H2020 COVR FSTP LIAISON – D2.6 MS2 COVR presentation describing MS2 results and achievements.

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COVR

Being safe around collaborative and versatile robots in shared spaces

COVR Award

LIAISON

MS2 COVR presentation on results and achievements (D2.6)

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eLAW LEIDEN

GOAL

'ideate an alignment model between robots' legal appraisal, channeling robot policy development from a bottom-up perspective, thereby making use of compliance tools as data generators for policymakers to unravel an optimal regulatory framing for existing and emerging robot technologies.'

Milestones

MONTH 1-5

Research on uncovered challenges posed by EU legislation and safety standards on collaborative robots.

Compile information about uncovered challenges in collaboration with COVR Consortium and Toolkit users.

Complement the findings with desk research, literature research, and policy documentation.

MONTH 6-9

Compile action points to complement the COVR Toolkit to allow compliance inconsistency knowledge extraction.

Establish connection links with relevant policymakers (e.g., NEN) to help establish a link between robot development and standard making.

Deliverables

MILESTONE 1

Report on EU legislation and safety standards' uncovered challenges.	Report on the usefulness of LIAISON on the basis of Target user feedback.	Short report of two formal exploratory meetings with relevant policymakers.	1 Contribution to an interdisciplinary academic blog.	MS1 COVR presentation on results and achievements.

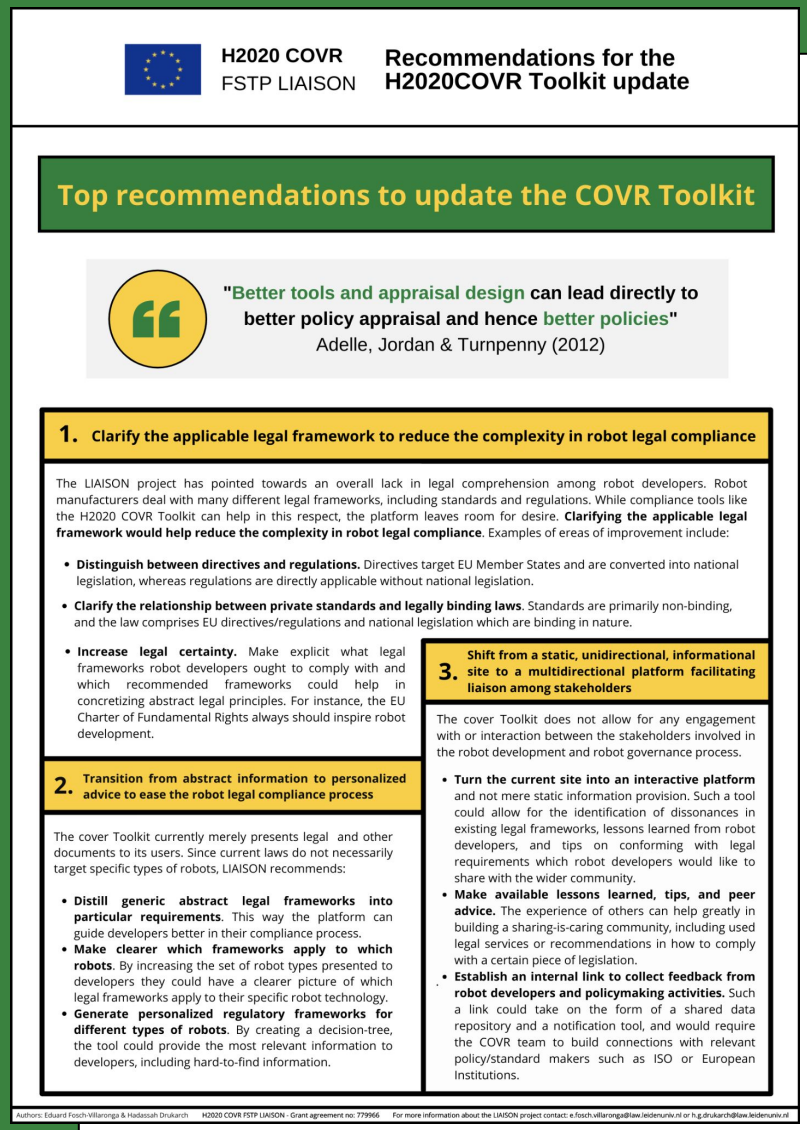
MILESTONE 2

Recommendations for the COVR toolkit update.	Lecture on the 'future of law	1 academic publication featuring the future of robot governance.	Two policy briefs for standard and policymakers (EU & NEN).	LIAISON Lessons learned and evaluation report	MS2 COVR presentation on results and achievements.

D2.1 | Recommendations for the COVR Toolkit update.

