

# EUSPACE Summer School

## Imperia, July 11<sup>th</sup>, 2018

### *Data Governance and Security Issues*

Prof. Ugo Pagallo (University of Turin)



# Outline

1. Introduction (on data-driven societies)
2. Two levels of abstraction on security
3. A horizontal view
4. Context-dependent issues
5. Conclusions



# eu-space

Part I – Introduction

# Data-driven Societies (DdS)

## World's Largest Companies by Market Cap

Accurate as of July 29, 2016 (10:50am ET)

Apple	\$567.75 billion
-------	------------------

Alphabet	\$546.49 billion
----------	------------------

Microsoft	\$445.14 billion
-----------	------------------

Amazon	\$366.95 billion
--------	------------------

Facebook	\$364.26 billion
----------	------------------

Slate  
Source: Google Finance

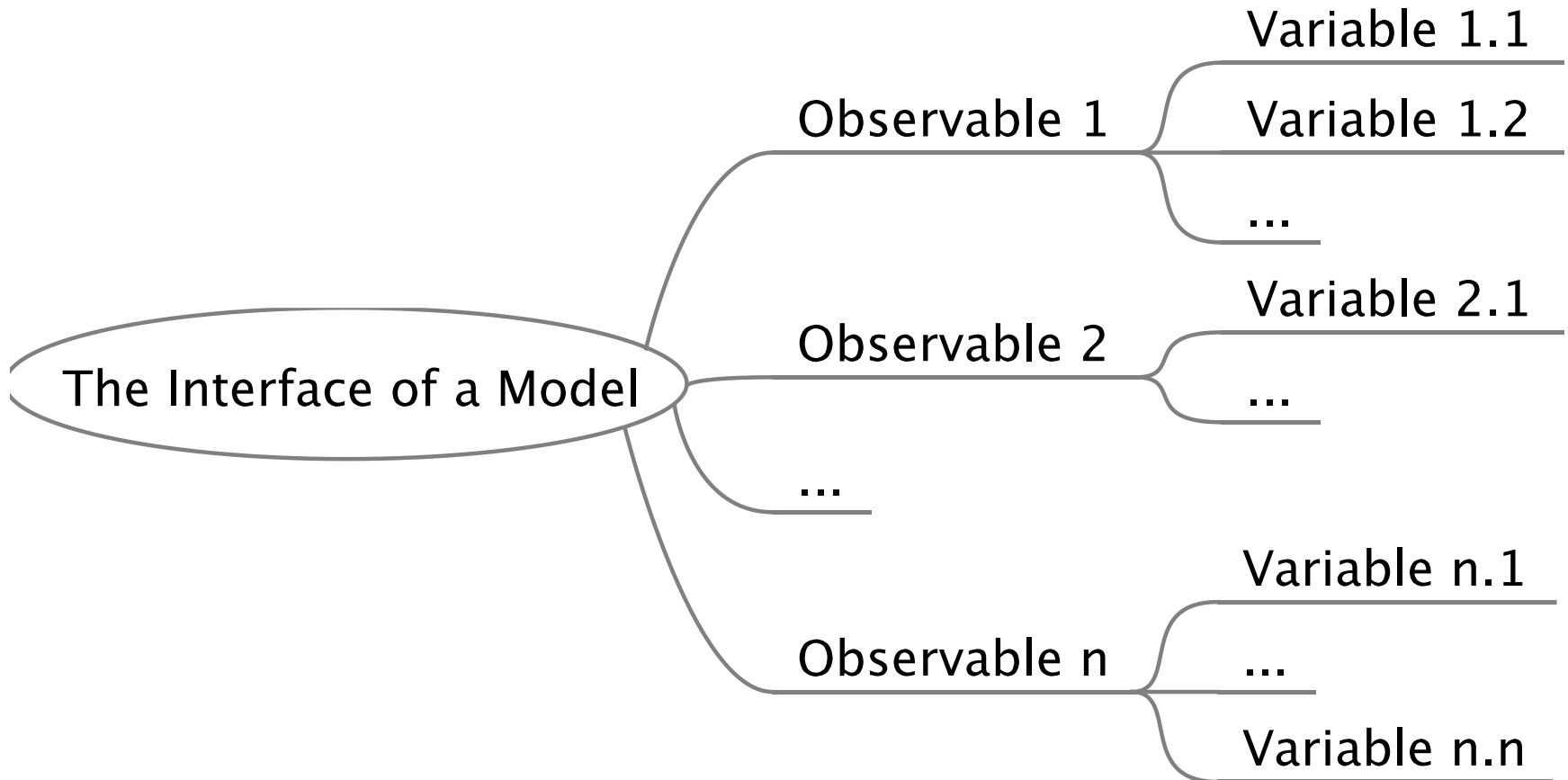
# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# Levels of abstraction



# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. **Sources: National Law**
2. Matters of regulation
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...



# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources: International Law
2. Matters of regulation
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources: Transnational Law
2. Matters of regulation
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
- 2. Matters of regulation**
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation: Liability?
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
- 2. Matters of regulation: Risk?**
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation: You Name It!
3. Approaches

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
- 3. Approaches**

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. **Approaches: Self-regulation**

More particularly, depending on the level of abstraction, attention should be drawn...



# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. **Approaches: Enforced self-regulation**

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. Approaches: Authorizations, and the like (i.e. administrative law)

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. **Approaches: Soft Law**

More particularly, depending on the level of abstraction, attention should be drawn...

# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. **Approaches: Hard Law**

More particularly, depending on the level of abstraction, attention should be drawn...

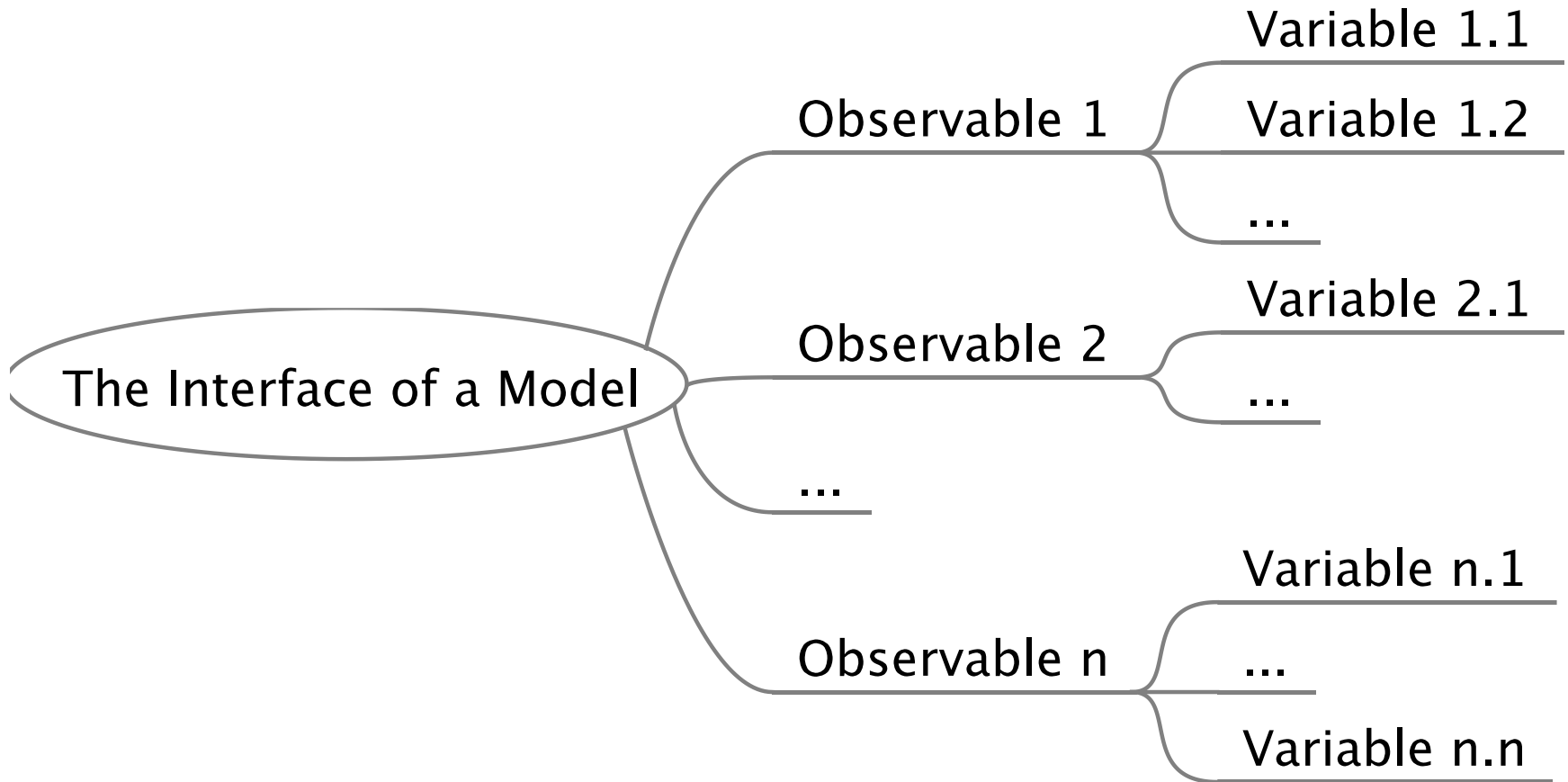
# The Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. Approaches: end of the crescendo!

