Law, Governance and Technology Series 53

Nikos Th. Nikolinakos

EU Policy and Legal Framework for Artificial Intelligence, Robotics and Related Technologies - The AI Act

Springer

Law, Governance and Technology Series

Volume 53

Series Editors

Pompeu Casanovas, UAB, Institute of Law and Technology UAB, Barcelona, Spain

Giovanni Sartor, University of Bologna and European University Institute of Florence, Florence, Italy

The *Law, Governance and Technology Series* is intended to attract manuscripts arising from an interdisciplinary approach in law, artificial intelligence and information technologies. The idea is to bridge the gap between research in IT law and IT-applications for lawyers developing a unifying techno-legal perspective. The series will welcome proposals that have a fairly specific focus on problems or projects that will lead to innovative research charting the course for new interdisciplinary developments in law, legal theory, and law and society research as well as in computer technologies, artificial intelligence and cognitive sciences. In broad strokes, manuscripts for this series may be mainly located in the fields of the Internet law (data protection, intellectual property, Internet rights, etc.), Computational models of the legal contents and legal reasoning, Legal Information Retrieval, Electronic Data Discovery, Collaborative Tools (e.g. Online Dispute Resolution platforms), Metadata and XML Technologies (for Semantic Web Services), Technologies in Courtrooms and Judicial Offices (E-Court), Technologies for Governments and Administrations (E-Government), Legal Multimedia, and Legal Electronic Institutions (Multi-Agent Systems and Artificial Societies).

Nikos Th. Nikolinakos

EU Policy and Legal Framework for Artificial Intelligence, Robotics and Related Technologies - The AI Act

Springer

Nikos Th. Nikolinakos
Nikolinakos & Partners Law Firm
Athens, Greece

NETMODE Lab
National Technical University of Athens
(NTUA), Athens, Greece

ISSN 2352-1902 ISSN 2352-1910 (electronic)
Law, Governance and Technology Series
ISBN 978-3-031-27952-2 ISBN 978-3-031-27953-9 (eBook)
https://doi.org/10.1007/978-3-031-27953-9

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2023
This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.
The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.
The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

To my parents, Trisevgeni and Theodore, for their love, tenderness, and guidance.

"Τῆς δ' ἀρετῆς ἱδρῶτα θεοὶ προπάροιθεν ἔθηκαν ἀθάνατοι".
Ἡσίοδος, Ἔργα καὶ Ἡμέραι

Contents

Part I Introduction: The Evolution of EU Policy and Law for Artificial Intelligence—Launching a European Initiative on Artificial Intelligence

1 Introduction: Benefits/Opportunities and Threats/Risks of AI—Structure of this Book 3
Legal, Policy Documents and Other Sources 19

2 Launching a European Initiative on Artificial Intelligence 23
2.1 The European Parliament Resolution of February 2017 with Recommendations to the Commission on Civil Law Rules and Ethical Aspects of Robotics 23
2.2 European Commission's Follow Up to the 2017 European Parliament Resolution 30
2.3 European Parliament: Public Consultation on the Future of Robotics and Artificial Intelligence 31
2.4 The European Council of October 2017 34
2.5 Declaration of Cooperation on Artificial Intelligence 35
2.6 Commission's 2018 Communication on Artificial Intelligence for Europe 38
2.6.1 Introduction 38
2.6.2 Boosting the EU's Technological and Industrial Capacity and AI Uptake Across the Economy 40
2.6.3 Preparing for Socioeconomic Changes Brought About by Artificial Intelligence 45
2.6.4 Ensuring an Appropriate Ethical and Legal Framework . . 51
2.6.5 Joining Forces 61
2.6.6 Conclusion 63
2.7 The EU's 2018 Coordinated Plan on Artificial Intelligence 65
2.7.1 Introduction 65

2.7.2 Main Objectives and Initiatives of the EU's Coordinated Plan on AI . . . 67
2.8 The Council of the European Union of 18 February 2019 . . . 87
2.9 Conclusion of Part I . . . 90
Legal, Policy Documents and Other Sources . . . 91

