



University
of
Amsterdam

Policy making environment

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DL4LD kick-off, Feb 27, 2020



DL4LD: Data Logistics For Logistics Data

**JOHAN CRUIJFF
ARENA**

Data-sharing infrastructural policies

Regulations, Policies, Agreements and Infrastructural Rules

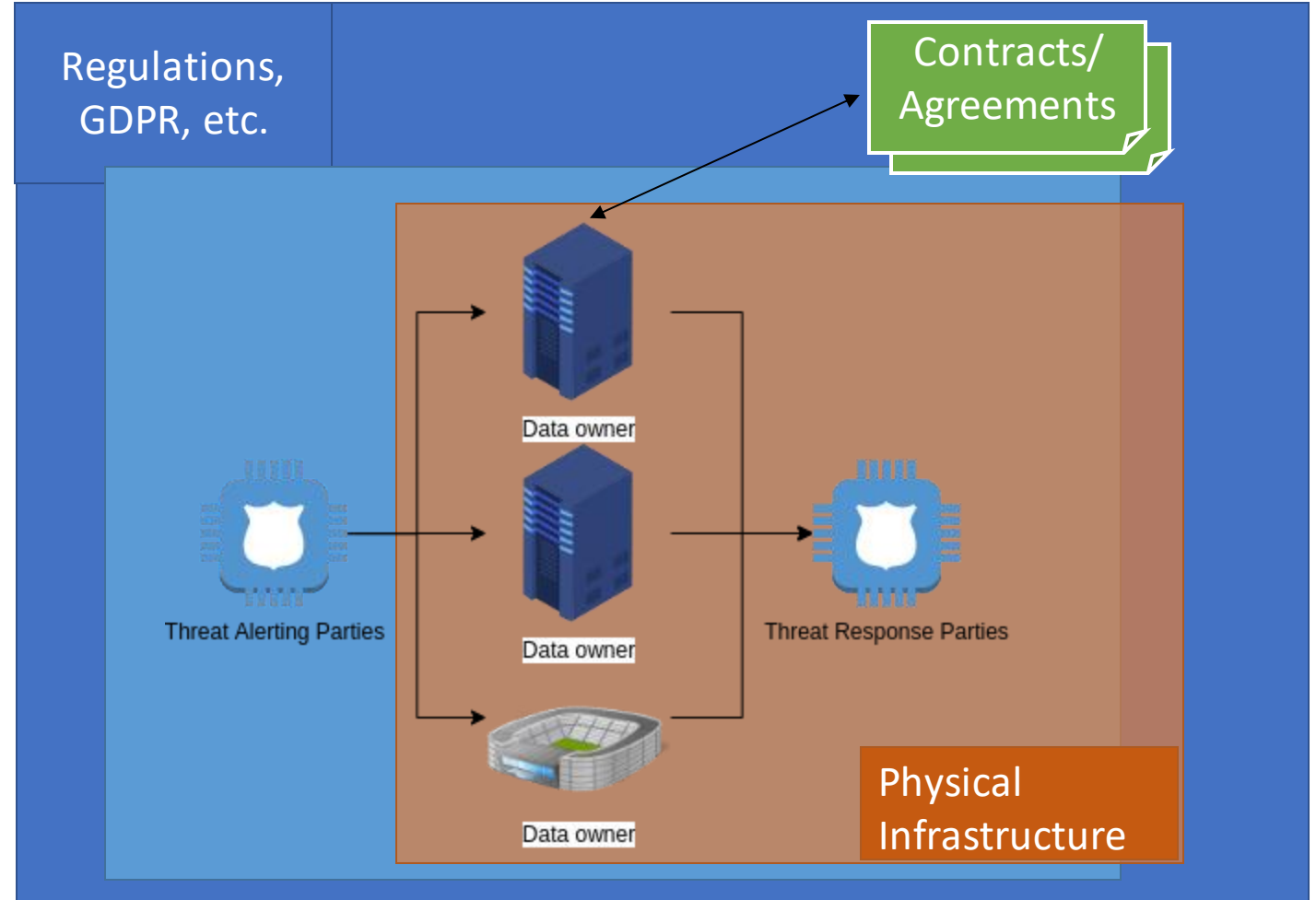
How complex can be the design of infrastructural policies?

