

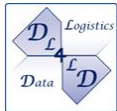


Data Logistics for Logistics Data

Perspectives in “realtime”

DL4LD meeting, 25h November 2021

Giovanni Sileno, University of Amsterdam. g.sileno@uva.nl

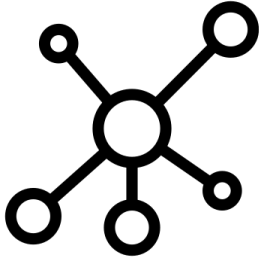


Data Logistics for Logistics Data

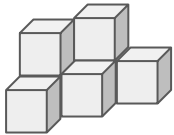
Data Logistics for Logistics Data

informational infrastructure

data
connections
nodes
domains



functional containers



Data Logistics for Logistics Data

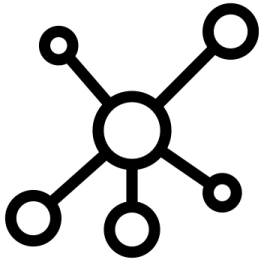
informational infrastructure



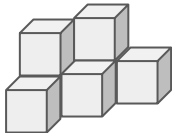
socio-physical infrastructure



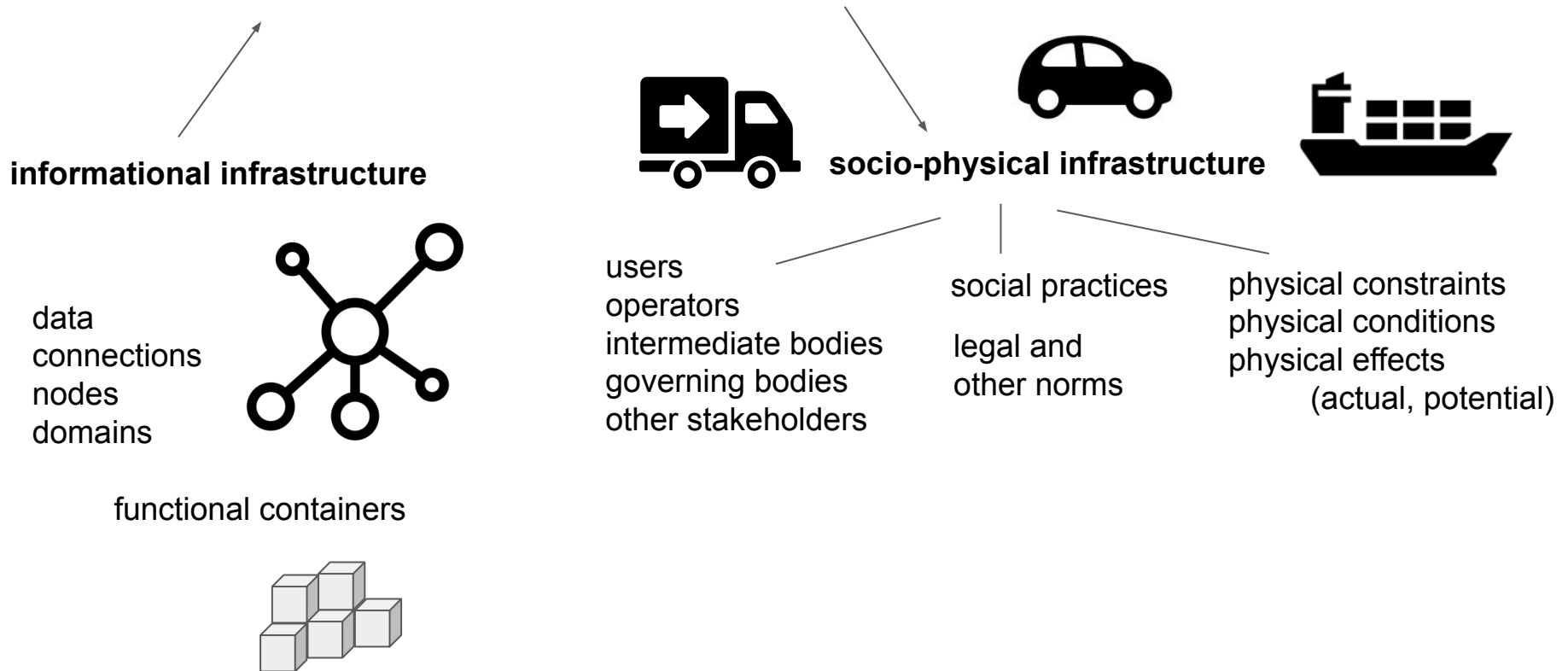
data
connections
nodes
domains



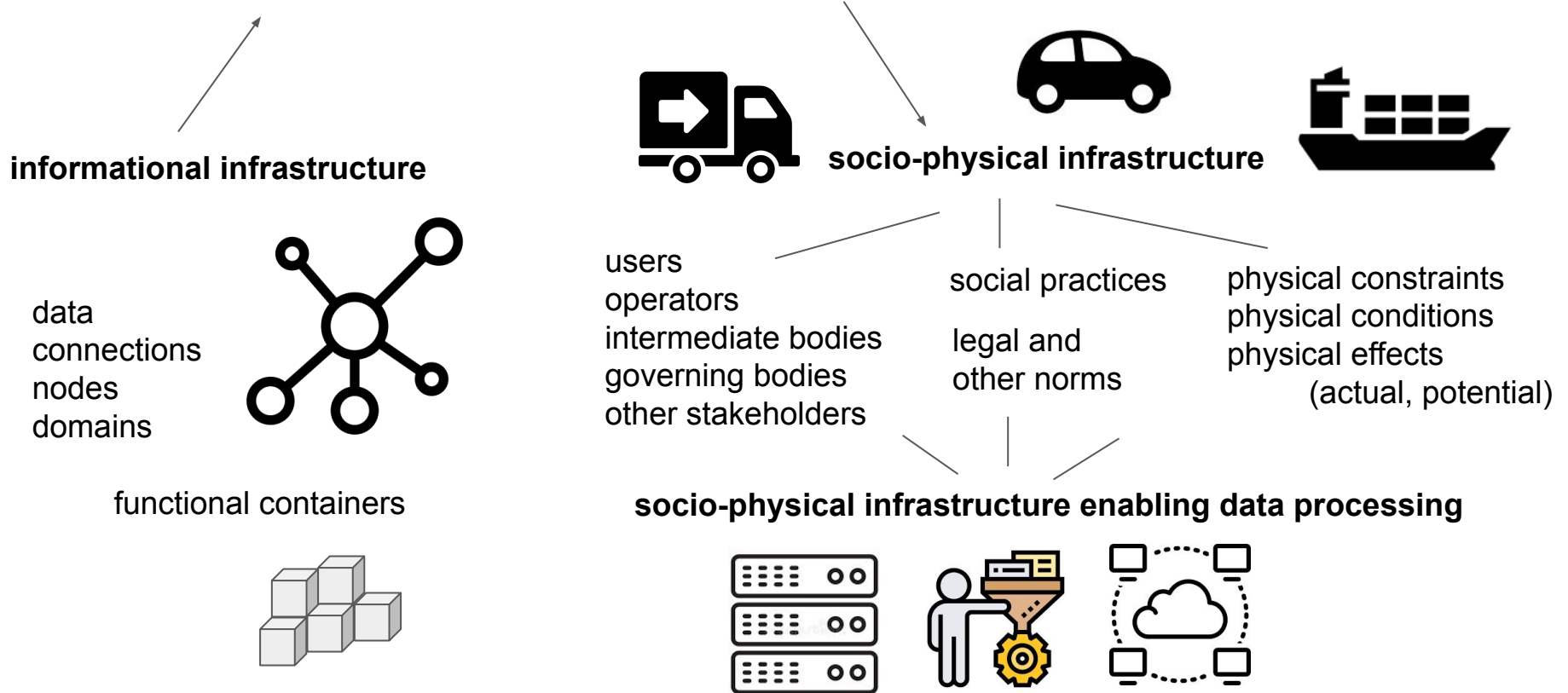
functional containers



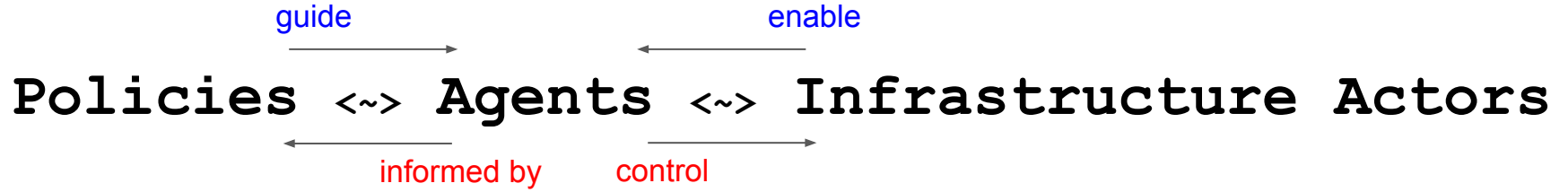
Data Logistics for Logistics Data



Data Logistics for Logistics Data



Policies <~> Agents <~> Infrastructure Actors





Physical Logistics

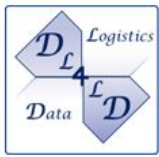
physical transportation

Policies <~> Agents <~> Infrastructure Actors

Policies <~> Agents <~> Infrastructure Actors

informational transportation

Data Logistics



impact can eventually be observed only on the physical level!