In this report, we present a set of recommendations for updating the COVR toolkit in line with the findings obtained throughout the LIAISON project which include

1. **Clarify the applicable legal framework** to reduce the complexity in robot legal compliance;
2. **Transition from abstract information to personalized advice** to ease the robot legal compliance process; and
3. Shift from a static, unidirectional, informational site to a **multidirectional platform facilitating liaison among stakeholders**.



H2020 COVR
FSTP LIAISON

Recommendations for the H2020COVR Toolkit update

Top recommendations to update the COVR Toolkit

"Better tools and appraisal design **can lead directly to better policy appraisal and hence** better policies"
Adelle, Jordan & Turnpenny (2012)

1. Clarify the applicable legal framework to reduce the complexity in robot legal compliance

The LIAISON project has pointed towards an overall lack in legal comprehension among robot developers. Robot manufacturers deal with many different legal frameworks, including standards and regulations. While compliance tools like the H2020 COVR Toolkit can help in this respect, the platform leaves room for desire. **Clarifying the applicable legal framework would help reduce the complexity in robot legal compliance**. Examples of ereas of improvement include:

- **Distinguish between directives and regulations.** Directives target EU Member States and are converted into national legislation, whereas regulations are directly applicable without national legislation.
- **Clarify the relationship between private standards and legally binding laws**. Standards are primarily non-binding, and the law comprises EU directives/regulations and national legislation which are binding in nature.
- **Increase legal certainty.** Make explicit what legal frameworks robot developers ought to comply with and which recommended frameworks could help in concretizing abstract legal principles. For instance, the EU Charter of Fundamental Rights always should inspire robot development.

2. Transition from abstract information to personalized advice to ease the robot legal compliance process

The cover Toolkit currently merely presents legal and other documents to its users. Since current laws do not necessarily target specific types of robots, LIAISON recommends:

- **Distill generic abstract legal frameworks into particular requirements**. This way the platform can guide developers better in their compliance process.
- **Make clearer which frameworks apply to which robots**. By increasing the set of robot types presented to developers they could have a clearer picture of which legal frameworks apply to their specific robot technology.
- **Generate personalized regulatory frameworks for different types of robots**. By creating a decision-tree, the tool could provide the most relevant information to developers, including hard-to-find information.

3. Shift from a static, unidirectional, informational site to a multidirectional platform facilitating liaison among stakeholders

The cover Toolkit does not allow for any engagement with or interaction between the stakeholders involved in the robot development and robot governance process.

- **Turn the current site into an interactive platform** and not mere static information provision. Such a tool could allow for the identification of dissonances in existing legal frameworks, lessons learned from robot developers, and tips on conforming with legal requirements which robot developers would like to share with the wider community.
- **Make available lessons learned, tips, and peer advice.** The experience of others can help greatly in building a sharing-is-caring community, including used legal services or recommendations in how to comply with a certain piece of legislation.
- **Establish an internal link to collect feedback from robot developers and policymaking activities.** Such a link could take on the form of a shared data repository and a notification tool, and would require the COVR team to build connections with relevant policy/standard makers such as ISO or European Institutions.