More particularly, depending on the level of abstraction, attention should be drawn...

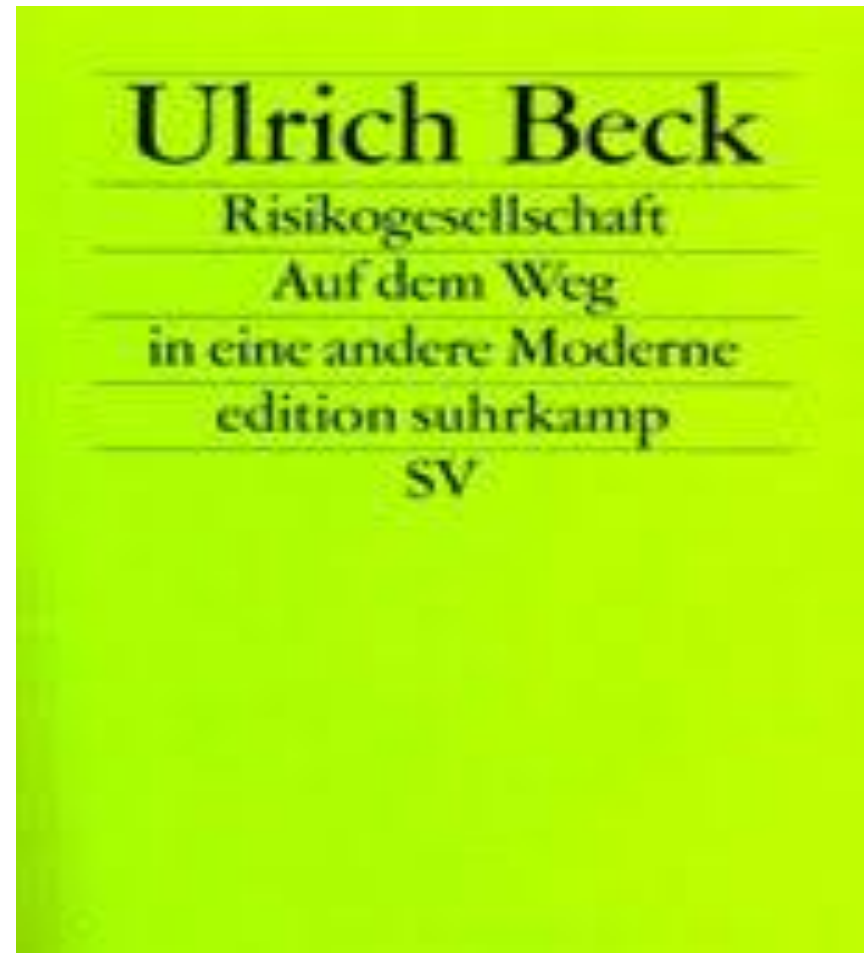
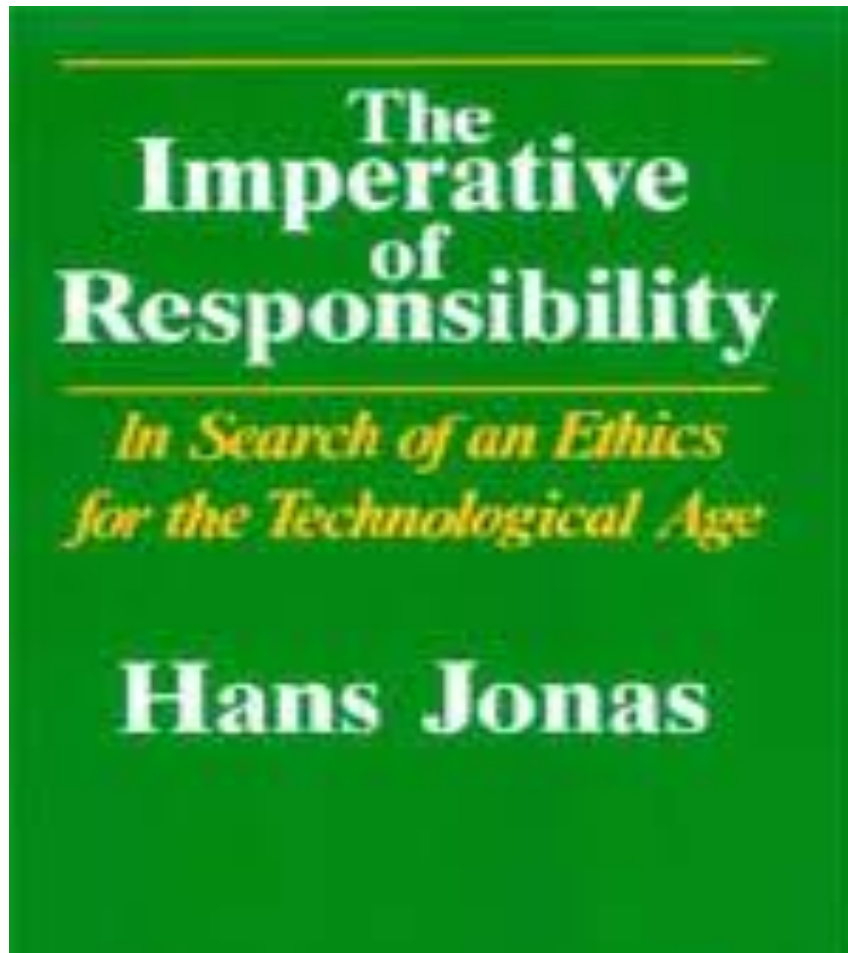
# How about security?