Physical Logistics

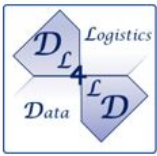
physical transportation

Policies <~> Agents <~> Infrastructure Actors

Policies <~> Agents <~> Infrastructure Actors

informational transportation

Data Logistics



impact can eventually be observed only on the physical level!

Physical Logistics

physical transportation

Policies <~> Agents <~> Infrastructure Actors

Policies <~> Agents <~> Infrastructure Actors

informational transportation

Data Logistics

infrastructural interventions occur on the informational level!



impact can eventually be observed only on the physical level!

Physical Logistics

physical transportation

Policies <~> **Agents** <~> **Infrastructure** **Actors**

Giovanni

Mostafa

Xin

Lu

Reggie

Policies <~> **Agents** <~> **Infrastructure** **Actors**

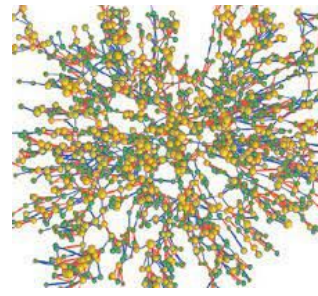
informational transportation

Data Logistics

infrastructural interventions occur on the informational level!

Where can we reuse DL4LD research?

- Practically almost all real-world systems have a complex and distributed nature



impact can eventually be observed only on the environment!

Environment (physical, social, etc.)

services

Policies <~> Agents <~> Infrastructure Actors

Policies <~> Agents <~> Infrastructure Actors

informational transportation

Data Logistics

infrastructural interventions occur on the informational level!

impact can eventually be observed only on the environment!

Environment (physical, social, etc.)

Policies > Agents < Infrastructure Actors

services

Policies > Agents < Infrastructure Actors

informational transportation

Data Logistics

infrastructural interventions occur on the informational level!

