

Security, Privacy & Trust in IoT Webinars

The Application-Centric Series by Arthur's Legal, supported by
AIOTI, CREATE-IoT, LSPs & AG Trust in IoT

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Leader AIOTI Privacy in IoT Taskforce & Co-Leader Security in IoT Taskforce



Security, Privacy & Trust in IoT

Application-Centric Series

- A. Personal Wearables (H2x)
- B. Moving Sensors (M2x)
- C. Long Term Fixed IoT Applications (M2x)

Please subscribe to the Security, Privacy & IoT in IoT Mailing List at: www.arthurslegal.com/IoT, with which we will keep you up to date with dates, login details and the latest news on the Security, Privacy & Trust in IoT and related topics.



Webinar Nr. 1

Personal Wearables (H2x)

IoT Application, Context, Dynamics & Horizontals

What to Expect? For Whom?

Proposed Topics to Discuss

Today

1. Introduction H2x/x2H Wearables
2. IoT Ecosystems; Upstream, Midstream & Downstream
3. Actors & Stakeholders
4. Application Meets Threats & Horizontals
5. Personal Wearables & Rule of Law

Upstream & Downstream Sessions (H2x/x2H Wearables)

- A. State of the Art Security & Privacy
- B. Trust & Trustworthiness

Personal Wearables (H2x)

1. **Categorisation & Context** (Classifications, Verticals, Features & Use)
2. **The Dynamic IoT Dilemma**
3. **Let's Make it Work** (Functionalities meet Horizontals)

Categories of Personal Devices (H2x/x2H)

- A. Hand-held, Hearables & There-ables
- B. Wristband or similar
- C. Attachables (Clothing or Skin)
- D. Ingestibles
- E. Injectables, Embeddables & Implantables
- F. X-ables

In which 'Verticals'?

- A. ALL
- B. Health, Care & Cure
- C. Living, Private Domains
- D. Urban & Rural
- E. Public Sector
- F. Law Enforcement
- G. Mediated Reality (AR/DR) & VR
- H. Communication/Transaction Panel to X
- I. Remote Control to X
- J. Most of Carbon-based to Device Functions

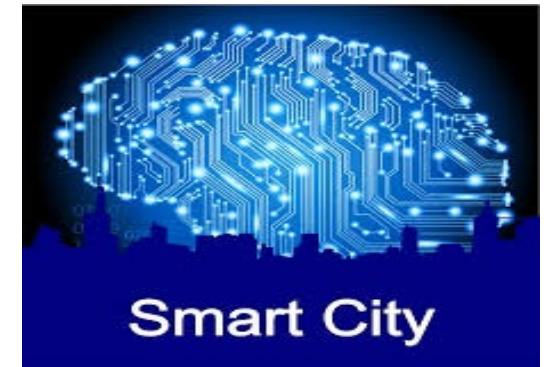
Features & Functionalities

- A. Talk
- B. Listen
- C. See
- D. Sense
- E. Measure
- F. Communication
- G. Interaction & Transactions (Engagement)
- H. Execute (One-sided or Engagement)
- I. Access

Context & Use



Smart Farming in the Cloud



Smart Everything!
It Functions!
Right?



2018
Strava
Polar Flow

Security = Safety

Unlike inconvenient security problems for your wearable, laptop or desktop computer, hyper-connected digital technology insecurity puts human and societal safety at risk.

IoT Ecosystems will not be safe if they are not secure and resilient.