# eu-space

Part II – Security

# The context of security



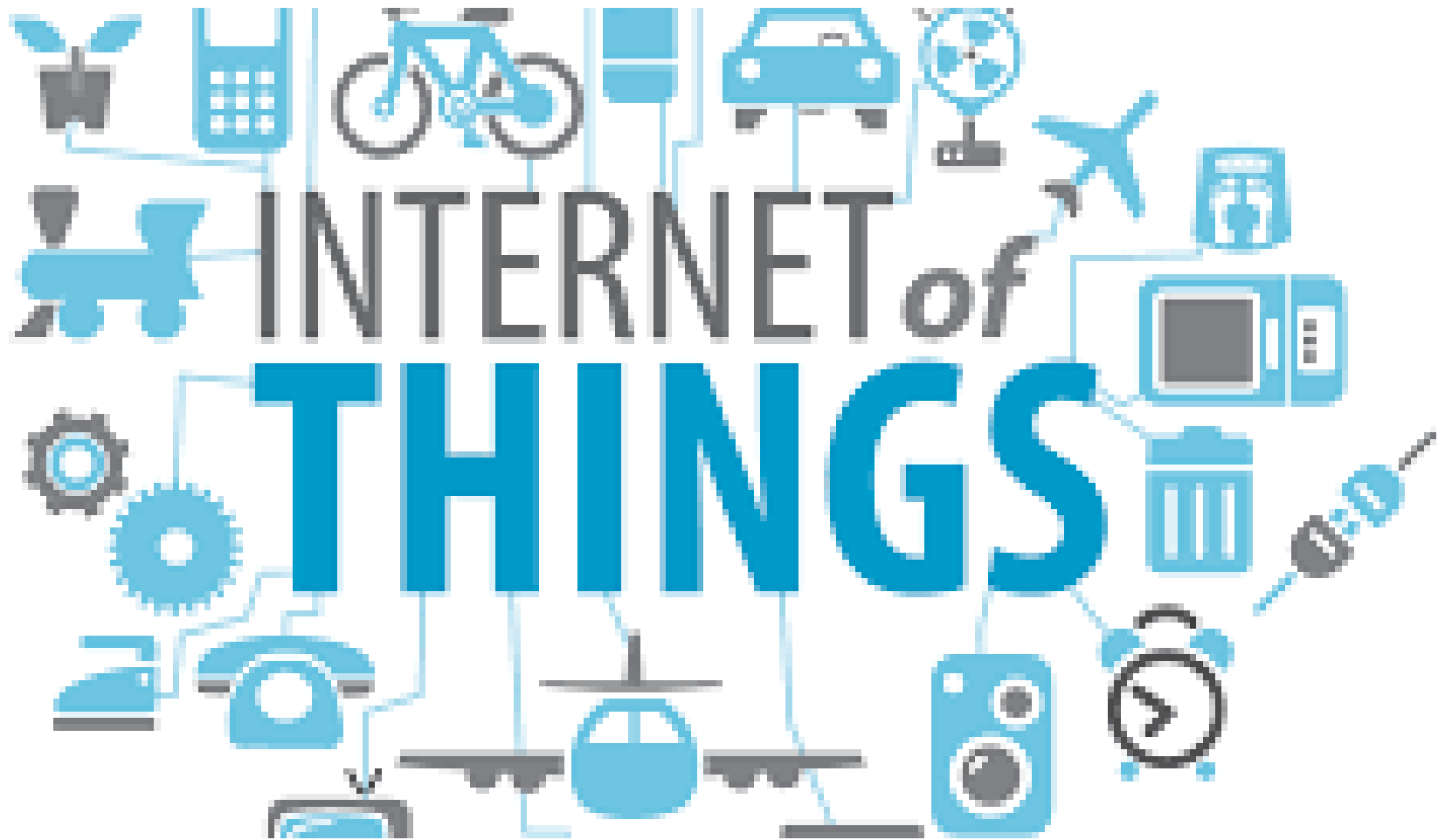


# Security & Risk Society

