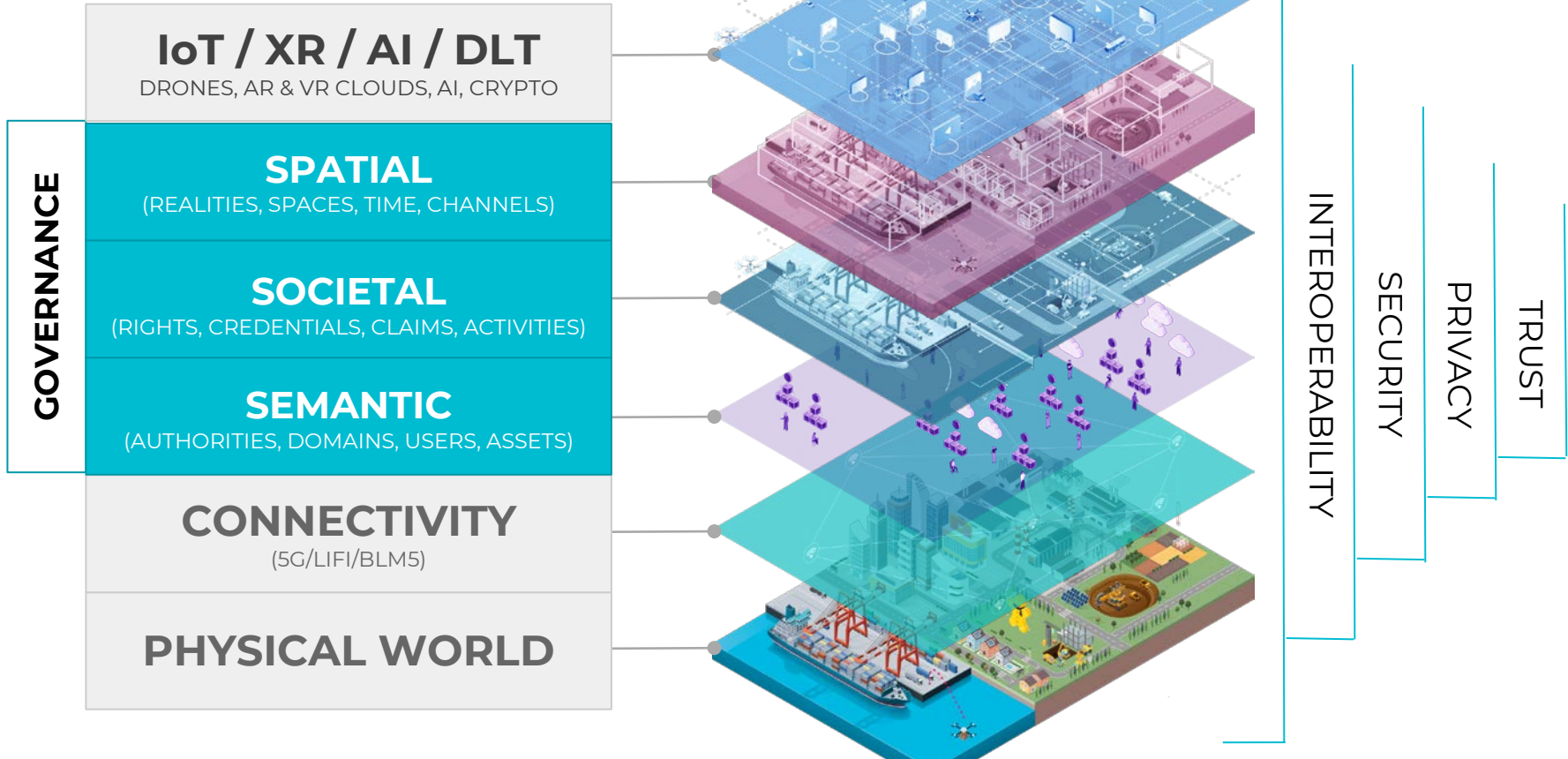
UNIVERSAL GOVERNANCE INFRASTRUCTURE



UNIVERSAL GOVERNANCE INFRASTRUCTURE



DIGITAL TWIN LAYERS

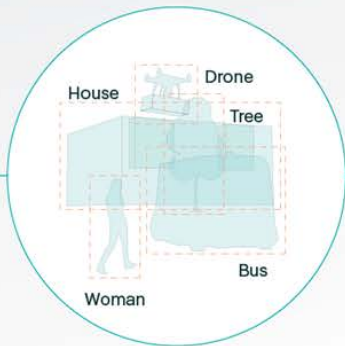


Standards **GROUND** AI in Digital Twins

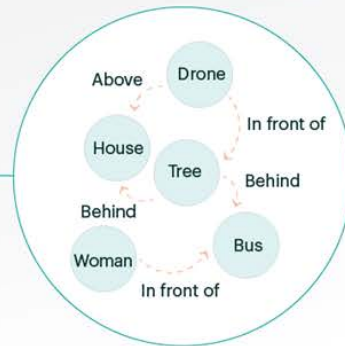
Grounding Elements



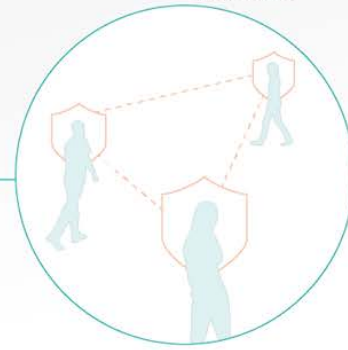
Coordinates Geography, Geometry, and Addresses