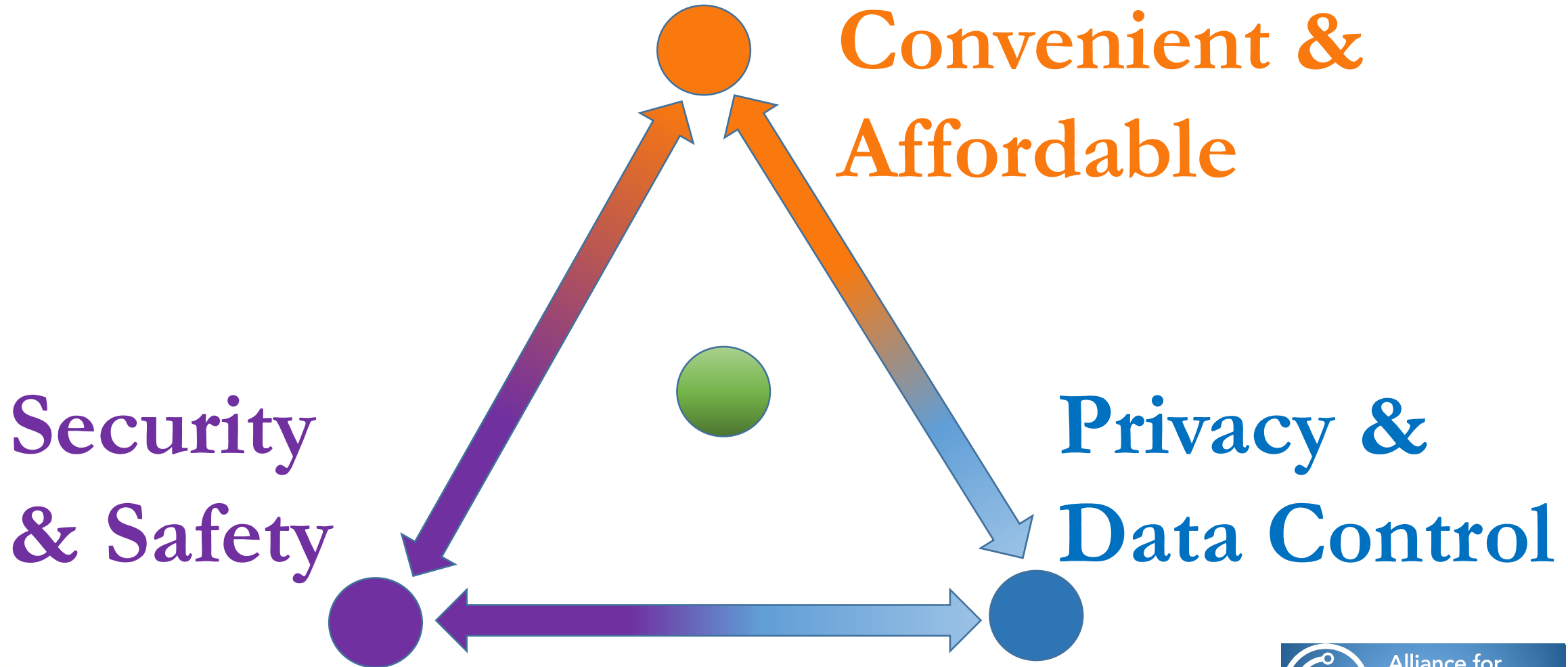
Configurable Embedded Systems

St. Jude Medical implantable cardiac devices (pacemakers, defibrillators, and resynchronization devices) provide pacing for slow heart rhythms and electrical shock or pacing to stop dangerously fast heart rhythms.



<https://www.fda.gov/MedicalDevices/Safety/AlertsandNotices/ucm535843.htm>

The Dynamic IoT Dilemma



Misalignment

Economics of Selling Technology & Economics of Security & Privacy

‘If people are **unaware of the threat** then they're not going to ask questions regarding this. What we've got to do is **raise that awareness amongst consumers**, then people will start asking the questions. Then vendors will **design goods to a certain minimum of standard** and **the consumer will seek that out rather than seeking something out that's cheaper, but doesn't have security.**’

‘**Globally, we have a very poor understanding of the economics of cybersecurity.** There is a business case to flood the market with insecure devices, unfortunately -- **but it works and people make a lot of money out of it.**’

Quotes by Steve Wilson, head of Europol's Cybercrime Centre, EC3

Let's Create IoT that Works!

Also when it does not.

Downstream

Procurement, Customers, Users & Society

Risks, Comfort & Trust in Digital Technology

The Four Main Blocking Factors for Using Digital Technology =
The Main Enablers to Digital Economy & Society:

1. Insufficient knowledge
2. Security
3. (Personal) Data Protection
4. Compliance

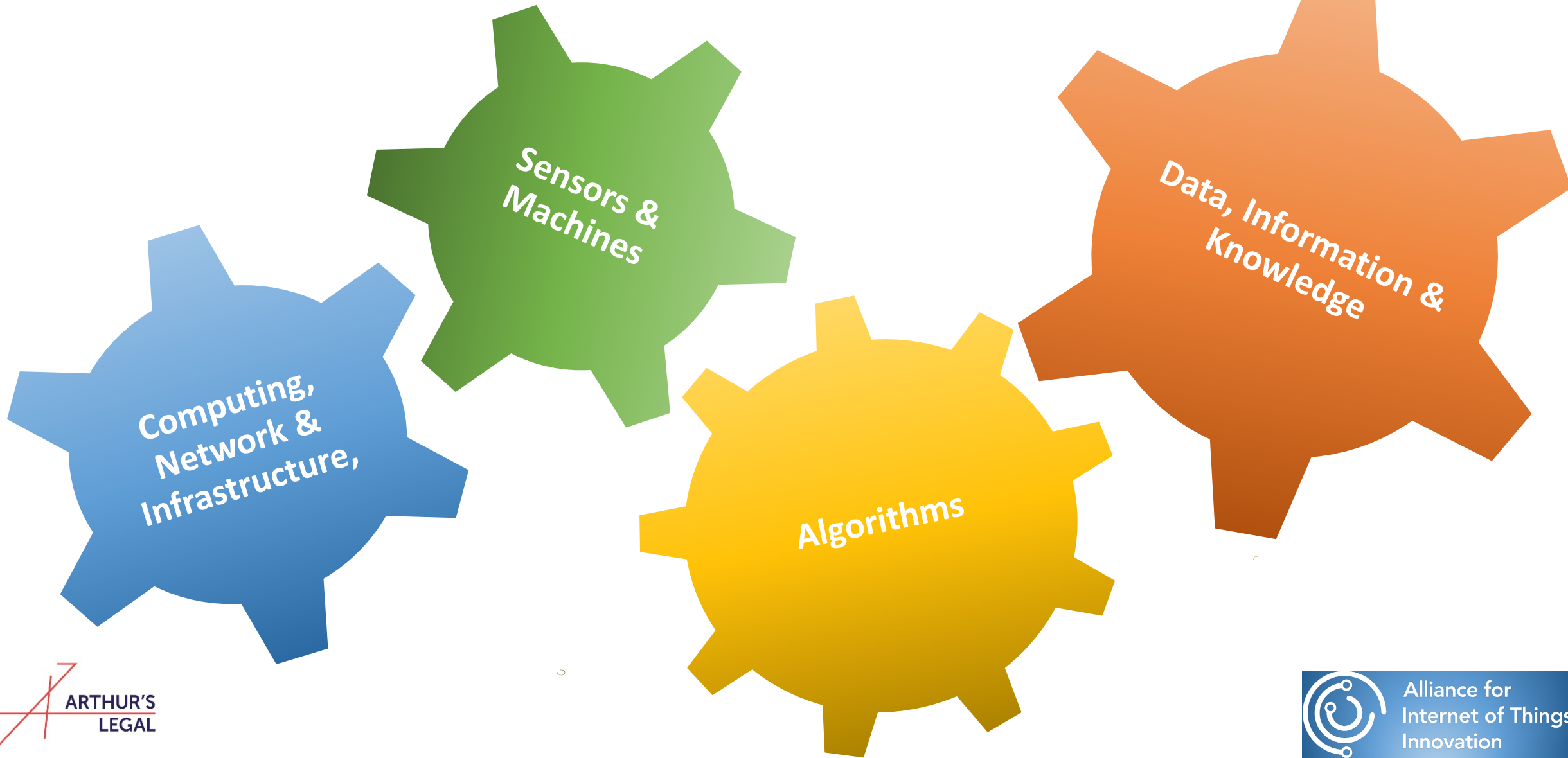
Eurostat (EC)