# Robotics



# Security & Risk Society



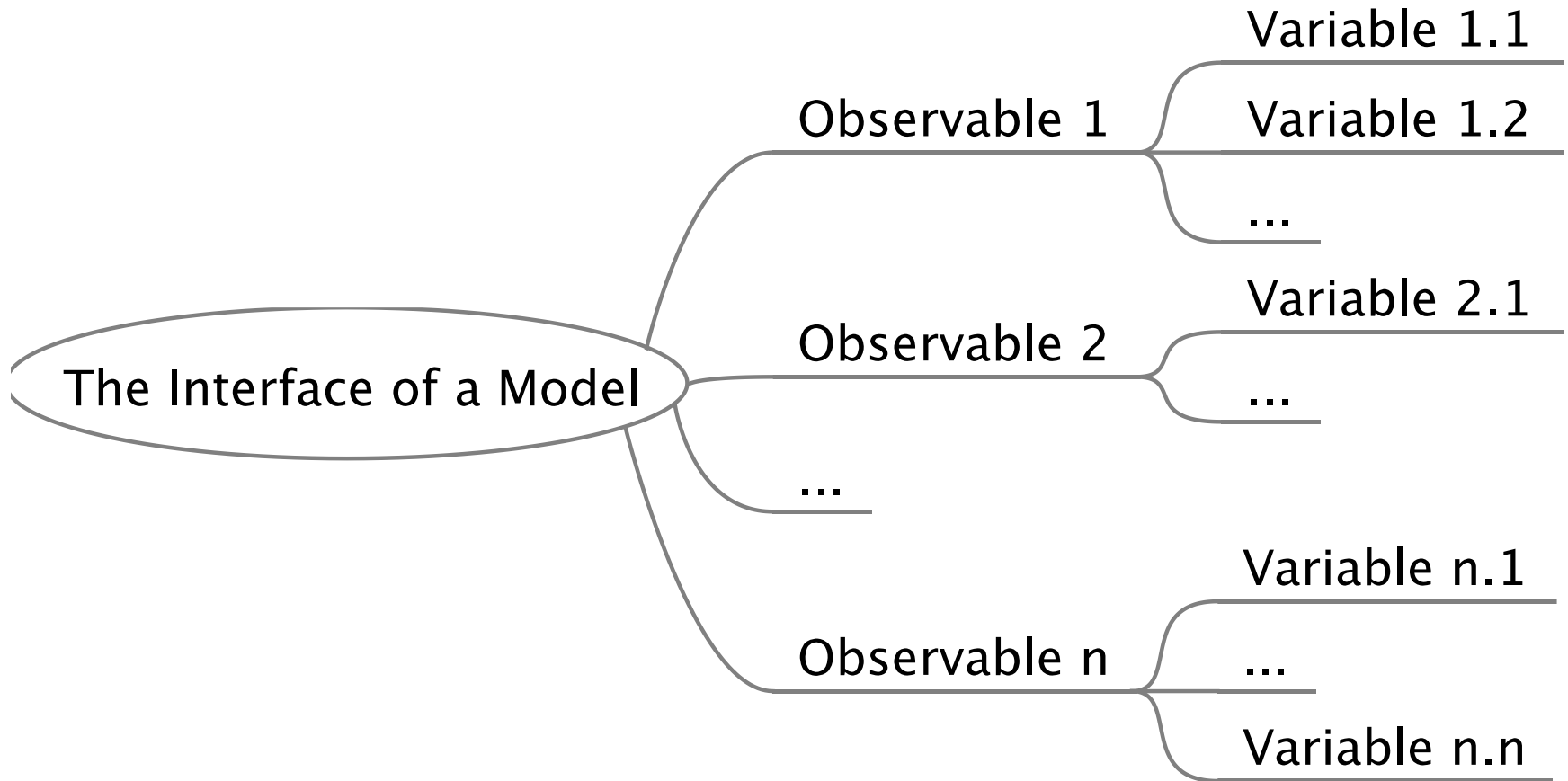
# Security & Risk Society



But, how about the space?