Context Relationships, Interdependencies, and Meta-data



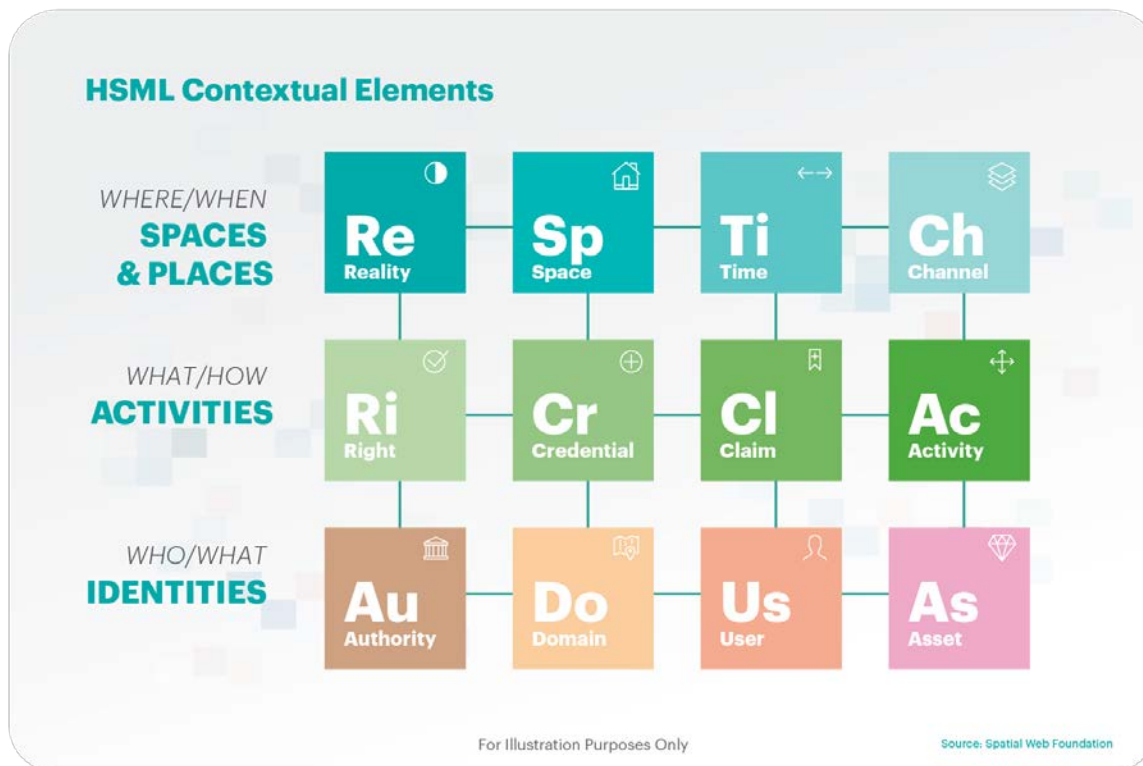
Credentials Rights, Permissions, and Policies



Source: VERSES

HSML MODELS CONTEXT (META-DATA)

HSML – Hyperspace Modeling Elements form a canonical data model that can be used to digitally describe any class of user, object, policy and activity in physical, digital and virtual space.