Infrastructure adds a level of limitations and concerns

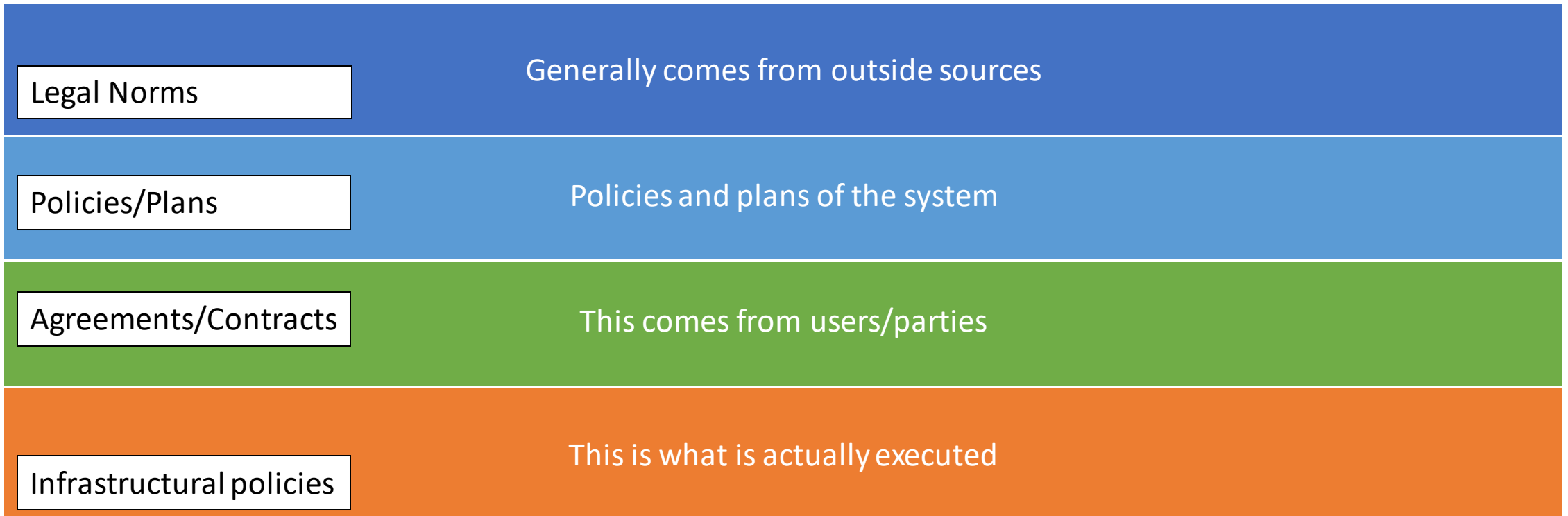
Not a very complex policy design and/or planning needed
Not so different than what we already have

All parties may have external agreement, contracts, internal limitations.

Regulations add more limitations and concerns



Levels of governance/guidance



Ideal situation:

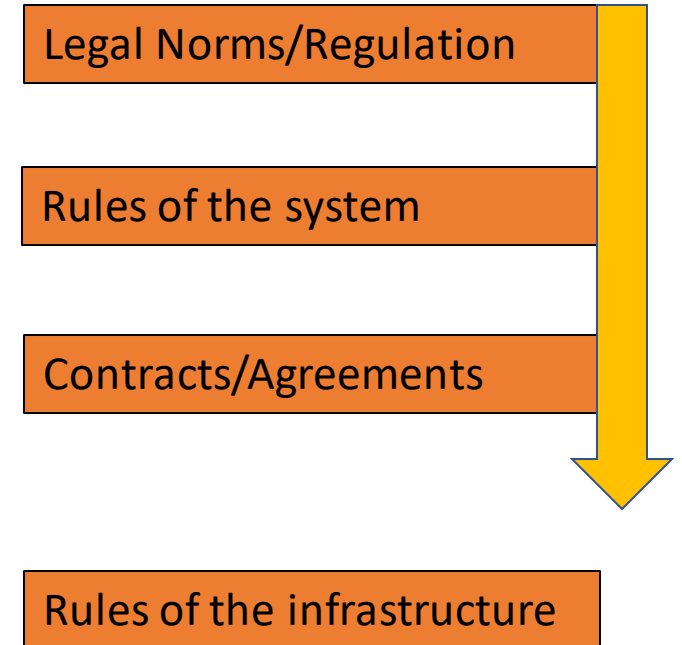
- *All rules of infrastructure* map to a higher level concept
- *All legal norms, Market regulations, agreements* are enforced in rules of infrastructure

Implementing a fully compliant infrastructure

Can we automate the process?

Automate the process?

- Challenges (to name a few):
 - Infrastructure often includes (implicit) enforcements
 - Technological limitation
 - Some policies are not enforceable by the any infrastructure
 - Some policies are too expensive to enforce at the infrastructural level
 - Some policies are less effective when enforced



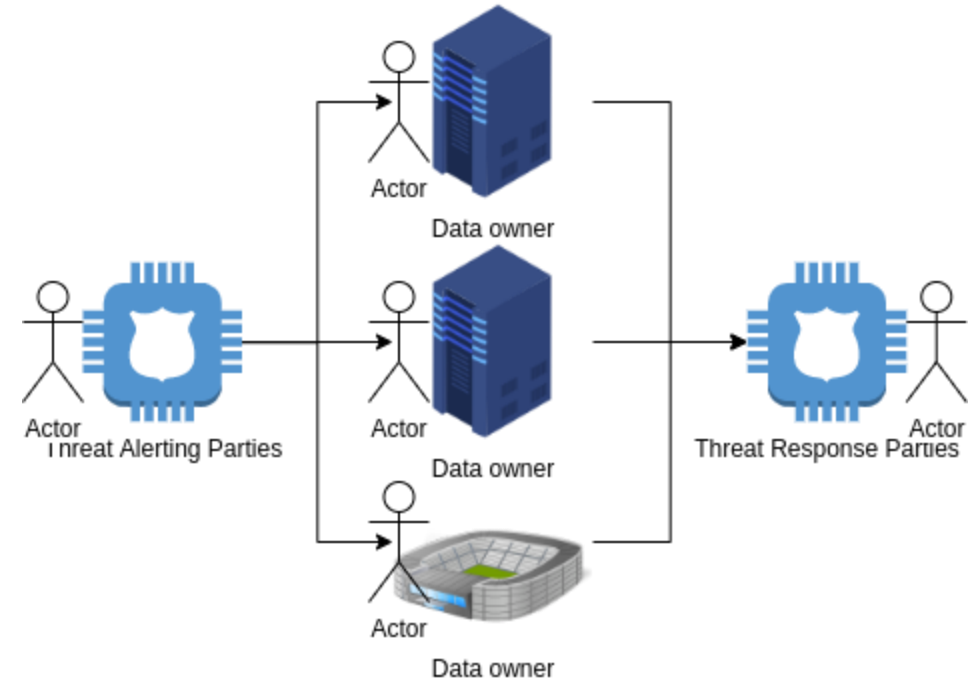
**Conclusion: No straightforward top-down (formal) approach,
Needs an assisted Policy design *Cycle***

Computer-assisted infrastructure design

So what can we do?

Modeling and Simulation environment?

- My role in DL4LD: A Sim/Mod env to assist
- Environment: Executable model of real infrastructural policies
- Actors:
 - Agent based models
 - Have utilities/preferences
 - May be playing by the rules
 - May try whatever they can to have more utility



Model execution will create a trace of actions/states

Questions for the policy designer/maintainer

- Is the infrastructure complaint to regulations/policies?
- How effective and efficient are the (designed infrastructural) policies?