# Back to our interface...



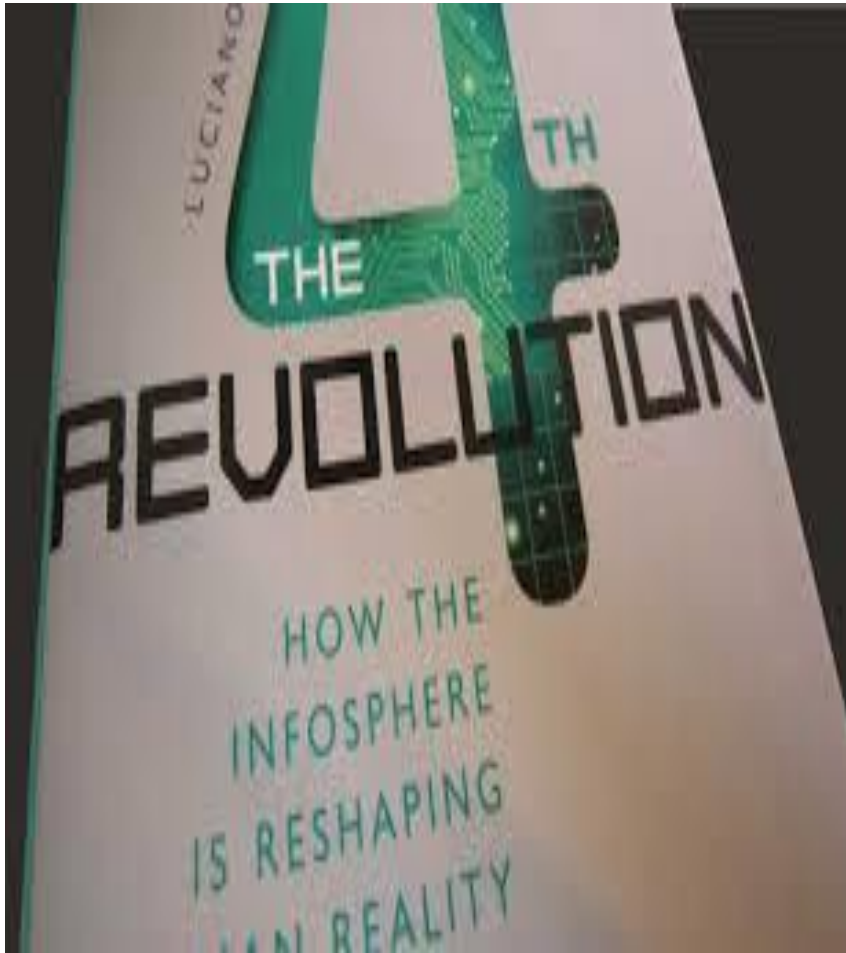
A general, or a context-dependent  
analysis on security & risk?