MODELLING USE CASES : A HOSPITAL ROBOT

Us¹
User

An Identified
Robot

Cr⁵
Credential

as represented by
**Medical Procedure
Certificate**

Sp⁹
Space

in **Patient's
Room**

Au²
Authority

by virtue of **Health and
Human Services**

Cl⁶
Claim

is **Certified to perform
various procedures and
is able**

Re¹⁰
Reality

in **Physical Reality**

Do³
Domain

within **USC Medical
Center**

Ac⁷
Action

to **Take Blood
Pressure**

Ti¹¹
Time

in **Present Time**

Ri⁴
Right

shall have the Right
to **Take Blood
Pressure**

As⁸
Asset

On an Identified
Human Patient

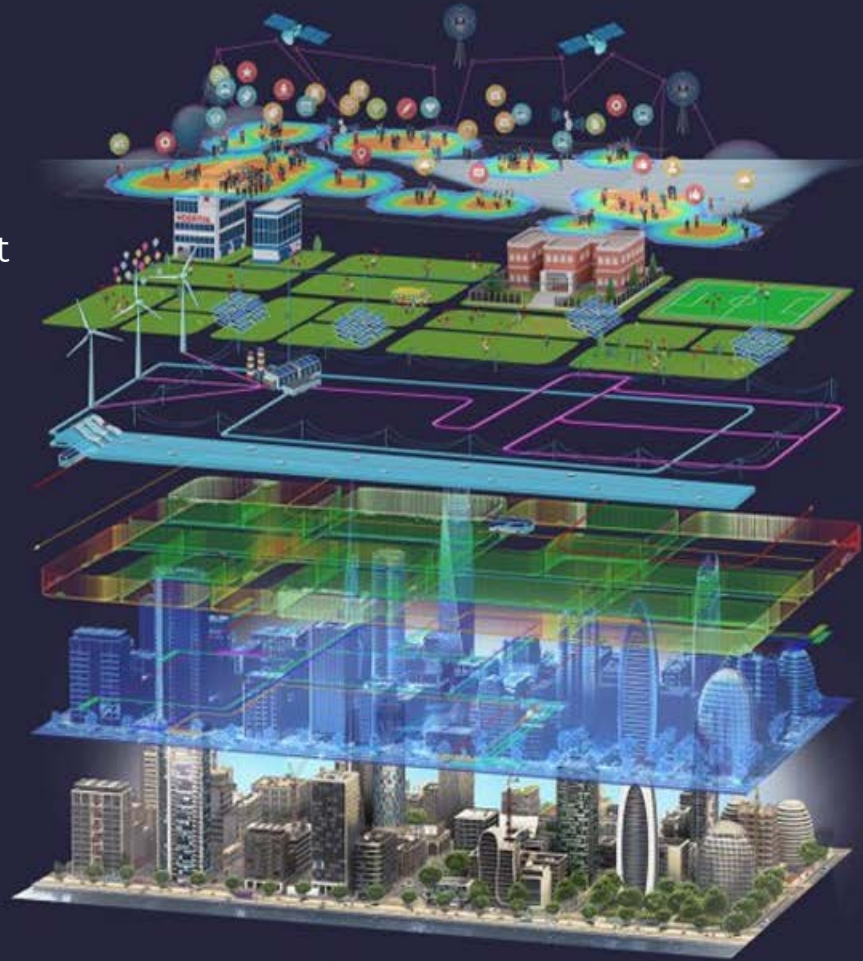
Ch¹²
Channel

On the **Hospital
Private Patient
Channel**

DIGITAL TWIN LAYERS

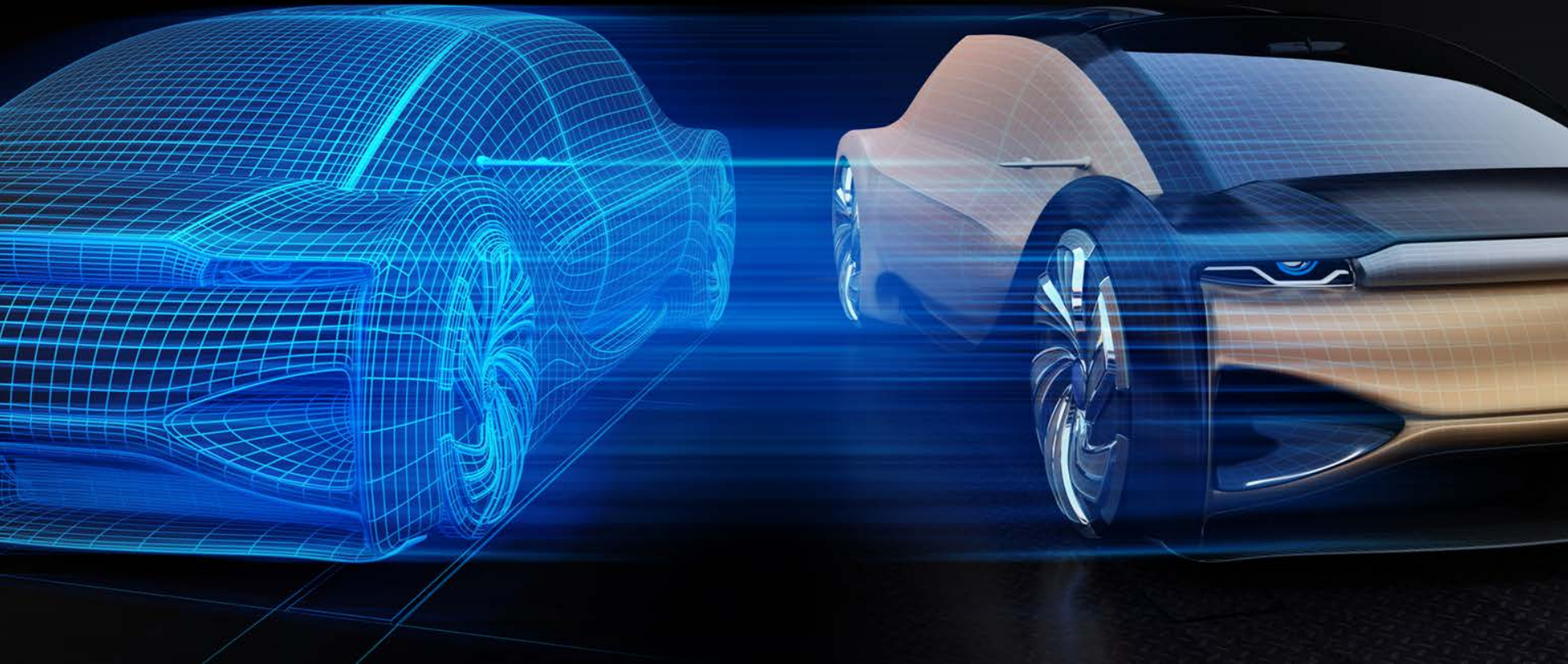
The following slides show example features and use cases we will demonstrate across the following smart city layers:

- 5G & Edge Emergency Response
- Energy/Climate
- IoT
- Computer Vision
- Construction & Infrastructure
- Traffic/mobility
- Drone Flight Control
- Entertainment



