Study on the relevance and impact of artificial intelligence for company law and corporate governance

Final report

This report has been prepared by EY for
the European Commission, DG Justice and Consumers.

June – 2021

EUROPEAN COMMISSION

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Directorate-General for Justice and Consumers

2021

Manuscript completed in June 2021

LEGAL NOTICE

PDF ISBN 978-92-76-43364-4 doi:10.2838/790784 DS-01-21-408-EN-N

Luxembourg: Publications Office of the European Union, 2021

ABSTRACT (EN)

This study aims to contribute to a better understanding of the effects of the use of Artificial Intelligence (AI) by companies, shareholders, creditors, public authorities or other persons in order to perform company law and corporate governance (CL&CG) tasks, including through the assessment of opportunities and risks and the identification of regulatory gaps (if any), and to provide the European Commission with groundwork for possible EU action.

The study suggests that the current scale of use of AI to perform CL&CG tasks is generally low in Europe and that Member States have not yet established specific regulatory frameworks to regulate the use of AI in this specific area. The legal review has not identified concrete regulatory gaps under the existing EU and national frameworks that would require an EU regulatory intervention.

The study recommends that the Commission monitors the development and spread of the use of AI within the boards of directors of EU companies, that it follows the evolution of national legislation and case law concerning AI use for CL&CG in the Member States, and that it monitors the level of directors' expertise and literacy with regard to AI in EU companies in the coming years.

ABSTRACT (DE)

Diese Studie soll zu einem besseren Verständnis der Auswirkungen des Einsatzes von künstlicher Intelligenz (KI) durch Unternehmen, Aktionäre, Gläubiger, Behörden oder andere Personen für die Erfüllung von gesellschaftsrechtlichen und Unternehmensführungsaufgaben (GR & UF) beitragen, unter anderem durch die Bewertung von Chancen und Risiken und die Ermittlung von Regelungslücken (falls vorhanden), und der Europäischen Kommission Grundlagen für eventuelle EU-Maßnahmen bereitstellen.

Die Studie legt nahe, dass der derzeitige Umfang des Einsatzes von KI zur Durchführung von GR & UF-Aufgaben in Europa im Allgemeinen gering ist, und dass die Mitgliedstaaten noch keine spezifischen rechtlichen Rahmenbedingungen für die Regulierung des Einsatzes von KI in diesem speziellen Bereich festgelegt haben. Bei der Überprüfung des Rechtsrahmens wurden keine konkreten regulatorischen Lücken im Rahmen der bestehenden EU- und nationalen Rahmenbedingungen festgestellt, die eine regulatorische Intervention der EU erfordern würden.

In der Studie wird empfohlen, dass die Kommission die Entwicklung und Verbreitung des Einsatzes von KI in den Vorständen europäischer Unternehmen überwacht, die Entwicklung der nationalen Rechtsvorschriften und der Rechtsprechung zum Einsatz von KI für GR & UF in den Mitgliedstaaten verfolgt und das Niveau des Fachwissens und der Kompetenz der Vorstandsmitglieder in Bezug auf KI in EU-Unternehmen in den kommenden Jahren überwacht.

ABSTRACT (FR)

Cette étude a pour objectif de contribuer à parvenir à une meilleure compréhension des effets de l'utilisation de l'Intelligence Artificielle (AI) par les entreprises, les actionnaires, les créanciers, les autorités publiques ou toute autre personne impliquée dans la réalisation d'activités relatives au droit des sociétés et de la gouvernance d'entreprise, y compris à travers l'évaluation des opportunités et des risques et l'identification de lacunes législatives (le cas échéant) ainsi que de fournir une étude préparatoire à la Commission Européenne en vue d'une possible action de l'UE.

Cette étude suggère qu'à l'heure actuelle, l'ampleur de l'utilisation de l'Intelligence Artificielle pour la réalisation de tâches de droit des sociétés et de gouvernance d'entreprise est généralement faible en Europe et que les États Membres n'ont pas encore établi de cadres légaux spécifiques pour réguler l'utilisation de l'IA dans ce type d'activités. L'examen juridique n'a pas identifié d'écarts légaux concrets concernant la législation existante de l'UE ou celle des États Membres qui nécessiterait une intervention légale de la Commission.

Cette étude recommande à la Commission de surveiller le développement et l'étendue de l'utilisation de l'IA par les Conseils d'administration des entreprises Européennes, de suivre l'évolution des lois nationales et jurisprudences concernant l'utilisation de l'IA dans le cadre du droit des sociétés et de la gouvernance d'entreprises au sein des États Membres ainsi que de surveiller le degré d'expertise et d'alphabétisation des administrateurs d'entreprises concernant l'IA dans l'UE.

