Towards a Framework for Law-Compliant Software Requirements

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What are requirements?

- **D, S |= R**

- **Domain Properties**
  - things in the application domain that are true whether or not we ever build the proposed system

- **Requirements (represented as goals)**
  - things in the application domain that we wish to be made true by delivering the proposed system

- **Specification (set of functions/tasks)**
  - is a description of the behaviours the program must have in order to meet the requirements
New laws, increased pervasiveness of IS
Laws are increasingly source of requirements
However law prescriptions are NOT stakeholders goals
  ◦ Stakeholders *want* goals, whereas law prescriptions are *imposed to* stakeholders
  ◦ Law prescriptions can contradict goals
D, R |= L

**Intentional compliance:**
- Laws give certain prescriptions, and stakeholders have the intention to satisfy the prescribed goal
- Distribution of responsibilities, such that, if every actor fulfils its goals, then the compliance is ensured
- Compliance is ensured by construction

**Needed: languages for modeling**
- Goals (i*)
- Laws (Nomos)
Domain: stakeholders, their goals and their organizational settings
  ◦ Actor have goals and interact with each other to achieve them
  ◦ i* (but any other GORE framework is suitable)
Nomos = A language + a method + a set of properties (e.g., intentional compliance)

It allows to
- Reason about how requirements are generated (select among alternatives)
- Check properties of requirements models wrt. Laws

Framework for systematically going from law prescriptions to requirements.
- Nomos: $L \times R \Rightarrow R'$
A process for law compliance

- Step 1 – Domain characterization
  - (Preliminary gathering of knowledge about the domain, its stakeholders, goals, and existing laws)

- Step 2 – Law modeling
  - Legal domain exploration; collection of applicable laws; law modeling using a formal language (Nomos)

- Step 3 – Goal modeling
  - Refinement of the law models with the information collected in step 1; matching of law subjects with stakeholders; linking of goals with legal prescriptions
A case study: application on Italian data protection law

Current state of the work: the language, the process, the compliance properties
Thank you