Where technology & digital used to be relatively a fairly low regulated horizontal,
as it is now considered to be a Need-to-Have, it is now highly regulated.

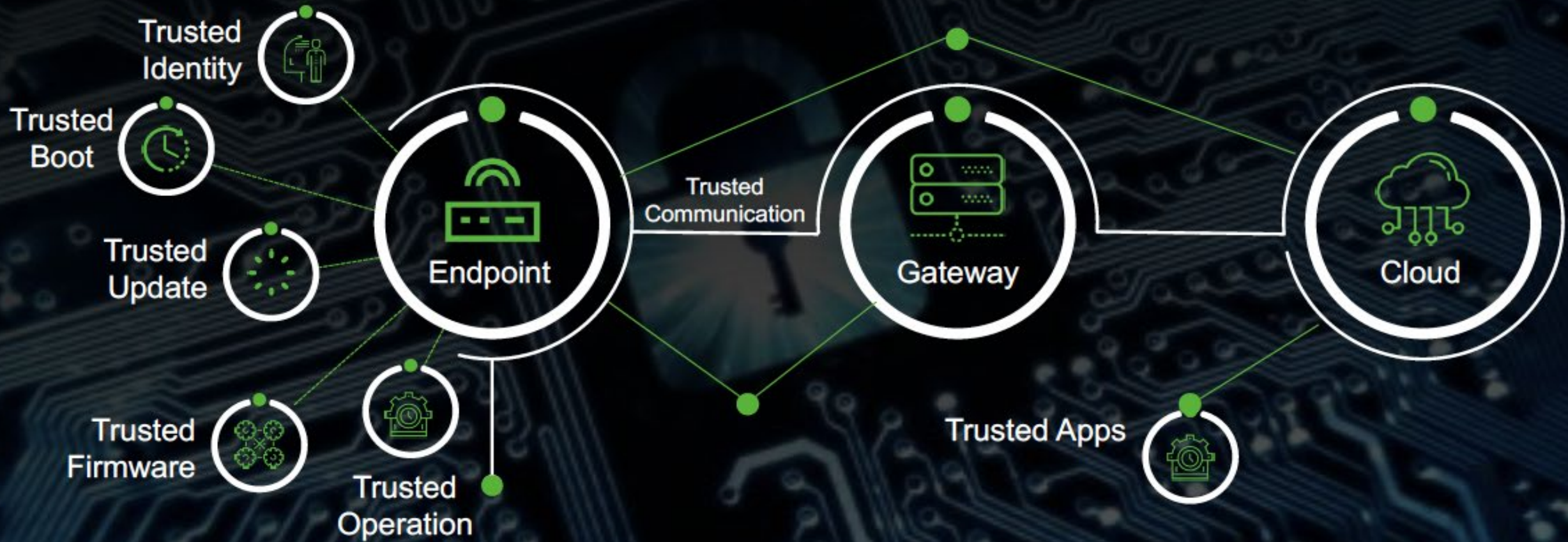
Up- & Midstream

Manufacturers, OEMs, Integrators, Vendors,
Service, Data & Other Providers,
We All Are Customers/Users As Well