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List of Abbreviations

AI	Artificial Intelligence
AI HLEG	High-Level Expert Group on Artificial Intelligence
CATI	Computer-Assisted Telephone Interviewing
CL&CG	Company Law and Corporate Governance
DAO	Decentralised Autonomous Organisations
DG JUST	Directorate-General for Justice and Consumers
ERM	Enterprise Risk Management
EU	European Union
GDPR	General Data Protection Regulation
H2020	Horizon 2020
JRC	Joint Research Centre
R&I	Research and Innovation
SMEs	Small and Medium-sized Enterprises
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
UNESCO	United Nations Educational, Scientific and Cultural Organization
UK	United Kingdom
US	United States
WIPO	World Intellectual Property Organization

Codes for EU Member States

AT	Austria	IT	Italy
BE	Belgium	LT	Lithuania
BG	Bulgaria	LU	Luxembourg
CY	Cyprus	LV	Latvia
CZ	Czechia	MT	Malta
DE	Germany	NL	The Netherlands
DK	Denmark	PL	Poland
EE	Estonia	PT	Portugal
EL	Greece	RO	Romania
ES	Spain	SE	Sweden
FI	Finland	SI	Slovenia
FR	France	SK	Slovakia
HR	Croatia		
HU	Hungary		
IE	Ireland		

1 INTRODUCTION

This is the final deliverable for the study on "The relevance and impact of Artificial Intelligence for company law and corporate governance" (request for service number – JUST/2018/MARK/FW/CIVI/0190 - 2019/06), an assignment undertaken on behalf of DG for Justice and Consumers of the European Commission (DG JUST).

1.1 Summary of the objectives of the study

The overall aim of this study is to contribute to a better understanding of the effects of the use of Artificial Intelligence (AI) in companies by directors, shareholders, creditors or public authorities, public officials or persons or bodies mandated by the state to perform certain company law tasks.

The results of this study provide the Commission with the groundwork for possible future interventions aimed at improving the current regulatory framework on company law and corporate governance (CL&CG) and at making it more suitable for AI-related technological developments.

The assignment contained three main tasks, building upon each other:

- **Task 1 – The use of AI for CL&CG – opportunities and risks** mapped the actual and likely use of AI technologies by companies, shareholders, creditors and public authorities or other persons in order to perform CL&CG tasks, and highlighted the main opportunities and risks that the adoption of these technologies might bring;
- **Task 2 – Regulatory gaps related to the use of AI** built on the findings of Task 1 and assessed whether the existing legal framework at the national, European Union (EU) and international level adequately addresses the identified risks, while favouring the opportunities created by the adoption of these new technologies, and whether there are obstacles limiting a wider adoption of AI in CL&CG. In other words, Task 2 aimed to identify regulatory gaps, if any, that would create obstacles to the use and development of AI or do not mitigate the potential risks of the use of AI, and to identify, among these gaps, those that would need EU intervention in order to be adequately tackled;
- **Task 3 – CL&CG recommendations that help address the opportunities and risks posed by AI and assessment of their potential impacts** was originally aimed at identifying alternative measures for a possible EU action that addresses the gaps emerging from Task 2 and assesses their impact. While the project was ongoing, the approach to Task 3 slightly changed because no concrete regulatory gaps were identified under Task 2 and, therefore, there was no ground to elaborate possible measures for EU action addressing the regulatory framework. Consequently, Task 3 was refocused on the elaboration of high-level recommendations concerning specific areas for EU attention, which have been assessed and fine-tuned on the basis of feedback received from experts.

1.2 Structure of the report

The remainder of this report is structured as follows:

Section 2 describes the data collection plan implemented as part of the study, together with the main difficulties encountered, and illustrates the methodology followed for the assessment of the recommendations;

Section 3 describes how AI is currently used by companies and public authorities or other persons in order to perform CL&CG related tasks. The section also summarises the main opportunities and risks for AI in CL&CG (Task 1);

Section 4 presents an overview of measures relevant to the use of AI in CL&CG at the EU, national and international level and elaborates the main findings concerning the regulatory gaps related to the use of AI in CL&CG (Task 2);

Section 5 presents a list of recommendations for possible EU action in relation to AI use in CL&CG and their assessment (Task 3).

The following annexes are attached to the report.