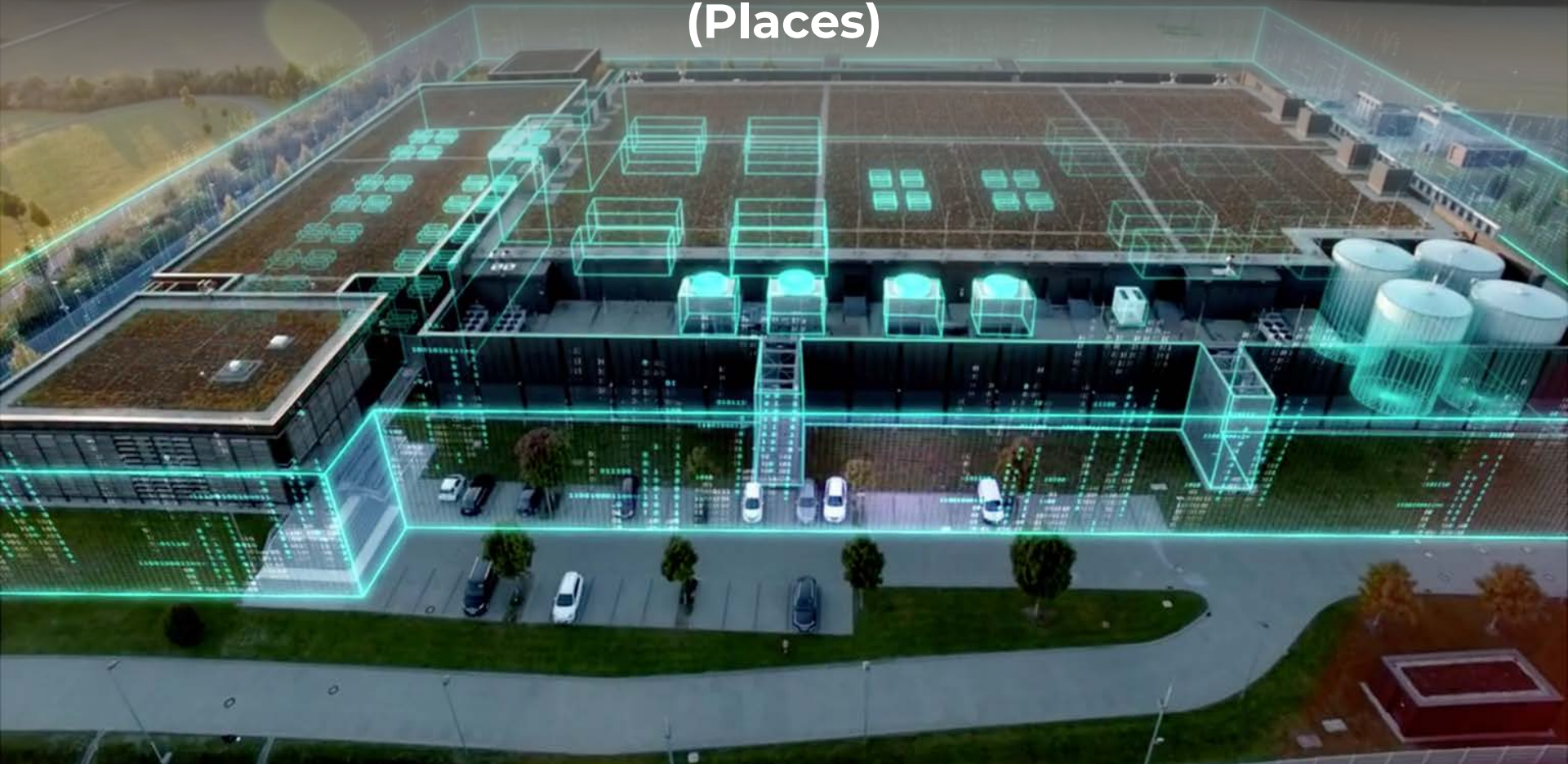
DIGITAL TWIN

(Things)