Interconnected Vessels



Trusted IoT Wearables



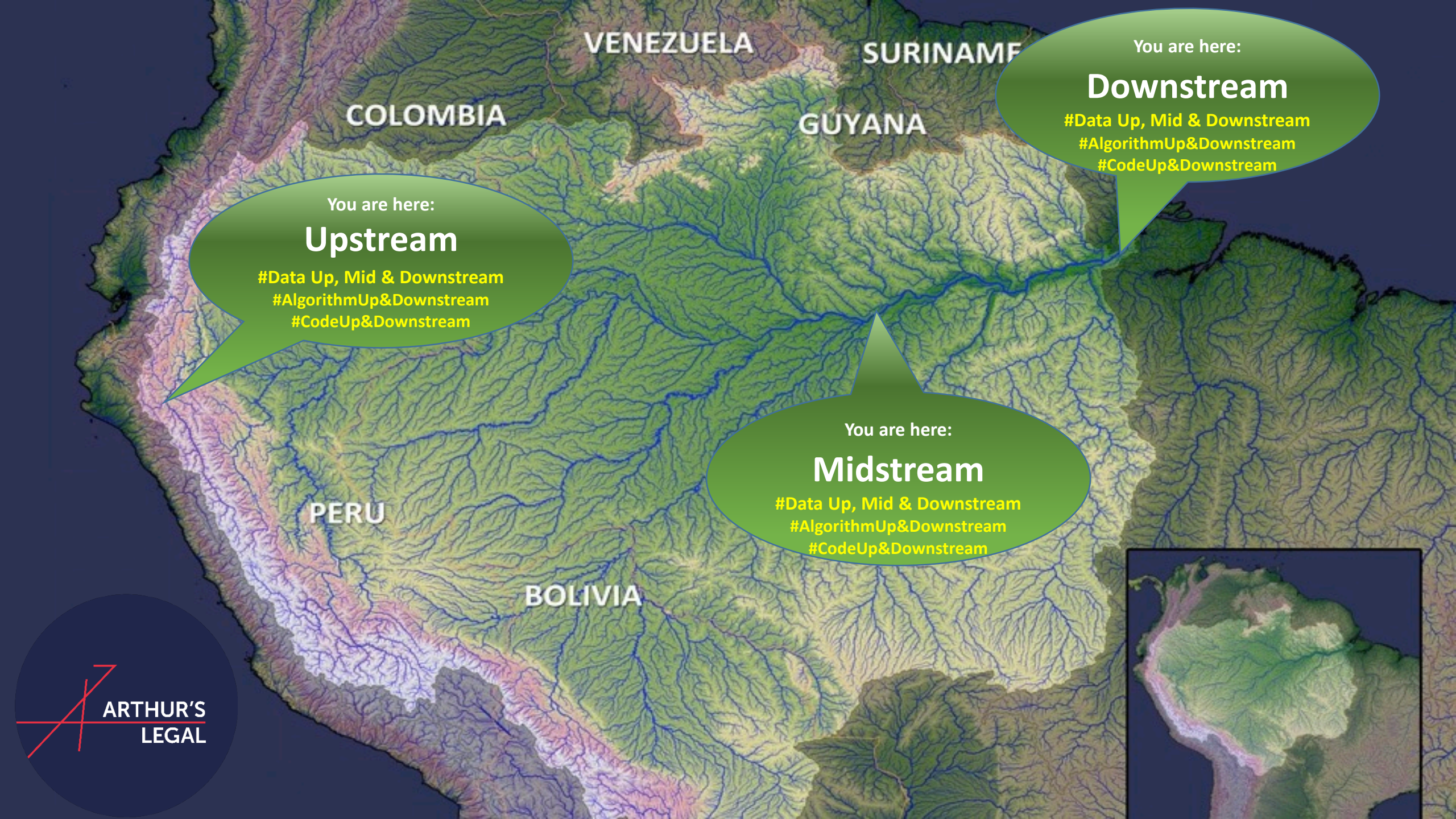
Linear Supply Chain Thinking

#Cross-verticals #Cross-cutting markets #Are banks or other industry a still vertical?

Relations between the developers, vendors, consumers and other stakeholders of the digital economy and society (including but not limited to Internet of Things enabled devices, systems and services) **are non-linear.**

Together, they form a **vast, multi-dimensional network** that can be called a system; a **Value Ecosystem.**

Each party and relation within this multi-dimensional web is relevant and necessary for the design, engineering, manufacturing, deploying and functioning of both a connected device, system and service, as well as hyper-connected (IoT) ones.



VENEZUELA

SURINAME

COLOMBIA

GUYANA

You are here:

Downstream

#Data Up, Mid & Downstream
#AlgorithmUp&Downstream
#CodeUp&Downstream

You are here:

Upstream

#Data Up, Mid & Downstream
#AlgorithmUp&Downstream
#CodeUp&Downstream

You are here:

Midstream

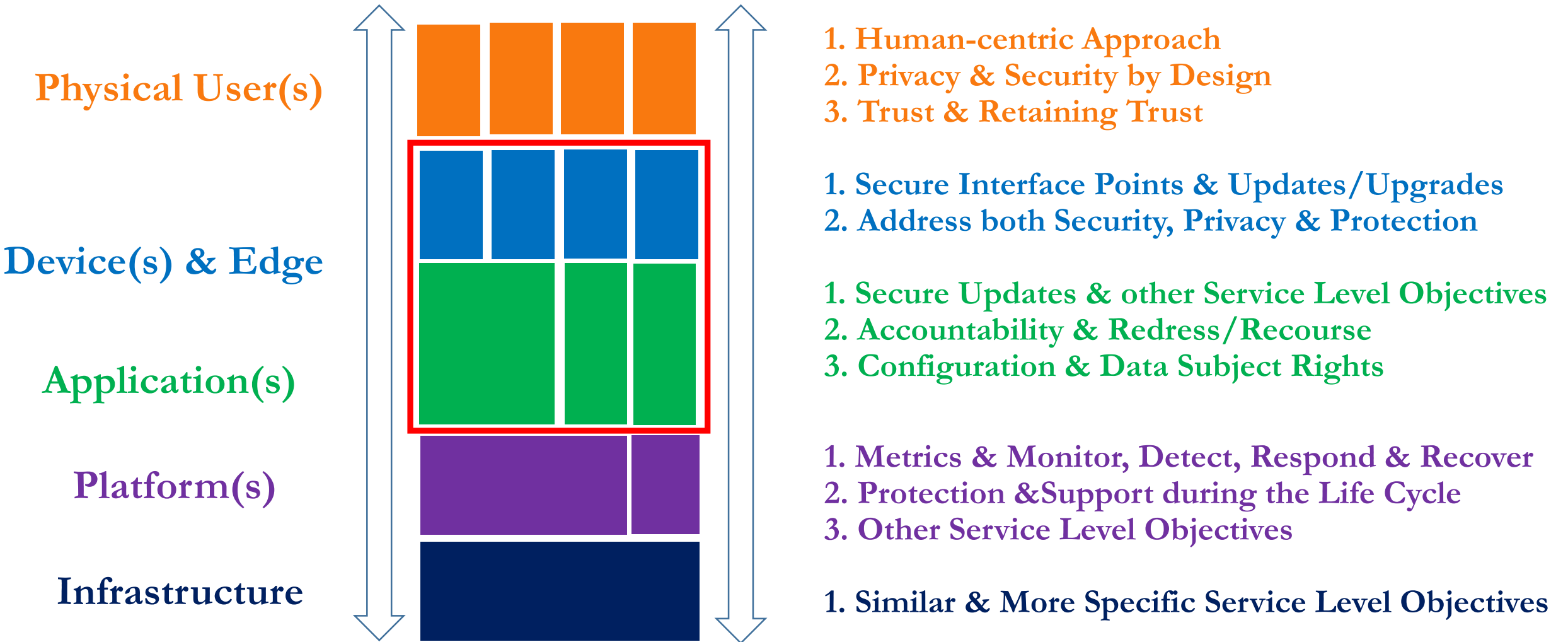
#Data Up, Mid & Downstream
#AlgorithmUp&Downstream
#CodeUp&Downstream