Annex I includes the Annexes to Task 1 (social media listening, extended description of opportunities and risks, case studies), Task 2 (overview of EU measures, analysis of coverage of AI related risks and opportunities, analyses of the contributions of the surveys and of the exploratory interviews), and Task 3 (analysis of the contributions of the fine-tuning webinars), the list of stakeholders engaged, and the main sources analysed;

Annex II includes the country fiches that provide for all 27 EU Member States some key socio-economic figures, and an overview of the use of AI in CL&CG. For 20 selected EU Member States (AT, BG, CY, CZ, DE, EE, ES, FI, FR, HR, HU, IE, IT, LU, NL, PL, PT, RO, SE, and SI) and four non-EU countries (China, Singapore, US, and UK), this annex also provides for the mapping and assessment of measures related to CL&CG, which would be applicable, relevant, or affected by the use of AI.

2 RESEARCH METHODOLOGY

2.1 Data collection plan

Desk research

The desk research focused on:

- **Policy documents at the EU and international level** to gain a deeper understanding of the policy context in general, as well as of ongoing initiatives of the EU, the Member States, international organisations and third countries in this policy field;
- **National, EU and international regulatory measures on CL&CG** that are applicable, relevant, or affected by the use of AI, including a review of binding rules related to CL&CG, non-binding rules (e.g. codes of conduct and recommendations), and court cases for the selected 20 EU Member States and the four third countries, the main regulations and policy documents related to CL&CG, as well as those related to AI at EU level and the most important measures on CL&CG taken by international bodies that could be applicable, relevant or affected by the use of AI;
- **Reports, studies, and other documents,** such as guidelines and recommendations, in view of collecting key supporting evidence to substantiate the analysis of the uses of AI and the potential risks and opportunities;
- **Scientific literature** (e.g. papers, monographs, collective works, etc.) to assess the state of the art of academic debate on the relevance and impact of AI on CL&CG.

Moreover, a **social media listening and a web search** were performed by the Team, and a total of 633K posts regarding the relevance and impact of AI on CL&CG were extracted from various social media platforms within the scope of the analysis. Several news websites were also screened by using a long list of relevant keywords. Posts and news were collected from the EU Member States during the period of analysis from 1 January 2015 to 31 December 2019.

☞Annex I.1.1 includes the main findings of the social media listening, while ☞Annex I.5 contains the list of analysed sources. Specific data and information retrieved at national level have also been integrated in the country fiches included in ☞Annex II.

Field research

A total of **512 stakeholders**[1] **were consulted** as follows:

- 8 (academic experts and EU officials) through **exploratory interviews**;
- 402 (companies from all EU27 Member States, except PL) through a computer-assisted telephone interviewing survey (**CATI survey**);
- 40 (creditors, legal professionals, public authorities, EU and national associations) through a self-administered online survey;
- 51 (industry associations, legal professionals, public authorities, and European organisations) through **explanatory interviews**;
- 4 (representatives of organisations developing and/or adopting solutions that use AI that were selected as case studies) through **case study interviews**;
- 14 (subject-matter experts, mostly academics with a legal background) through two **fine-tuning webinars**.

☞Annex I.4 includes the list of stakeholders consulted, while case studies are included in ☞Annex I.1.3.

[1] Stakeholders consulted through more than one data collection activity have been counted just once.

Difficulties encountered during data collection

Considering the forward-looking nature of the study and the complexity of the subject, the results of data collection activities were, broadly speaking, satisfactory in terms of coverage of both Member States and different stakeholder categories. However, the study encountered some difficulties in both the desk and field research:

- **Limited availability of information from the desk research on the use of AI in CL&CG**. While the literature review provided quite extensive information in terms of the EU and national socio-economic context regarding the overarching AI landscape, and on key initiatives that generally relate to AI, the analysed documents provided only little information on AI applied in the specific context of CL&CG. The same was true for the social media listening: the use of AI in CL&CG is still a niche subject and is not widely discussed on the web. Moreover, in documents analysed concerning AI cases, there was not always enough information on the identified example solutions to assess how and to what extent they involve true AI technology, and how they are exactly used by companies or other actors. Also, information on the actual number of users was generally not available;
- **Absence**, at the EU, national and international levels, **of rules covering CL&CG issues that also explicitly mention the use of AI tools**. At the EU level, existing rules cover a wide range of CL&CG issues, but do not explicitly mention AI instruments. Similarly, there is a significant number of binding rules, non-binding rules and relevant court cases regarding CL&CG at the national level; however, none of them explicitly refer to AI. The lack of a specific framework concerning the use of AI in CL&CG and of controversies/case law regarding AI in CL&CG complicated the identification of specific regulatory gaps;
- **Difficulties in engaging stakeholders**. Organising the explanatory interviews and case studies proved challenging due to the COVID-19 crisis, which made it more difficult to contact stakeholders and obtain their availability. In a few cases, stakeholders declined the interview explicitly, mentioning that they were not aware of relevant developments on such an innovative and specific topic in their countries;
- The sometimes **partial and inconsistent feedback collected through surveys**. In the surveys, respondents may have referred to solutions they use that are not true AI, or to solutions supporting activities not related to CL&CG. The (self-administered) online survey received many test submissions, empty or almost empty submissions, a few repeat submissions, and implausibly filled-in anonymous submissions. The cleaning of the dataset included dropping responses that did not seem to be unique and correct submissions, and addressing inconsistencies with regard to the reported use of AI.[2] Among the responses to the CATI survey that were kept for the analysis, a good number were only partially filled-in or contained many "don't know/do not wish to respond" answers.