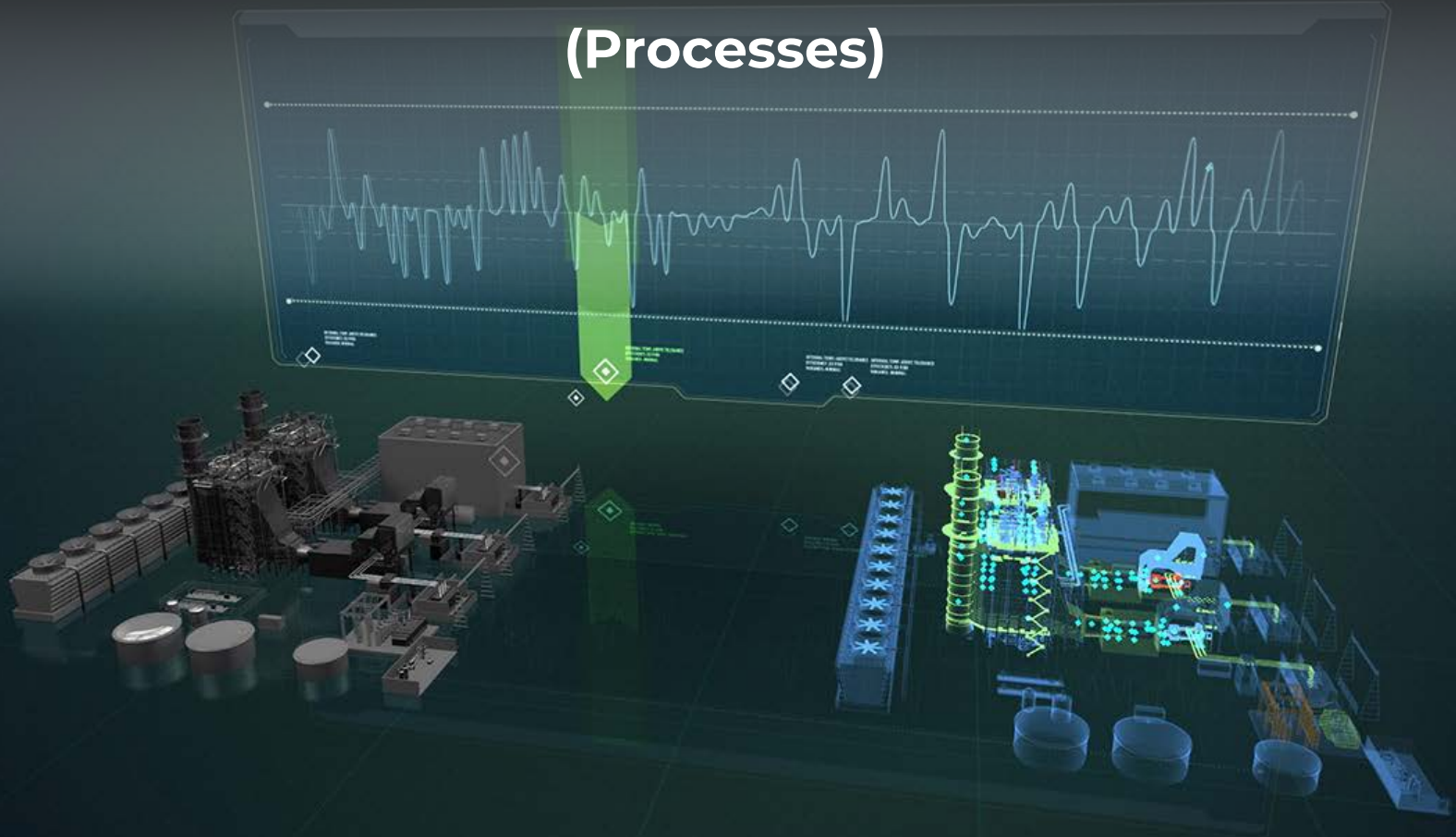
DIGITAL TWIN

(Places)



DIGITAL TWIN

(Processes)



DIGITAL TWIN (People)



DIGITAL TWIN

(Cities)



A composite image of Earth from space. The Earth's surface is visible, showing blue oceans and white clouds. A bright sun is setting or rising on the horizon, creating a colorful glow. A digital network of lines and nodes is overlaid on the scene, suggesting a global network or data flow.