Depth of agents

Imperative programming

HOW

Depth of agents

Imperative programming

Declarative programming

HOW

WHAT

Depth of agents

Imperative programming

Declarative programming

Policy programming

desires/preferences as **individual policies**

norms as **collective policies**

HOW

WHAT

WHY

Depth of agents

Imperative programming

Declarative programming

Policy programming

desires/preferences as **individual policies**

norms as **collective policies**

*Normative
specifications*

HOW

WHAT

WHY

*Agent-based
Programming*

Depth of agents

Imperative programming

Declarative programming

Policy programming

desires/preferences as **individual policies**

norms as **collective policies**

*Normative
specifications*

HOW

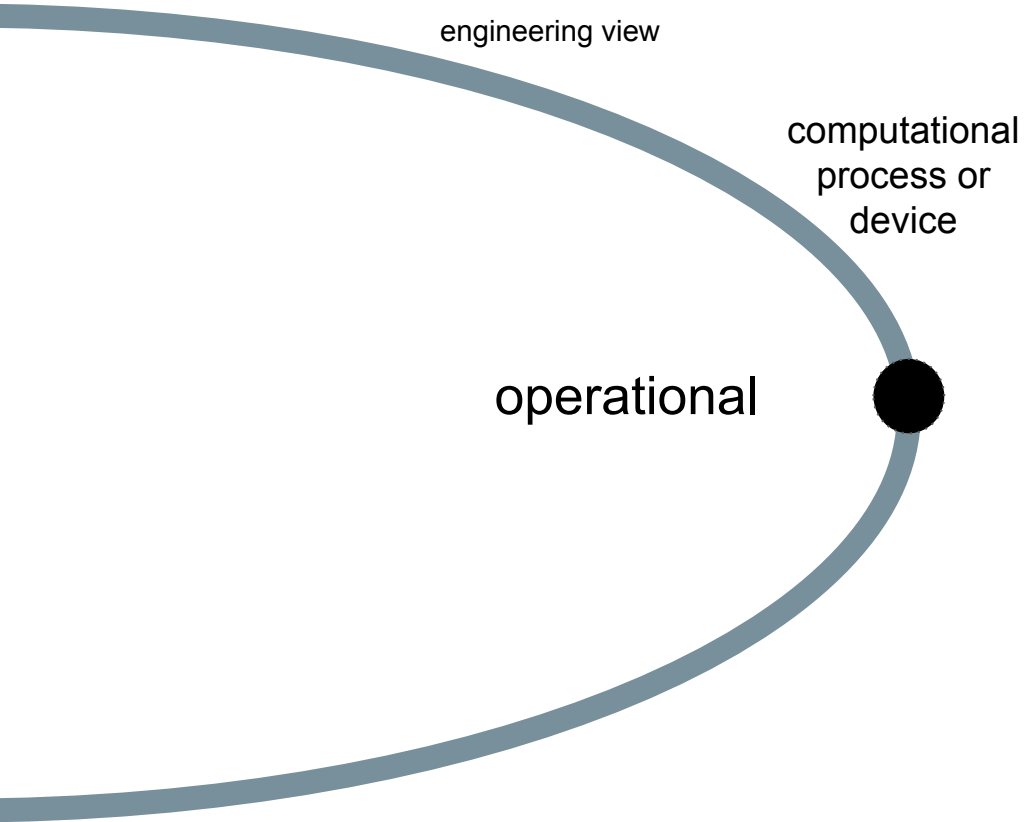
WHAT

WHY

*Agent-based
Programming*

**DL4LD overall pushed an increase of
depth in computational terms**

From functional perspectives...



to extra-functional...