Part II The EU Ethical Framework for Trustworthy Artificial Intelligence

3 Ethical Principles for Trustworthy AI . . . 101
3.1 Overview of the European AI Strategy . . . 101
3.2 Building Trust in Human-Centric Artificial Intelligence . . . 104
3.3 Notion of Human-Centric and Trustworthy AI . . . 106
3.4 A Framework for Trustworthy AI—Three Components: Lawful, Ethical, Robust AI . . . 108
3.5 Foundations of Trustworthy AI: Fundamental Rights and Ethical Principles for Ethical and Robust AI . . . 110
3.6 Fundamental Rights as a Basis for Trustworthy AI . . . 111
3.6.1 Respect for Human Dignity . . . 111
3.6.2 Freedom of the Individual . . . 112
3.6.3 Respect for Democracy, Justice and the Rule of Law: Citizens' Rights . . . 113
3.6.4 Equality, Non-Discrimination and Solidarity: Including the Rights of Persons at Risk of Exclusion . . . 113
3.7 Ethical Principles in the Context of AI Systems: The Ethical Principles That Must Be Adhered to in Order to Ensure Ethical and Robust AI . . . 115
3.7.1 European Group on Ethics in Science and New Technologies ("EGE"): Statement on "Artificial Intelligence, Robotics and 'Autonomous' Systems" . . . 115
3.7.2 The AI4People's Scientific Committee . . . 117
3.7.3 The Four Ethical Principles Identified by HLEG's Ethics Guidelines for Trustworthy AI . . . 119
3.7.4 Tensions Between the Principles and Trade-Offs: Impact-Based Approach . . . 161
Legal, Policy Documents and Other Sources . . . 163
References . . . 165

4 Realising Trustworthy AI: Implementation of the Key Ethical Requirements . . . 167
4.1 Realising Trustworthy AI—Seven Key Ethical Requirements . . . 167
4.1.1 Human Agency and Oversight . . . 168
4.1.2 Technical Robustness and Safety . . . 171
4.1.3 Privacy and Data Governance . . . 172
4.1.4 Transparency . . . 174

4.1.5 Diversity, Non-Discrimination and Fairness 175
4.1.6 Societal and Environmental Well-Being 177
4.1.7 Accountability 181
4.2 Ensuring the Implementation of the Seven Key Requirements—Technical and Non-technical Methods to Realise Trustworthy AI 183
4.3 Assessing Trustworthy AI—Adopting an Assessment List 187
4.3.1 Fundamental Rights Impact Assessment (FRIA) 188
4.3.2 Requirement #1: Human Agency and Oversight 191
4.3.3 Requirement #2: Technical Robustness and Safety 192
4.3.4 Requirement #3: Privacy and Data Governance 194
4.3.5 Requirement #4: Transparency 196
4.3.6 Requirement #5: Diversity, Non-discrimination and Fairness 197
4.3.7 Requirement #6: Societal and Environmental Well-being 200
4.3.8 Requirement #7: Accountability 203
4.4 Conclusion of Part II (Chaps. 3 and 4) 205
Legal, Policy Documents and Other Sources 206
References 207

Part III Shifting from a Soft-Law Approach Towards a Legislative Process: Setting Out Options on How to Address the Risks for Fundamental Rights and Safety

5 A European Approach to Excellence and Trust: The 2020 White Paper on Artificial Intelligence 211
5.1 Introduction 211
5.2 Ecosystem of Excellence: The Policy Framework for AI 217
5.3 Ecosystem of Trust: The Regulatory Framework for AI 220
5.3.1 Introduction—Risks for Fundamental Rights, Safety, and Liability 220
5.3.2 Adjustments to Existing EU Legislative Framework Relating to AI: Issues to Be Addressed 227
5.3.3 Scope of a Future EU Regulatory Framework on AI 235
5.3.4 Conclusion and the Commission's Inception Impact Assessment 271
Legal, Policy Documents and Other Sources 277
Reference 280

6 The European Parliament's 2020 Resolution: Proposal for a Regulation on Ethical Principles for the Development, Deployment and Use of Artificial Intelligence, Robotics and Related Technologies 281
6.1 Introduction 281
6.2 Purpose and Scope of the Parliament's Proposed Regulation 283