PLANET

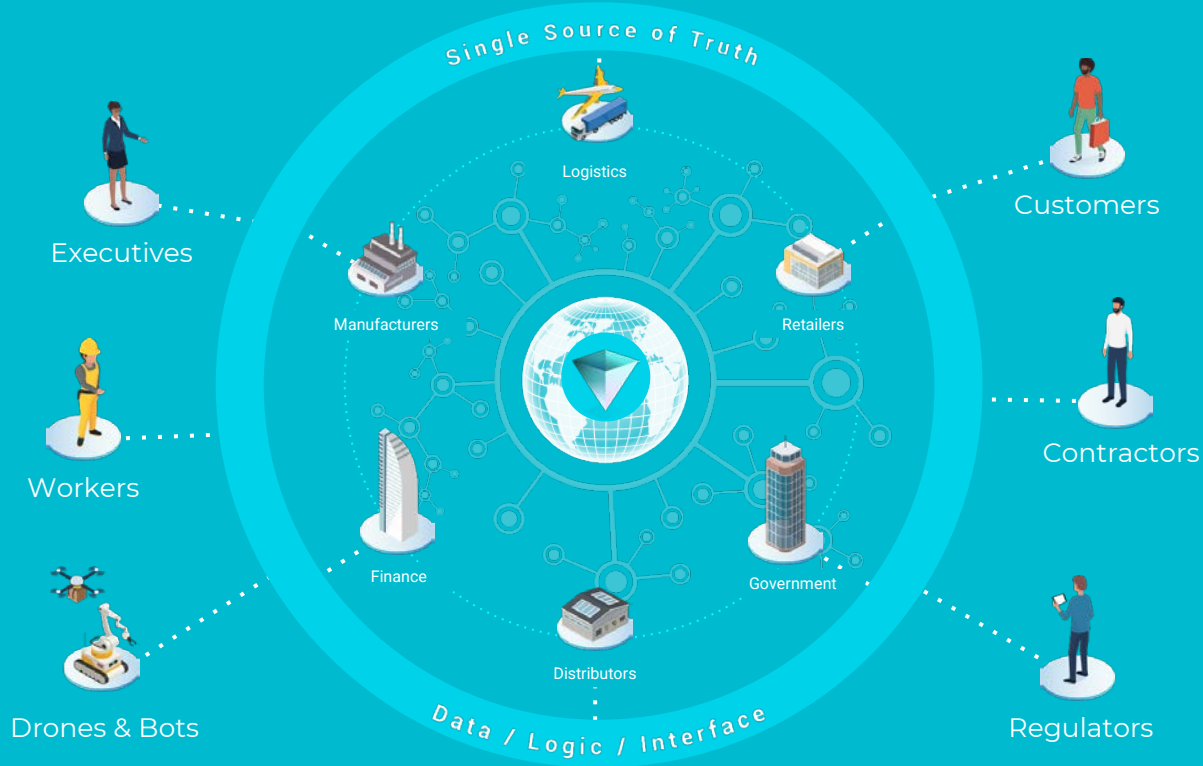


SPATIAL WEB

“A Network of Digital Twins”

AUTONOMOUS GOVERNANCE

Interoperability fosters trust and multi-party **collaboration** which unlocks the exponential value of networks and enables a **Smart World** with an **autonomic digital economy**.



Efficient, compliant, and secure flow of people and things across locations.

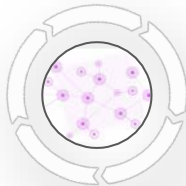
Spatial Web Standards

Spatial Domains



+

HSML & HSTP

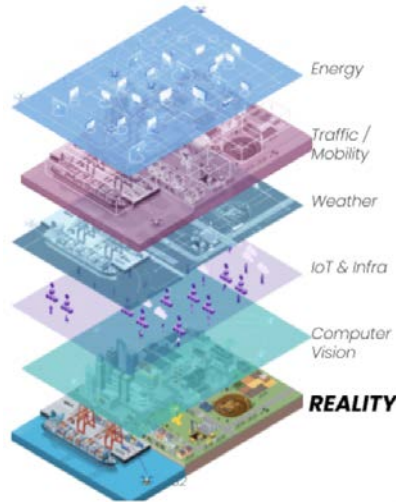


+

Models / Twins

+

Interoperable Maps & Twins / AI models

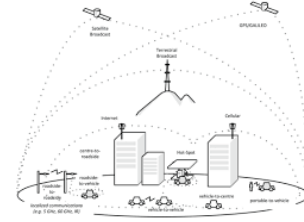


+

Policy abiding AI-Agents & Networked intelligence

+

Governance of activity, identity, locations and spaces



KOSM

Executive Summary

THE ROAD TO AUTONOMY

A Path To Global AI Governance

June 5, 2023



 SPATIAL WEB
FOUNDATION

 大成 DENTONS

 VERSES

Comprehensive Analysis of Current
trends in AI Regulations

Reframing of AI Regulations to include
Governance AI systems themselves

Call for Sociotechnical Standards for
Global AI Governance, Transparency
and Interoperability