# eu-space

**Part III – A horizontal view**

# How Space is changing

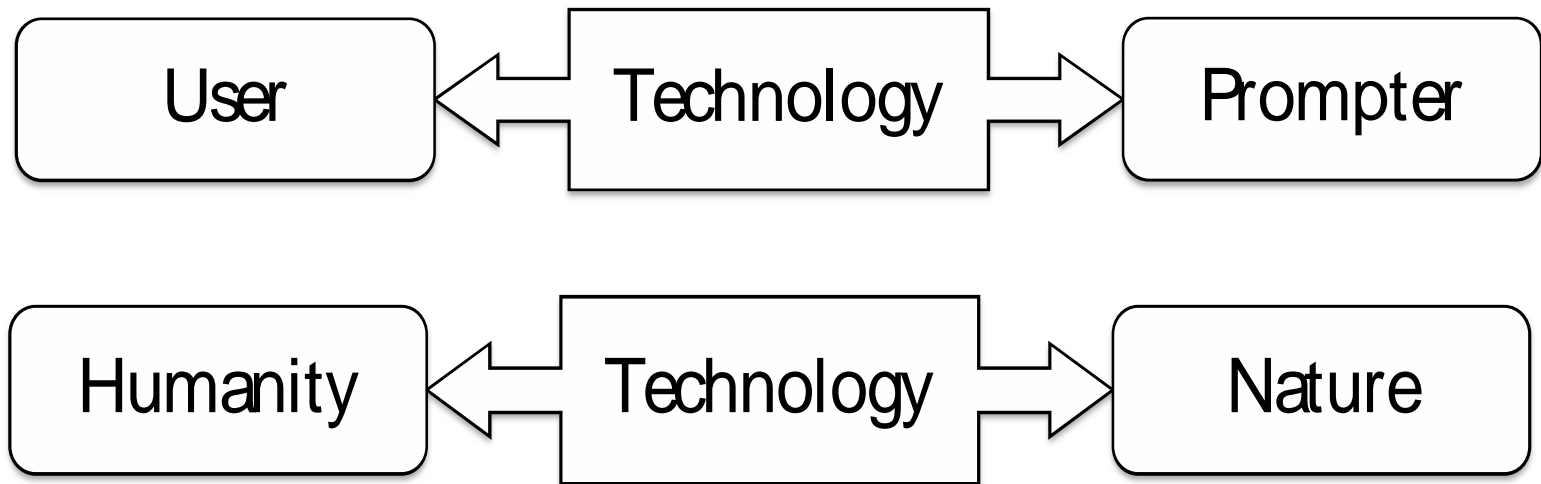


A general overview on the problems we are dealing with is given by Floridi's "The Fourth Revolution" and his remarks on third-order technologies.



# First-order Technologies

The primary in-betweenness of technology



# Second-order Technology

Users no longer relate to nature  
but to other technologies



# Third-order technology

Users are no longer in the loop but rather on the loop



# Back to DdS

This technological evolution brings about two profound changes:

1. On “space” (namely, the infosphere); and,
2. On “security” (from control in the process to control on the process)

# Back to DdS

This technological evolution brings about two profound changes:

1. On “space” (namely, the infosphere); and,
2. On “security” (from control in the process to control on the process)

# Back to DdS

This technological evolution brings about two profound changes:

1. On “space” (namely, the infosphere); and,
2. On “security” (from control in the process to control on the process)



# Back to DdS

This technological evolution brings about two profound changes:

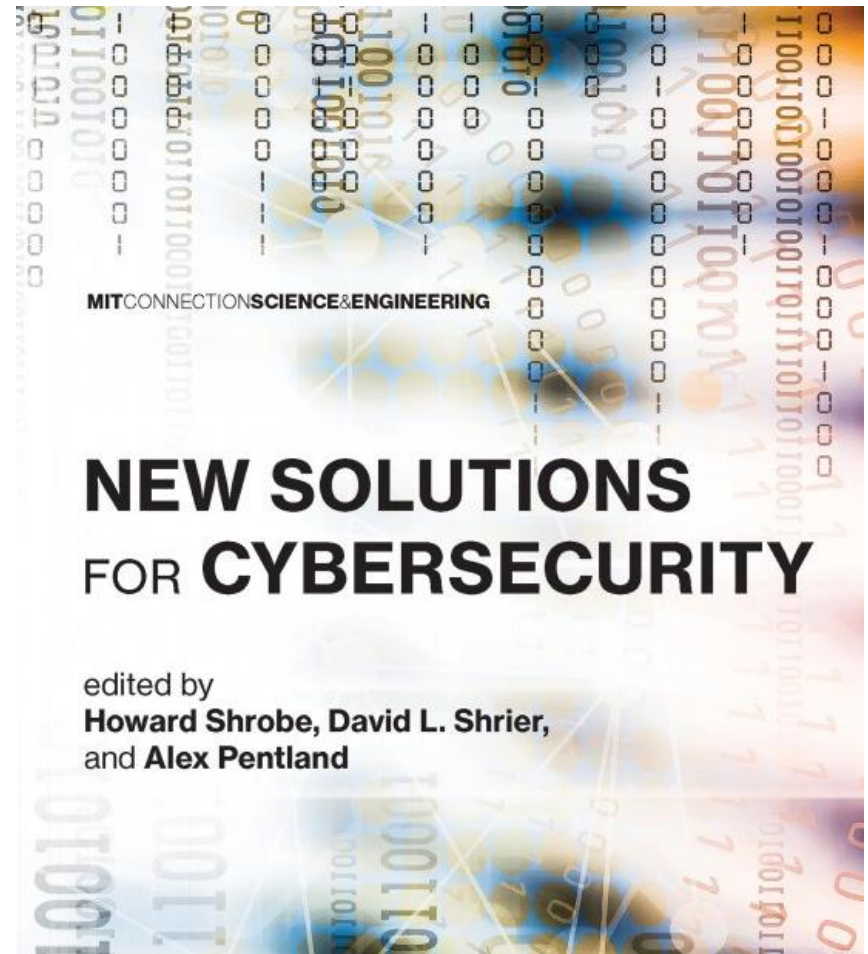
1. On “space” (namely, the infosphere); and,
2. On “security” (from control in the process to control on the process)