6.3 Principles of the Parliament's Proposed Regulation: Obligations for High-Risk Technologies . . . 284
6.3.1 Human-centric, Human-Made, and Human-Controlled AI . . . 285
6.3.2 Safety and Transparency . . . 286
6.3.3 Accountability . . . 289
6.3.4 Non-Bias and Non-Discrimination . . . 290
6.3.5 Social Responsibility and Gender Equality . . . 291
6.3.6 Environmental Sustainability . . . 292
6.3.7 Respect for Privacy and Protection of Personal Data—Limitations on the Use of Biometric Recognition . . . 294
6.3.8 Right to Redress . . . 295
6.3.9 Risk Assessment . . . 295
6.3.10 Compliance Assessment . . . 298
6.3.11 European Certificate of Ethical Compliance . . . 298
6.4 Institutional Oversight . . . 300
6.4.1 Good Governance and Standards . . . 300
6.4.2 Supervisory Authorities and Coordination . . . 302
6.5 Conclusion of Part III (Chaps. 5 and 6) . . . 304
Legal, Policy Documents and Other Sources . . . 306

Part IV The Emerging EU Legal Framework for Artificial Intelligence

7 Boosting Excellence in AI: The 2021 Coordinated Plan with Member States . . . 309
7.1 Introduction . . . 309
7.2 Four Key Policy Objectives . . . 314
Legal, Policy Documents and Other Sources . . . 325

8 The Proposed Artificial Intelligence Act and Subsequent 'Compromise' Proposals: Commission, Council, Parliament . . . 327
8.1 Introduction: Reasons for and Objectives of the Proposed AI Act . . . 327
8.2 Subject Matter, Material and Territorial Scope of the Proposed AI Act . . . 339
8.3 Definition of (Trustworthy) Artificial Intelligence . . . 351
8.4 Risk-Based and Proportionate Approach . . . 369
8.5 Highest (Unacceptable) Risk Level: Prohibited Artificial Intelligence Practices . . . 374
8.5.1 AI Systems Used for Adverse Behavioural Influencing: AI Systems That Distort Human Behaviour and Exploit the Vulnerabilities of Specific Social Groups . . . 375
8.5.2 AI Systems Providing Social Scoring . . . 379
8.5.3 Use of AI-Powered Predictive Policing Systems? . . . 381

8.5.4 Use of Real Time Biometric Identification Systems in Publicly Accessible Spaces for the Purpose of Law Enforcement . . . 385
8.6 High-Risk AI Systems: Classification of AI Systems as High-Risk . . . 412
8.6.1 High-Risk AI Systems Are Limited to Those That Have a Significant Harmful Impact on the Health, Safety and Fundamental Rights: What About Environmental and Societal Impacts? The Principle of Beneficence . . . 412
8.6.2 Categories of High-Risk AI Systems . . . 420
8.7 Requirements for High-Risk AI Systems . . . 445
8.7.1 Risk Management System . . . 448
8.7.2 Data Governance Requirements: Use of High-Quality Data Sets . . . 452
8.7.3 Technical Documentation . . . 467
8.7.4 Record-Keeping/Logging Capabilities (Traceability) . . . 472
8.7.5 Transparency and Provision of Information to Users . . . 480
8.7.6 Human Oversight . . . 488
8.7.7 Accuracy, Robustness and Cybersecurity . . . 499
8.8 Harmonised Standards, Common Specifications, Cybersecurity Requirements: Presumption of Conformity . . . 510
8.8.1 Harmonised Standards and Common Specifications: Presumption of Conformity . . . 510
8.8.2 Presumption of Conformity with Certain Requirements, Including Cybersecurity Requirements . . . 521
8.9 Obligations of Providers and Users of High-Risk AI Systems and Other Parties . . . 522
8.9.1 Need to Reflect the Complexity of the AI Ecosystem in the Balance of Obligations for Different Roles and Stakeholders Across the AI Value Chain . . . 522
8.9.2 General Purpose AI Systems . . . 530
8.9.3 Obligations Imposed on Providers of High-Risk AI Systems . . . 534
8.9.4 Obligations of Authorised Representatives, Importers, Distributors, Product Manufacturers, Other Third Parties, and Users of High-Risk AI Systems . . . 573
8.10 Light-Touch Obligations: Transparency Obligations and Codes of Conduct for Certain (Low-Risk or No-Risk) AI Systems 591
8.10.1 Transparency Obligations . . . 591
8.10.2 Codes of Conduct for Voluntary Application of Specific Requirements . . . 600
8.11 Governance . . . 604
8.11.1 European Artificial Intelligence Board: Structure and Tasks . . . 605