

Cyber Governance and Legislative Informatics

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IRIS 2021, Saturday 27 February 2021

Presentation Outline



- Cyber governance: Introductory remarks
- Cyber governance approaches and levels
- Decision making and support in cyber governance
- Decision support systems
- Legislative processes
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- The ManyLaws project
- Proposed ManyLaws services
- ManyLaws: Key stakeholders
- A ManyLaws legislative decision support scenario

Cyber Governance: Introductory Remarks



- Definitions: „governance of cyberspace“, „governance of the Internet“.
- Virtualization of interactions progressing (human/human, human/machine, machine/machine).
- COVID-19 pandemic has (probably irreversibly) increased velocity of virtualization in nearly all spheres of interaction.
- „Cyberspace“ permeating „real space“.
- Cyber governance becoming more and more urgent.
- Will cyber governance follow traditional governance models – or will it become a model for future governance?

Cyber Governance Approaches

- Has cyberspace national borders (like airspace)?
- Two main approaches in international debate on cyber governance:
 - „Free, open and secure cyberspace“ (U.S. and allies).
 - „State sovereignty“ (Russia, China).
- Declaration of group of 27 nations (U.S. and allies) of 2019 against:
 - „efforts to undermine democracies and international institutions, and
 - undercut fair competition in our global economy“.
- Russia and China maintain state sovereignty approach over cyberspace to safeguard „societal stability“.

Cyber Governance Levels (1)

- International (global/regional)
 - Organizations within the UN framework, like ITU, and dedicated bodies: six UN Groups of Governmental Experts (GGE) since 2004 vs. Open-Ended Working Group (OEWG) since 2018.
 - Instruments: multi-lateral treaties, like CoE Convention on Cybercrime.
- Supranational
 - Organizations: supranational communities with regulatory power, like the EU.
 - Instruments: directly applicable, like GDPR, or requiring national transposition.
- National
 - National legislatures and administrations.
 - National legislation.

Cyber Governance Levels (2)

- Private
 - Multistakeholder governance fora, like ICANN (criticized for asymmetric participation and lack of accountability).
 - Multistakeholder debating fora, like NETmundial (taking care of symmetric composition, but without governance power).
 - Businesses developing „soft norms“, like Microsoft International Cyber Security Norms.
- Are traditional regulatory levels and instruments adequate to governing cyberspace?
 - Trans-national impact.
 - Velocity of technical development.
 - Complexity of technical environments.
 - New actors (machines).

Decision making in Cyber Governance



- In spite of trans-national nature of the domain, for the foreseeable future cyber governance solutions will remain fragmented:
 - International treaties being a clumsy instrument.
 - Supranational legislation regionally restricted (most advanced: „value community“ of EU).
 - National legislation in view of global development will remain an important instrument.
 - „Soft norms“ of growing importance.
- „Multistakeholderism“ (*Gleckman, 2018*): often asymmetric, due to unequal distribution of (material and immaterial) resources.
- Decision making dependent on information resources transcending traditional (national) horizons.

Decision Support Systems (DSS)

- Decisions always to be made under conditions of uncertainty:
 - Insufficient information.
 - Insufficient/unknown quality of information.
 - Insufficiently assessable relevance of information.
- Expectation: improved informational conditions of decision making allow for improved quality of decisions.
- Concept of „decision quality“ debatable.
- Three major characteristics of DSS (*Alter, 1980*):
 - Designed specifically to support decision processes.
 - Support rather than automate decision processes.
 - Able to respond quickly to changing needs of decision makers.

A Typology of DSSs

- Five main types (*Power, 2001*):
 - **Data-driven**: analysing large amounts of structured data.
 - **Document-driven**: retrieving, classifying, analysing large amounts of unstructured documents.
 - **Model-driven**: using data and parameters to provide simulation based estimates.
 - **Knowledge-driven**: using business rules and knowledge bases, creating knowledge by discovering patterns.
 - **Communications-driven**: facilitating group decision-making activities.
- Usually hybrid systems, yet one dominant component.