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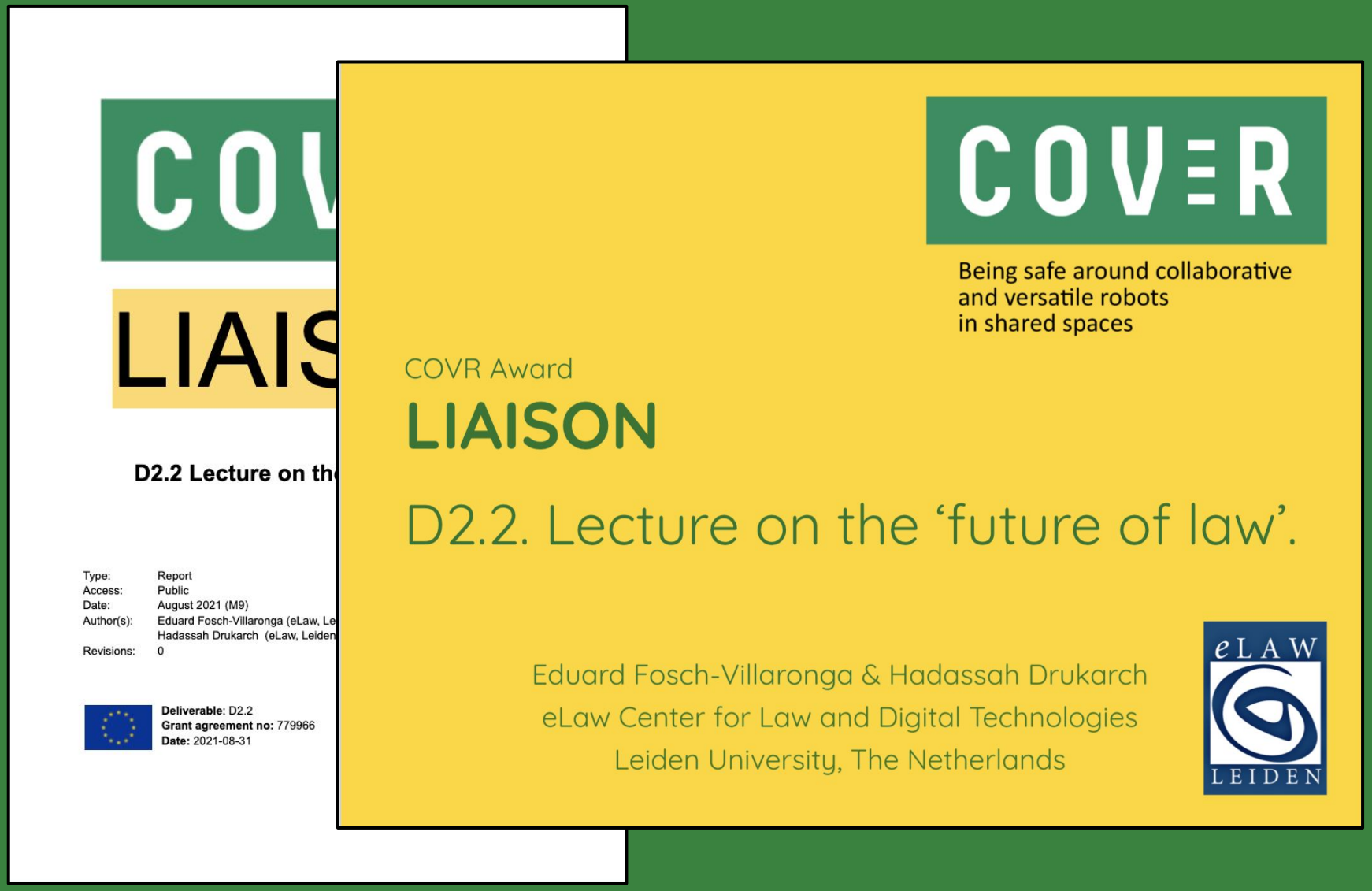
D2.2 | Lecture on the ‘future of law’.



An iterative regulatory

Building a dynamic framework for evidenc

H. Drukarch, C. Cal

***Abstract*—Assessing risks through experimentation essential to ensure robot safety and compliance with exist norms. However, standards do not always frame technol development accurately. LIAISON investigates to what ext compliance tools, such as the COVR Toolkit, could be used data generators for robot policy purposes to reduce complexity in emerging robot governance. In particul LIAISON focused on personal care robots (ISO 13482:201 rehabilitation robots (IEC 80601–2–78–2019), and agricultu robots (ISO 18497:2018). This study brings into view background and key findings of this project.**

I. Introduction

New technologies sometimes question and challe existing norms, breathing into existence the need legal change. While technology's pace dramatica accelerates, an understanding of technology's implicati does not always follow in parallel. Thus, curr developments fail to provide an adequate level of safety new technologies to perform well in the wild [1]. Beca legal responsiveness does not always follow technologi developments as a consequent step [2]-[3], current legislat also lags and does not frame robot technology adequately This state of affairs increases legal uncertainty, as it is uncl what regulations developers have to follow to comply w the legal system. Given that robotics is a realm characteri by uncertainty on the risks and appropriate safeguards covering them, there is an urge to establish a coordina regulatory front matching interests that can easily transl into concrete, practical and widely adopted actions for mak robots safe to use [5]. The LIAISON Project investigates what extent compliance tools, such as the COVR Tool could be used as data generators for policymaking so as reduce this complexity in the governance of emerging ro technologies. This study brings into view the inconsistenc dissonances, and inaccuracies of existing frameworks w respect to robot technologies, and the usefulness of LIAIS in better framing these technologies and reducing complexity in robot legal compliance.

II. A Legal 'Tragedy of the Commons'

Regulation is often very complicated, calling for a delic interplay between various constraints, including the plura and de-centeredness of our legal systems, the unclear fit of regulated reality to the new development, and unforeseea impacts of such emerging technology.

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An iterative

* eLaw

Abstract

There is an increasing gap betwee and that of technological and so becoming broader and more pro movable machines that perform t or with a degree of autonomy, sinc unprepared for machine learning and, as a result, often lags and do robot technologies. This state of af legal uncertainty. It is unclear wha developers have to follow to co technology that does not perfor unsafe, and can exacerbate biases paper explores these issues and c key findings, and lessons learned which stands for *Liaising r policymaking*, and aims to idea between robots' legal appraisal development from a hybri perspective to solve this mismat seeks to uncover to what extent c used as data generators for robot p an optimal regulatory framing fo robot technologies.