PERU

BOLIVIA



Hyper-Ethical & Accountable Connected Wearable (Example)

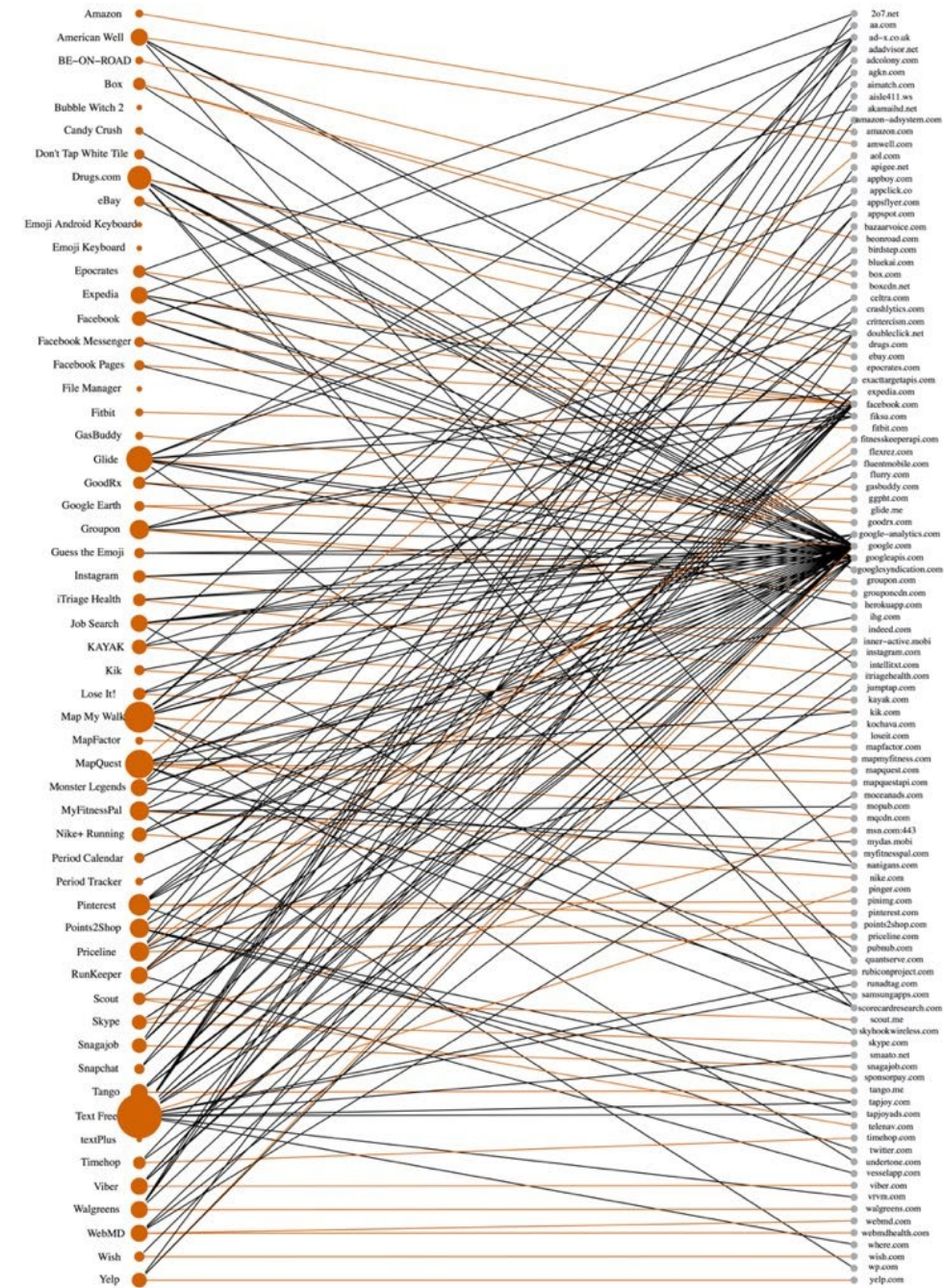


Downstream & Connected Devices: Additional Unmanaged Risk?