engineering view

computational
process or
device

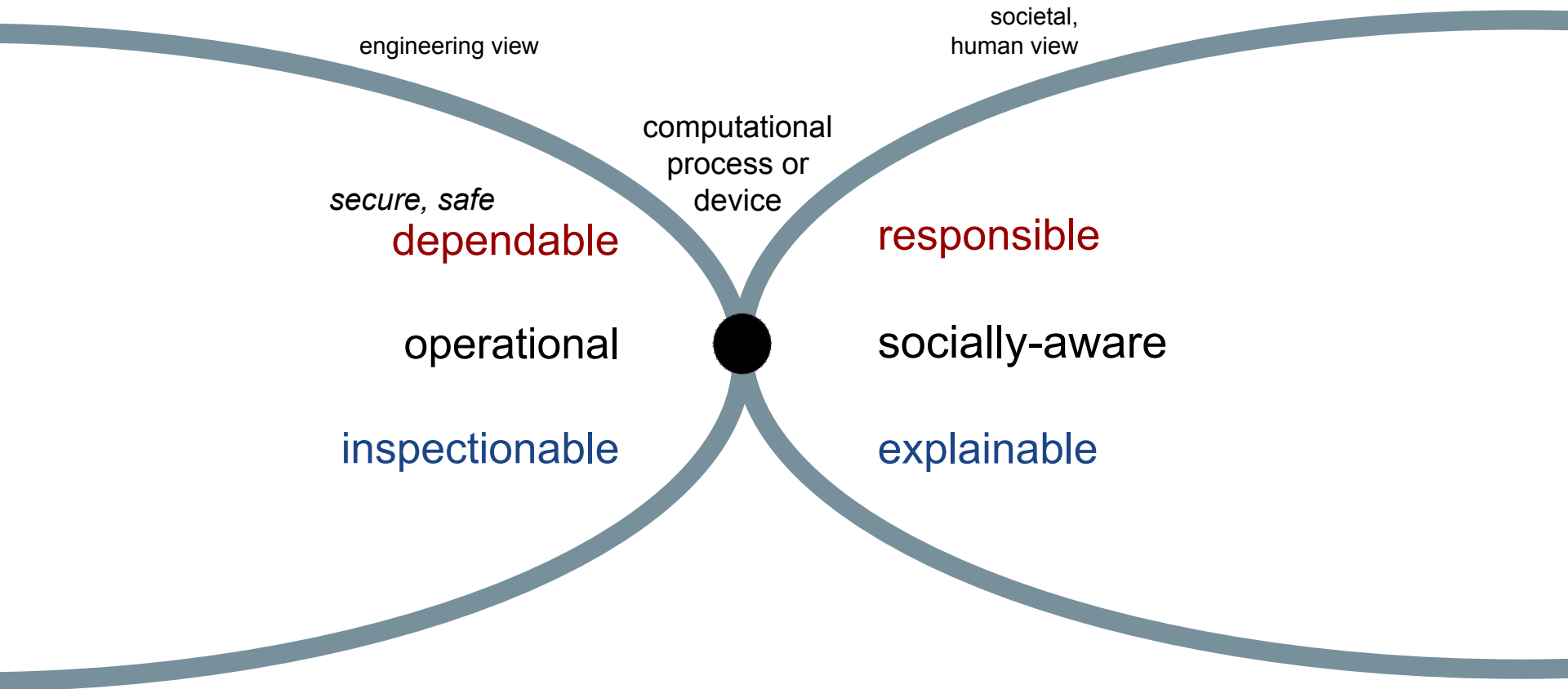
secure, safe
dependable

operational

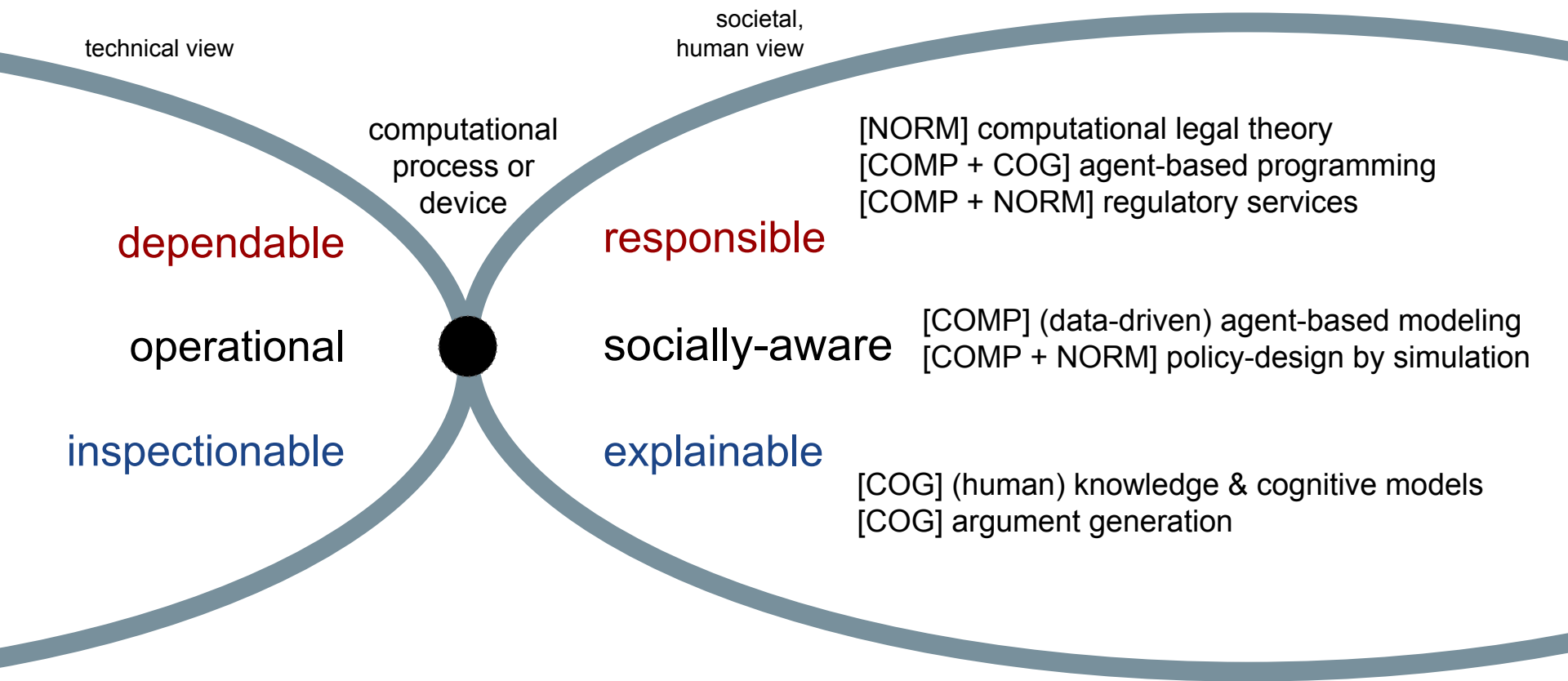
inspectionable



and beyond extra-functional!



Research topics to which I contributed



Research topics to which I contributed

societal,
human view

computational
process or
device

[NORM] computational legal theory
[COMP + COG] agent-based programming
[COMP + NORM] regulatory services

responsible

socially-aware

[COMP] (data-driven) agent-based modeling
[COMP + NORM] policy-design by simulation

explainable

[COG] (human) knowledge & cognitive models
[COG] argument generation

*this provided support
for my new position
at the SIAS group
(Civic AI Lab)...*



ADVANCING SOCIETY
THROUGH
INCLUSIVE AI TECHNOLOGY

law-driven code?

law-driven code?

code-driven law?

law-driven code?

code-driven law?

humans?



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