Is the infrastructure compliant?

- Is there contrast between regulations and states/actions in the simulation?
 - Illegal states happened?
 - Illegal actions performed?

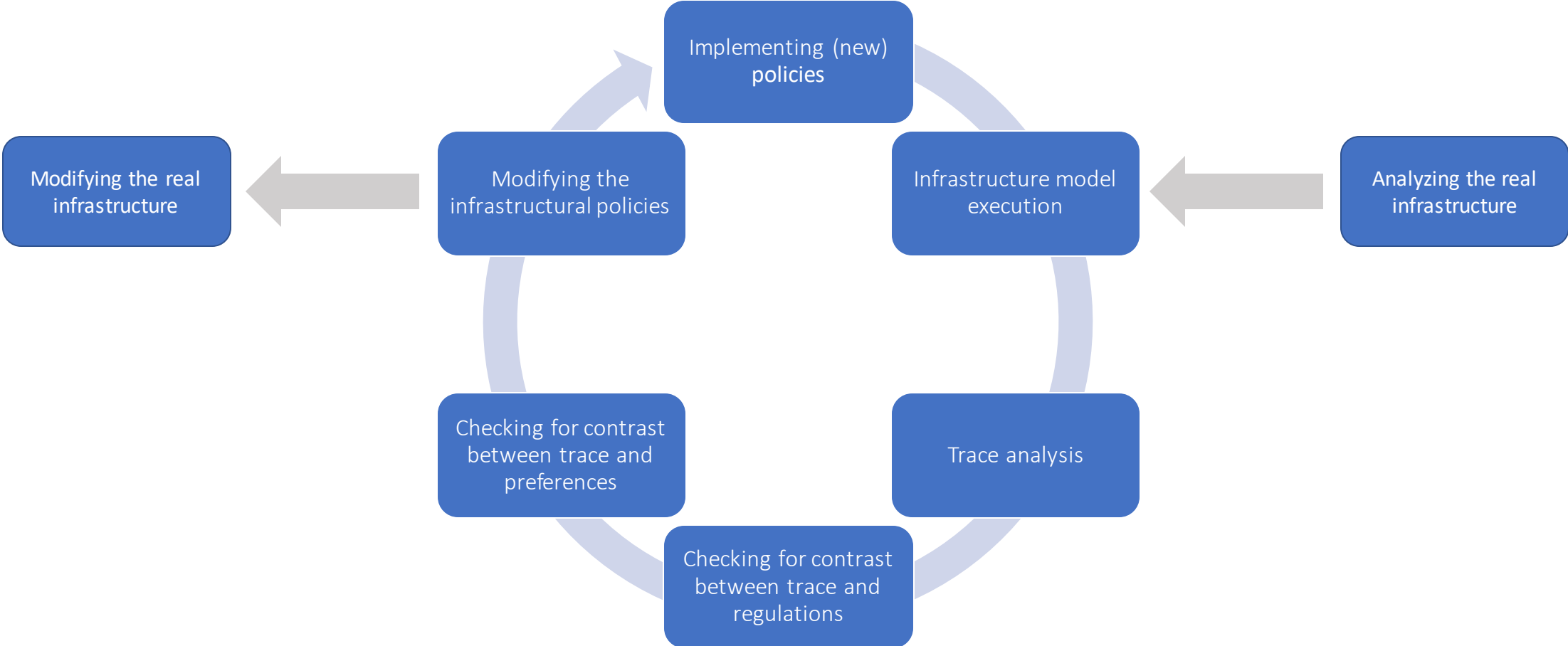


How effective/efficient are the policies?

- Are incentives adequate to support the overall guidance structure?
 - Do actors prefer to be compliant?
- At which costs the overall system functions?
 - Network load, etc.



The full cycle



Current work and focus

Shorter term (2020)

- Market Modeling/Simulation environment
- Agent scripting language

Longer term

- Agent based planning for data marketplace
- Adding ML capability to agent models

Thank you!



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