Shadow IT +
Shadow Websites +
Shadow Cloud +
Shadow IoT +

=

Pandora's Box of Data Management

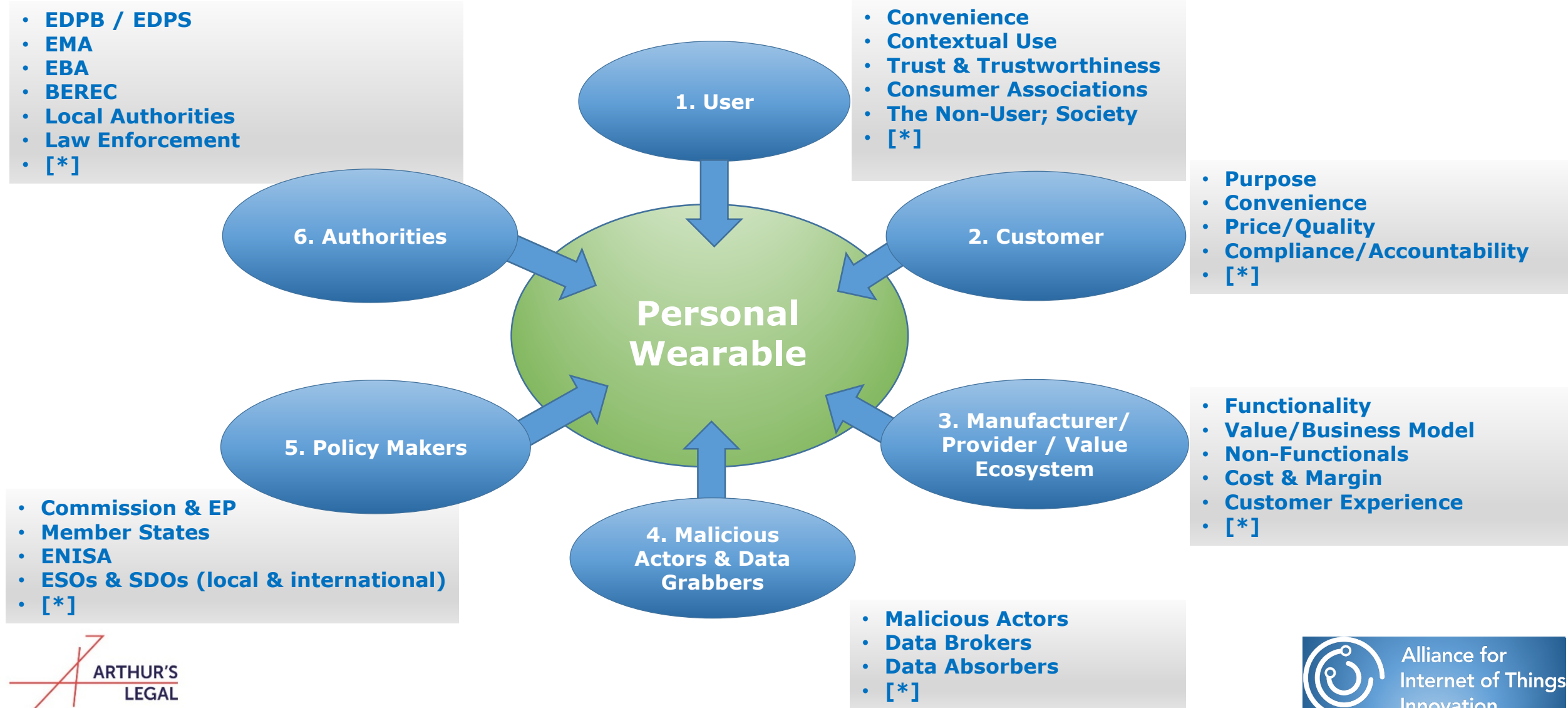


Who is Involved?