# Back to DdS

This technological evolution brings about two profound changes:

1. On “space” (namely, the infosphere); and,
2. On “security” (from control in the process to control on the process)





# Between horizontal & vertical

This all-encompassing view does not mean we should overlook differences between multiple fields. (Liability issues are for example a good example of this differentiation.) Rather, attention should be drawn to:

1. What kind of “n”-order technology is at stake with our security issues; and,
2. How such security issues then realign.

# Between horizontal & vertical

This all-encompassing view does not mean we should overlook differences between multiple fields. (Liability issues are for example a good example of this differentiation.) Rather, attention should be drawn to:

1. What kind of “n”-order technology is at stake with our security issues; and,
2. How such security issues then realign.

# Between horizontal & vertical

This all-encompassing view does not mean we should overlook differences between multiple fields. (Liability issues are for example a good example of this differentiation.) Rather, attention should be drawn to:

1. What kind of “n”-order technology is at stake with our security issues; and,
2. How such security issues then realign.

# Between horizontal & vertical

This all-encompassing view does not mean we should overlook differences between multiple fields. (Liability issues are for example a good example of this differentiation.) Rather, attention should be drawn to:

1. What kind of “n”-order technology is at stake with our security issues; and,
2. How such security issues then realign.

# eu-space

**Part IV – Context-dependent issues**

# Thank you Alfredo!

Istituto Nazionale di Astrofisica  
Radio Astronomia



Bologna, 18 e 19 Maggio 2018

SRITAC 2 - 2018 Officine orbitali, primo livello di espansione civile nello spazio



# The Landsat 7 hacking





# The Terra AM-1 hacking





# Back to the Governance of DdS

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. **Sources: Mostly International Law**
2. Matters of regulation
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources: UN Treaties, Liability Convention...
2. Matters of regulation
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources: + European Space Law, yet...
2. Matters of regulation
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. **Sources: new role of private actors**
2. Matters of regulation
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. **Matters of regulation**
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. **Matters of regulation: Weaponisation of space**
3. Approaches



# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. **Matters of regulation: Beyond Planes**
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation: Spatial Tourism
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation: Space Mining
3. Approaches

# On Data-driven Space Law

By dealing with societies that depend on data (and information) as their basic resource, this talk claimed since the beginning that focus should be on three different kinds of issues:

1. Sources
2. Matters of regulation: Risk
3. Approaches: Third-order Technology

# eu-space

**Part V – Conclusions**

# Summing Up



The talk has dwelt on matters of security and their specificity in some fields as robotics, the internet of things, cloud computing and, of course, space law.

# Summing Up

Against this framework, focus was on legal sources and different approaches to our topic.

Notwithstanding such differences, two commonalities should be finally stressed.



# Summing Up

## Data Governance & Risk Regulation:

- The impact of private actors
- The role of private actors

## Technological Innovation & Security:

- Third-order technology
- Risks
- Solutions



# Summing Up

## Data Governance & Risk Regulation:

- The impact of private actors
- The role of private actors

## Technological Innovation & Security:

- Third-order technology
- Risks
- Solutions

# Summing Up

## Data Governance & Risk Regulation:

- The impact of private actors
- **The role of private actors**

## Technological Innovation & Security:

- Third-order technology
- Risks
- Solutions

# Summing Up

## Data Governance & Risk Regulation:

- The impact of private actors
- The role of private actors

## Technological Innovation & Security:

- Third-order technology
- Risks
- Solutions

# Summing Up

## Data Governance & Risk Regulation:

- The impact of private actors
- The role of private actors

## Technological Innovation & Security:

- **Third-order technology**
- Risks
- Solutions

# Summing Up

## Data Governance & Risk Regulation:

- The impact of private actors
- The role of private actors

## Technological Innovation & Security:

- Third-order technology
- Risks
- Solutions

# Summing Up

## Data Governance & Risk Regulation:

- The impact of private actors
- The role of private actors

## Technological Innovation & Security:

- Third-order technology
- Risks
- Solutions

# Thank you!

([ugo.pagallo@unito.it](mailto:ugo.pagallo@unito.it))

[www.lawandtechnology.net](http://www.lawandtechnology.net)



# Q&A

eu-space: July 2018 summer school