Proposal for Global Regulatory Sandbox
based on IEEE Standards

DOWNLOAD The Executive summary on www.verses.ai/aigovernance

VERSES

Technologies ▾

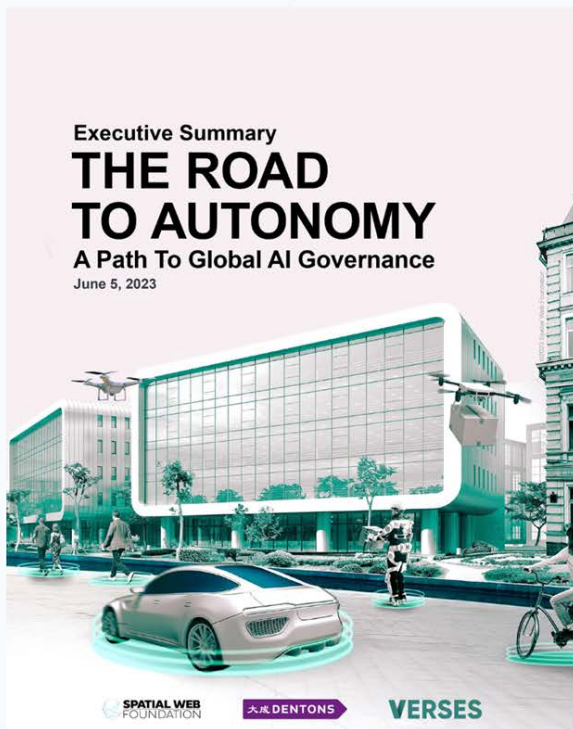
Company ▾

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Download Executive Summary The Road to Autonomy

First name*

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Do you work in:*

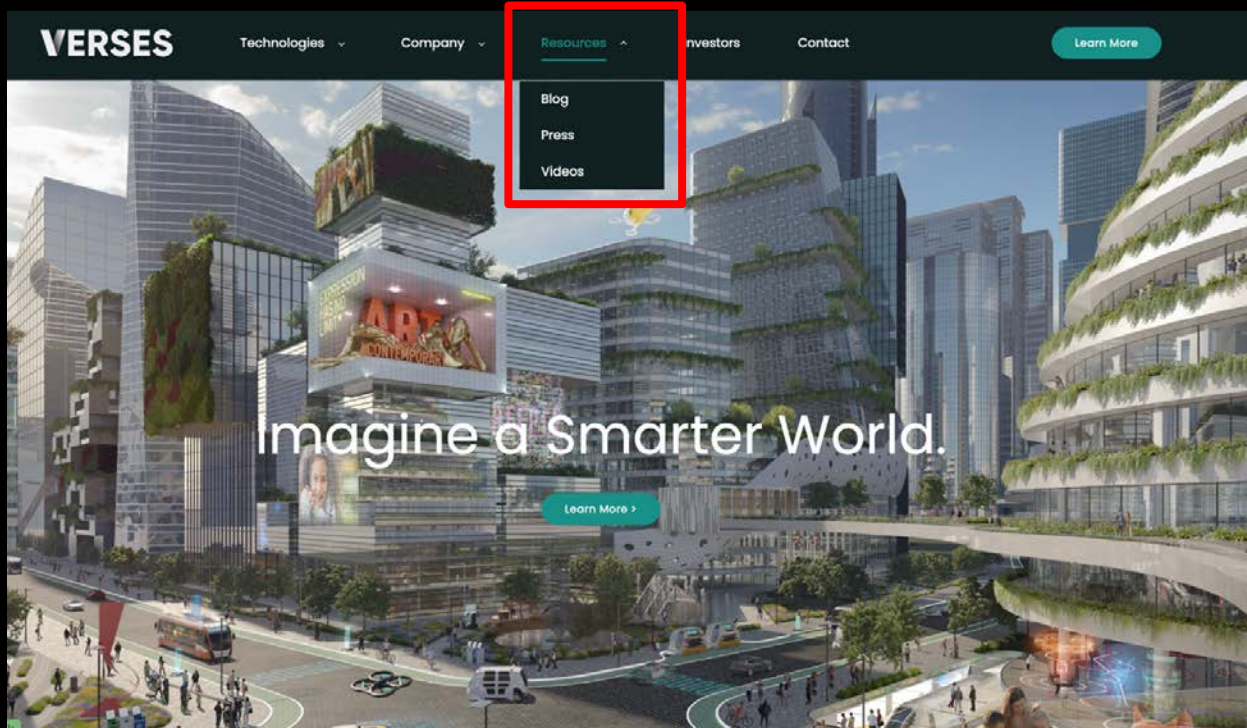
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Job title

Company or Organization

Additional Comments:

Thank you.



Gabriel Rene

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END