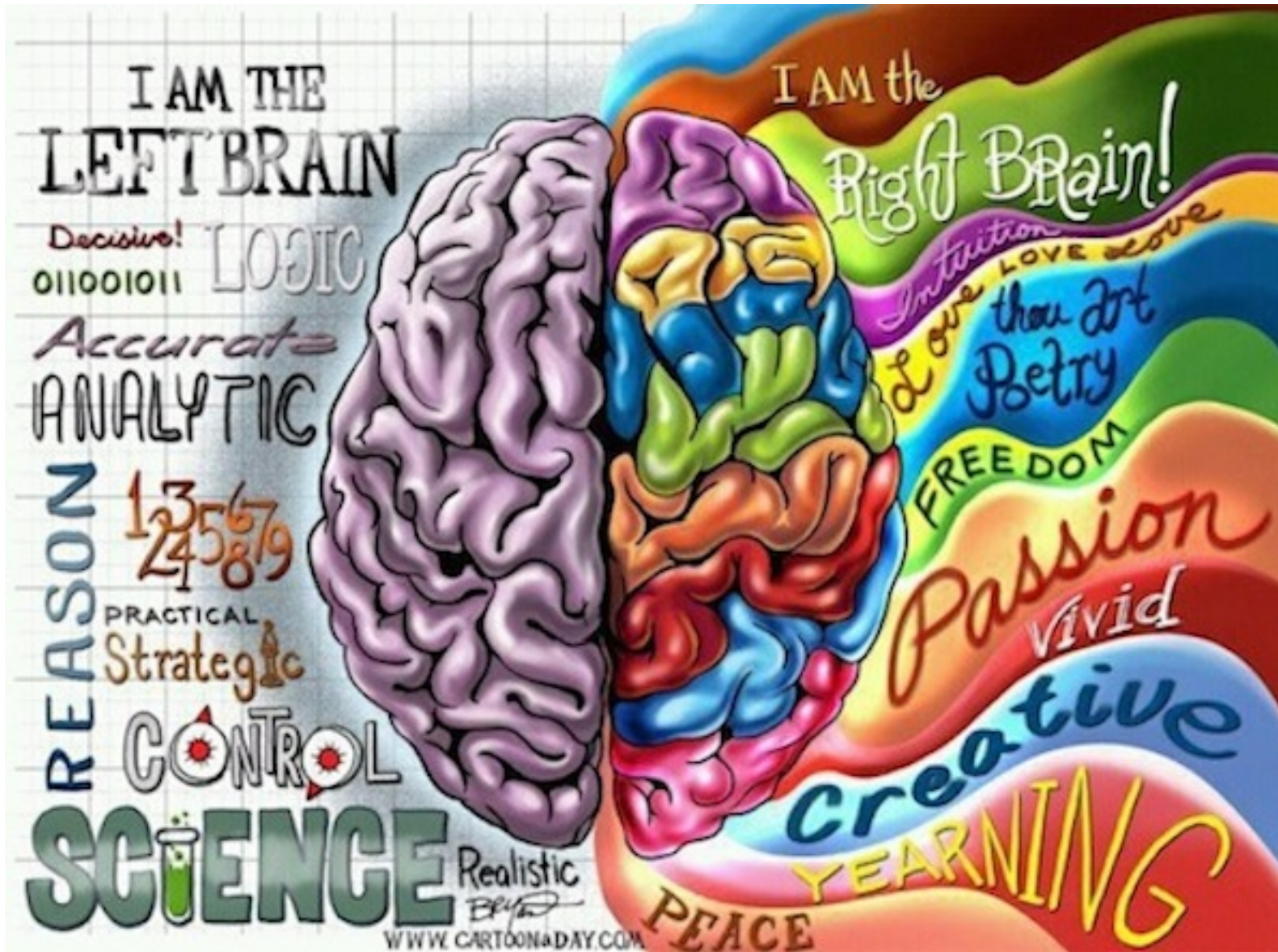
Human-Centric Technology, Thriving Ecosystems & Multi-Angled Stakeholders & Influencers

1. **The User** (Convenience-Focused, Cheap, Curious, Creative, Ignorant)
2. **Customers Who Are Willing To Pay**(B2x, x2x)
3. **Suppliers & Value Ecosystem** (Secure In, Secure Inside, Secure Out)
4. **Thriving Ecosystems & Society**
5. **Malicious Actors** (They Are Patient. And They Collaborate! We Do Not)
6. **Act First Seek Forgiveness Later Data Brokers**
7. **Policy Makers, Standardisation Development Orgs & Markets**
8. **Authorities** (Who is responsible for what, and are they capable?)
9. **Data Access: Law Enforcement & Intelligence Services**

Personal Wearable (H2x) Stakeholder Mapping



Hyper-connect!