Keywords – Robot governa Technological Change; Evidence- regulatory process, Robot technol Artificial Intelligence.

frontiers in Chemical Engineering

ORIGINAL RESEARCH
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Redefining Safety in Light of Human-Robot Interaction: A Critical Review of Current Standards and Regulations

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Policymakers need to consider the impacts that robots and artificial intelligence (AI) technologies have on humans beyond physical safety. Traditionally, the definition of safety has been interpreted to exclusively apply to risks that have a physical impact on persons' safety, such as, among others, mechanical or chemical risks. However, the current understanding is that the integration of AI in cyber-physical systems such as robots, thus increasing interconnectivity with several devices and cloud services, and influencing the growing human-robot interaction challenges how safety is currently conceptualised rather narrowly. Thus, to address safety comprehensively, AI demands a broader understanding of safety, extending beyond physical interaction, but covering aspects such as cybersecurity, and mental health. Moreover, the expanding use of machine learning techniques will more frequently demand evolving safety mechanisms to safeguard the substantial modifications taking place over time as robots embed more AI features. In this sense, our contribution brings forward the different dimensions of the concept of safety, including interaction (physical and social), psychosocial, cybersecurity, temporal, and societal. These dimensions aim to help policy and standard makers redefine the concept of safety in light of robots and AI's increasing capabilities, including human-robot interactions, cybersecurity, and machine learning.

Keywords: robots, cobots, artificial intelligence, safety, machinery directive, psychosocial aspects at work

INTRODUCTION

The robotic industry is developing rapidly, affecting different aspects of modern working life. Collaborative robots, so-called cobots, can among other things, support human workers in a shared workspace, nurses working with lifting robots, doctors with intelligent diagnostic systems, and information system designers in public administration. The rate at which these developments occur is faster than ever before (European Agency for Safety and Health at Work, 2020). As pointed out by the Organisation for Economic Cooperation and Development (OECD, 2019), while about 14% of jobs are highly automatable in OECD countries, another 32% of jobs are likely to change radically as individual tasks keep getting automated within these jobs.

While robots help staff extend the professional service they provide, create new opportunities, entail resource efficiency, and increase productivity, it is unclear how such professions adhere and

D2.4 | Two policy briefs for standard and policymakers (EU & NEN).

Takeaways:

1. **Active stakeholder involvement in robot governance** is crucial and needed.
2. **LIAISON could be a valuable tool to facilitate effective robot governance** because of its all-encompassing nature.
3. Advances in robot legal oversight provide a solid basis for designing **safer robots, safeguarding users' rights, and improving the overall safety and quality of care**.

D2.5 | LIAISON Lessons learned and evaluation report.

Evaluation:

- **A valuable tool**
  - LIAISON can be a useful tool for linking all the stakeholders in the robot development chain, including affected parties.
- **Points for Improvement**
  - Ease community building, engagement and cooperation.
  - Gap bridging with affected communities throughout the robot development and robot governance life-cycle.
- **Avenues for expansion**
  - Scientific knowledge for policy extraction mechanisms;
  - Automated compliances processes;

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1w • Edited •

I am very excited about the publication of our latest work: Redefining Safety in Light of Human-Robot Interaction: A Critical Review of Current Standards and Regulations!
https://lnkd.in/dPEemri

I cannot express how much I have learned during this collaboration with my fantastic co-authors **Alberto Martinetti**, **Peter Chemweno**, and **Eduard Fosch Villaronga**.

If you are interested in safety within the context of human-robot collaboration, this is a good read for you! #ai #research #science #artificialintelligence #safety #collaboration #robotics #regulations

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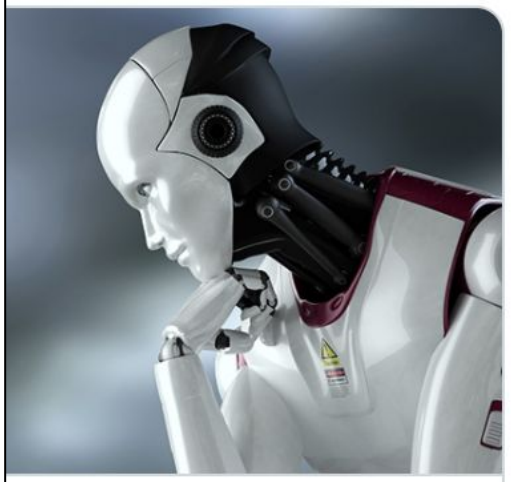

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Thanks for your attention!