2.2 Methodology for the assessment and fine-tuning of the recommendations

Identification of the recommendations

The initial aim of Task 3 was to identify suitable company law and corporate governance measures that would address the regulatory gaps, if any, identified under Task 2. As no concrete regulatory gaps concerning the use of AI for CL&CG have been identified under Task 2, the Team decided, in agreement with the Commission, to replace the identification of possible measures (which could not be elaborated in the absence of specific regulatory gaps) with the formulation of **high-level recommendations** on CL&CG areas for future EU attention to be assessed, fine-tuned, and validated on the basis of two webinars with subject-matter experts.

Based on the data collection and analyses performed under Task 1 and Task 2, the Team identified two main areas of CL&CG that could be subject to relevant developments as a consequence of the

[2] A few respondents reported that were not using AI but presumably erroneously also indicated that they are using AI for specific tasks.

potential spread of the use of AI in the future, namely directors' duties and liability arising either from the use or non-use of AI in the board room (Area #1) and AI-related skills and expertise in the board of directors (Area #2). Starting from these two areas for future EU attention, the Team elaborated two high-level recommendations based on its own expertise and considering the findings of Task 1 and Task 2. The choice not to put forward legally binding measures, but rather to focus recommendations on the monitoring of future developments, was in line with the lack of evidence about concrete regulatory gaps that needed to be addressed through EU action.

Fine-tuning webinars with experts

The Team organised two fine-tuning webinars to present and discuss the recommendations with subject-matter experts (mostly academics with a legal background). These consultations were aimed at:

- Understanding the views of participants on proposed recommendations, i.e. whether they (partially or fully) agreed with them or not;
- Collecting suggestions about specific aspects of proposed recommendations that might need to be reconsidered or amended;
- Collecting inputs for refining and expanding proposed recommendations or developing new ones.

The webinars took place online on 29 July 2020 and 3 September 2020. Each webinar lasted approximately 3 hours and was moderated by members of the Team. Overall, the webinars saw the participation of 14 experts in the fields of company law and AI. Feedback collected from experts was used to validate, assess, and fine-tune the recommendations and is reported in ☞Annex I.3.1.

Assessment of the recommendations

Recommendations were scored against the three criteria described in Table 1 using the feedback given by the experts at the fine-tuning webinars. More specifically, instant polls have been used to ask the experts to assess the necessity, feasibility and expected impacts of each recommendation following the scales indicated below. Each response option along the scale has been given a numeric value (0-4 for expected impact, 0-6 for necessity and feasibility), which has been multiplied by the number of preferences expressed by the experts, in order to obtain a set of weighted scores. The final score assigned under each criterion resulted from the average of the weighted scores and was accompanied by a qualitative explanation based on expert views expressed during the open discussion. The assessment by criteria is presented in section 5.5.1.

Table 1 – Criteria for the assessment of the recommendations and related scale

Criteria	Rationale	Scale
Necessity	The extent to which each recommendation is needed to contribute to the achievement of identified objectives.	I cannot say (0) No extent (1) Very small extent (2) Small extent (3) Moderate extent (4) Large extent (5) Very large extent (6)
Feasibility	The extent to which each recommendation is feasible in terms of development and implementation.	
Expected impacts	The size of the expected impact of each recommendation on private and public stakeholders, in terms of changing the baseline situation.	I cannot say (0) No impact (1) Small impact (2) Moderate impact (3) Large impact (4)

In addition to the assessment by criteria, the Team developed a qualitative assessment of the recommendations by analysing the main views and opinions expressed by the experts along three analytical dimensions: the formulation of the recommendations (e.g. scope and wording), their implementation (e.g. obstacles and enablers), and possible future scenarios in the areas of interest of CL&CG that might affect their relevance and effectiveness. Based on the qualitative assessment,

recommendations have been fine-tuned and validated internally with all the Team members and externally with the Quality Assurance reviewers. ☞Annex I.3 includes the main contributions gathered during the fine-tuning webinars.