DSS Examples

- **Medical domain:** e.g., diagnosis, treatment, medication support.
- **Economic domain:** e.g., production planning, financial optimization, marketing management.
- **Environmental domain:** e.g., land use planning, natural disaster management, energy policy planning.
- Wide scope of other domains, like **law enforcement, traffic control, sports,** etc.
- **Legal domain:** legal reasoning.
- (Argumentation schemes for the legal domain have also inspired medical domain, cf. *Al Qassas et al., 2016*).
- Legislative process: e.g., budgetary impact analysis, socio-economic impact analysis (ex ante vs. ex post).

The Legislative Process: An Overview

- Complex multi-level process:
 - Formal vs. informal phases.
 - Cyclic model(s): agenda setting, policy making, legal drafting, deliberation, adoption, implementation, evaluation.
- Different actors:
 - Institutional (government agencies, Parliament, self-government agencies, political parties, NGOs, lobbies) vs. individual actors.
 - State vs. civil-society actors.
 - Political vs. administrative actors.
- Information requirements depending on role.

Good Governance and Legal Information



- Individuals and organisations require information to **correctly identify** problems, **articulate** them in a structured manner, and to **develop appropriate solutions**.
- **Accurate, target-oriented,** and **timely** legal information is a **strategic input** in effective decision-making for a plethora of actors within society.
- To develop a specialised large-scale information retrieval system it is important to consider the practical problem of aligning the supply of information with user demands.

The ManyLaws Project: Key Objectives

ManyLaws aims to address the challenge of fragmented information in the legal domain:

- To build the **proper environment** and vision of semantically annotated Big Open Legal Data (BOLD), easily searchable and exploitable with proper visualization techniques.
- To provide the **technical foundation** and the tools for making legal information available to everybody, in a customizable, structured and easy-to-handle way.
- To deliver a set of **key trans-European services** that facilitate seamless and ubiquitous access to legal data for citizens, businesses and administrations.

The ManyLaws Project: Consortium



Project Coordination
Big Data Management
Information Processing, Legal Text Mining



Greek Pilot Case
Greek legal data sources
Services Evaluation
Dissemination



Service Infrastructure Implementation
Integration with eJustice portal, NOMOS,
European Open Data portal



Conceptual Framework, Requirements and Services
Definition
Pilot and stakeholders engagement coordination
Training



Austrian Pilot Case
Austrian legal data sources
Services Evaluation
Dissemination

The ManyLaws Project: Proposed Services

- **Parallel search** in many EU member-state legal frameworks (through parallel translation of search terms), using simple keywords.
- **Comparative analysis** of equivalent or relevant laws from different EU member states or connected laws from the same member state.
- **Analysis of references** to the European Legislation by National Laws.
- **Assessment** of the degree of **transposition** of an EU Directive in a National Legal Framework, indicating relevant national legislation and monitoring the status of transpositions.

The ManyLaws Project: Proposed Services



- **Timeline analysis** for all legal elements, visualising the progress and current status of a specific national or European legislation (after amendment/extensions) over time.
- Various **geo-related visualisations** (e.g. EU maps indicating different parameters) and **text-related visualisations** (e.g. wordle, sentiment graphs, interrelation maps, etc.) to illustrate correlations, dependencies and conflicts between different laws.
- **Decision Support Services** (e.g. Impact Assessment) within legal procedures.

The ManyLaws Project: Key Stakeholders



Five major user groups identified;
further refined to **six** actor groups.

Legal information used in both **personal**
and **professional** contexts.

Combination of different strategies to
access legal information.

Use of **offline** and **online** sources.

Preference for **official sources of**
information.



The ManyLaws Legislative DSS

- Role-specific interfaces.
- For political decision-makers (MPs and their staff) (optional):
 - Evaluation and visualization of public reaction to specific policy items/draft bills.
 - Evaluation of opinions provided in consultation processes.
 - Social media analysis.
- For administrative staff (legislative drafters, committee secretaries, etc.):
 - Identification of explicit and discovery of implicit references.
 - Analysis of connected/interdependent/conflicting regulations within the same jurisdiction.
 - Comparison of subject-related regulations from different jurisdictions.
 - Analysis of interdependent regulations in the multi-level European legal system.
 - Visualization of correlations/dependencies/conflicts between regulations.