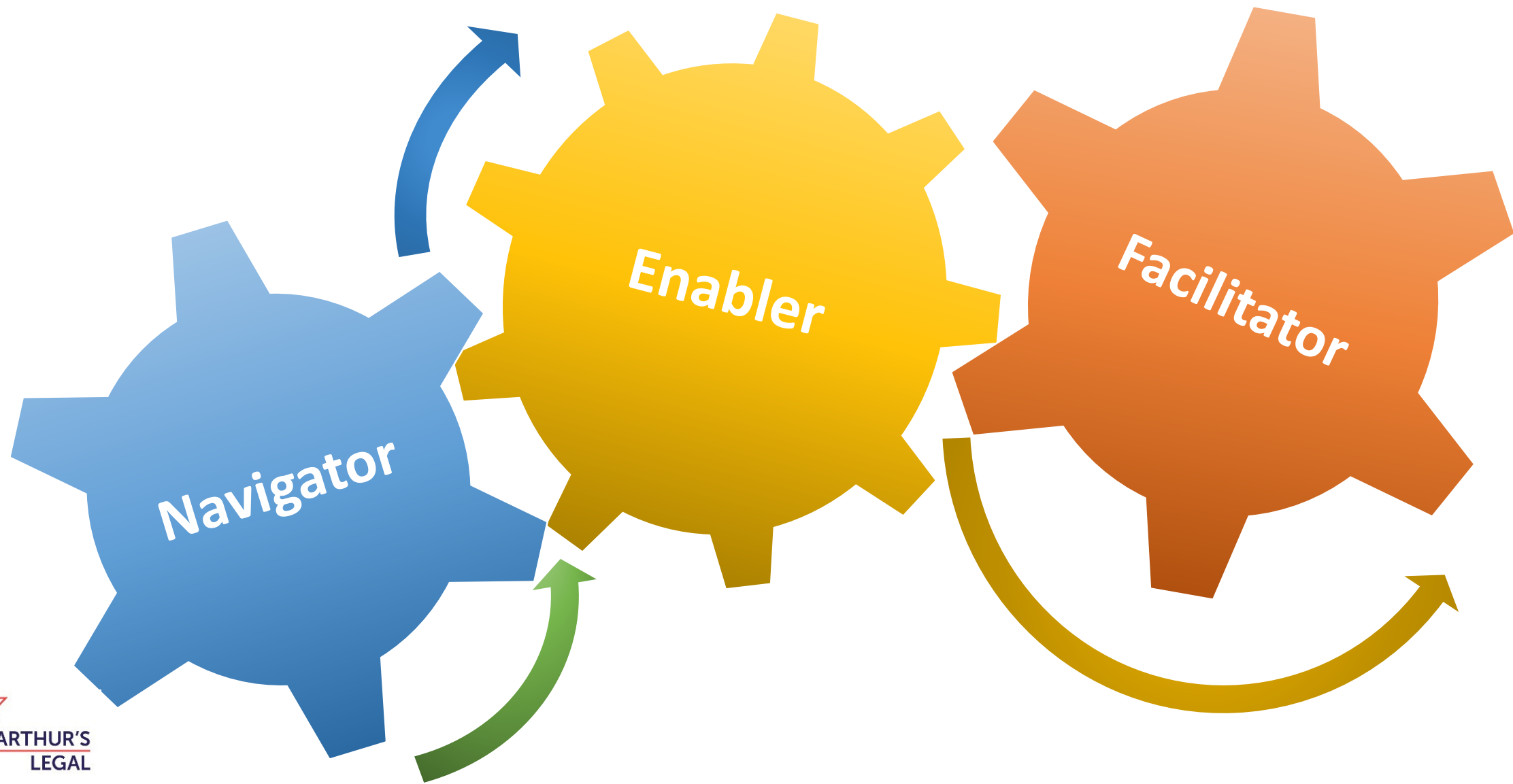
Thank You

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Arthur's Legal Vision & Mission



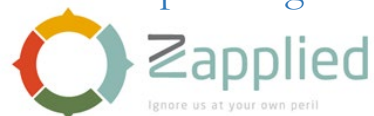
Arthur's Strategic Services & Systems } Global Tech & Strategies by Design. Est. 2001

Arthur's Legal: Arthur's Legal a global tech and strategic x-by-design law firm. Arthur's Legal is founded in 2001 and since its incorporation provides integrated full services, and mainly focuses on local and global private and public organizations that are active as customer, user, vendor, integrator, consultant, legislator or policy maker in the fields of IT, licensing, cloud computing, internet of things, data analytics, cybersecurity, robotics, distributed ledger (block chain) technology and artificial intelligence. Arthur's Legal is also a leading deal making expert; it has already structured and negotiated out more than 5.000 major technology and related deals with and for global Fortune companies as well as other major organizations in the public and private sector worldwide.

Arthur's Global Digital Strategies: The counsels of Arthur's Legal are legal experts, strategists, technologists, standardization specialists and frequent speakers worldwide, with in-depth experience and are well-connected in the world of technology, combinatoric innovation, data, digital, cybersecurity, (personal) data protection, standardization, risk management & global business. On these topics, its managing director Arthur van der Wees LLM is expert advisor to the European Commission, Dutch government as well as other public and private sector organizations and institutes worldwide.

Trust, Digital Data, Cybersecurity, Algorithms, AI, Robotics & Internet of Things: Arthur's Legal is Founding Member of European Commission's (EC) Alliance of IoT Innovation (AIOTI), Co-Chair of AIOTI WG4 (Policy), Project Leader of both the AIOTI Security in IoT and Privacy in IoT taskforces, co-author of EC's Cloud SLA Standardisation Guidelines, co-author of Cloud Security Alliance's Privacy Level Agreement (PLA) 2.0, co-contributor to ISO standards such as ISO/IEC 19086 (Cloud Computing), co-author of the IERC Handbooks 2016 (Strategic & Legal Challenges in IoT) and 2017 (Security & Privacy in IoT), member of ESCO and co-author of the Dutch National Smart Cities Strategy. Arthur's Legal is co-founder of CloudQuadrants on the maturity of cloud offerings, the Cyberchess Institute that landscapes the real-life cybersecurity arena, the Cyber Trust Institute that sets trust trajectories and orbital requirements and parameters for technology-as-a-service, the Institute for Next Generation Compliance that promotes the restructuring and automation of compliance and related procurement, and the Institute for Data and Evidence Based Trust that aims to build and enhance trust and data protection in open, decentralized digital, cyber-physical and virtual ecosystems. Furthermore, Arthur's Legal is EC H2020 project IoT CREATE consortium partner and activity group leader on trust, security, safety, privacy, legal and compliance topics in IoT in five EU large scale pilots on smart healthcare, smart cities, wearables, smart farming, food safety and autonomous vehicles with EUR 250M of accrued EC and other funding. Together with IDC Arthur's Legal is also doing research and policy making for the Commission on data portability & application portability. One can build it's own AI with Zapplied.

Connected & Hyper-connected: Arthur's Legal has an unique interdisciplinary 3D-angle & x-by-design approach, connecting vital topics such as usability, security, data management, (personal) data protection, compliance with technology, infrastructure, architecture and global standardization thereof, with the capability and ability to connect those components in hyper-connected ecosystems much earlier (read: pro-active, preventative) than the traditional policy-making, legal and compliance practice does. For upcoming events, key notes and other activities, please check out website, stay up to date via its social media channels, or contact us.



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