A ManyLaws Legislative DSS Scenario

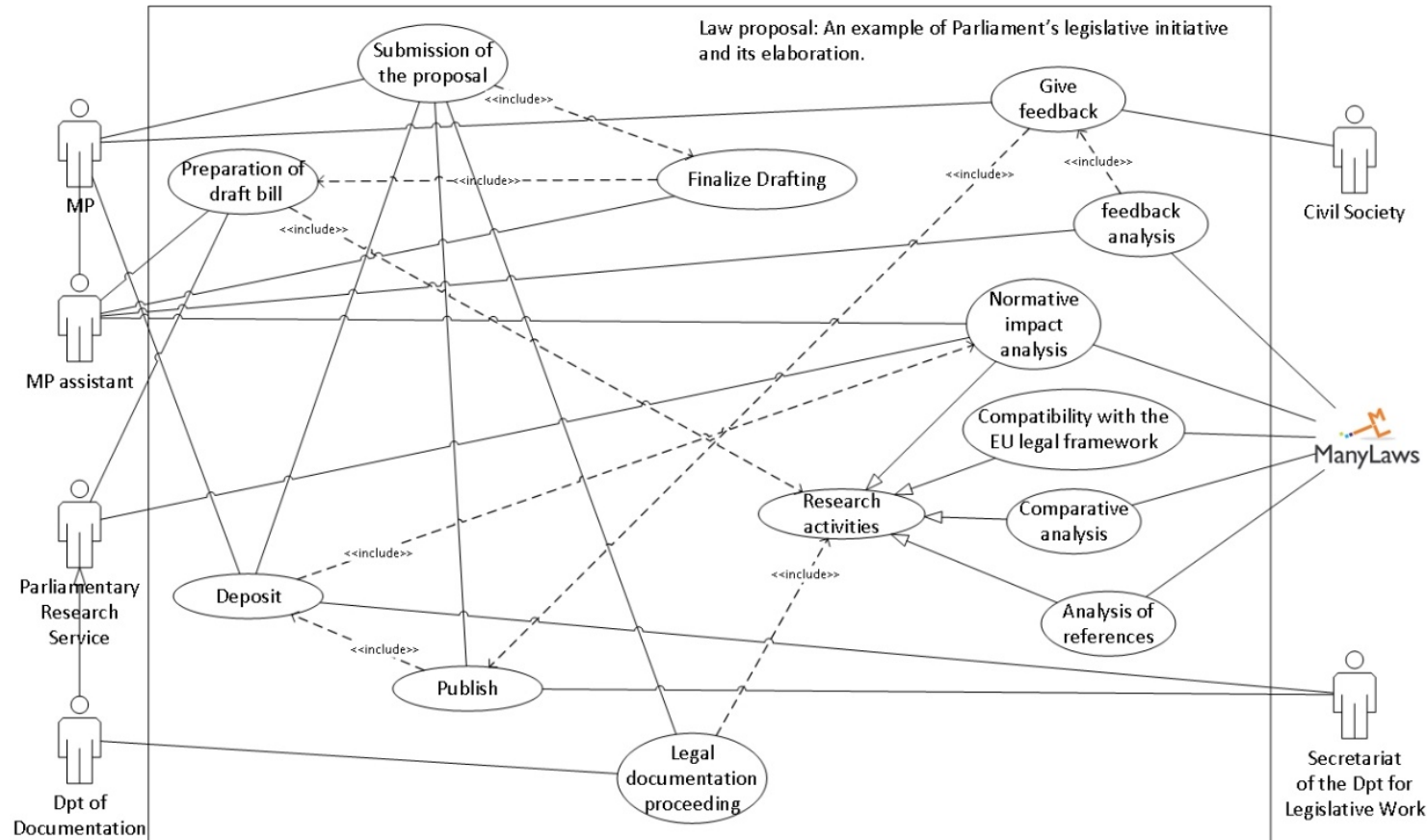


Diagram: Nektarios Kyriakou



Thank you for your attention!

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