

# Contents

<i>Detailed Contents</i>	page vii
<i>List of Figures</i>	xvii
<i>List of Contributors</i>	xix
<i>Preface</i>	xxv
1 <b>Lawyering in the Digital Age</b>	1
Pietro Ortolani and Larry A. DiMatteo	
<b>PART I EFFECTS OF TECHNOLOGY ON LEGAL PRACTICE</b>	
2 <b>Disruptive Effects of Legal Tech</b>	9
Jiaying Christine Jiang, Larry A. DiMatteo, and Robert E. Thomas	
3 <b>The Effects of Technology on Legal Practice: From Punch Card to Artificial Intelligence?</b>	38
André Janssen and Tom J. Vennmanns	
4 <b>Legal Drafting and Automation</b>	57
Benjamin Werthmann	
5 <b>Emerging Rules on Artificial Intelligence: Trojan Horses of Ethics in the Realm of Law?</b>	77
Florian Möslein and Maximilian Horn	
<b>PART II LEGAL TECH AND ADR</b>	
6 <b>Legal Tech in ADR</b>	99
Mateja Durovic and Franciszek Lech	
7 <b>A Blockchain-Based Smart Dispute Resolution Method</b>	122
Alessandro Palombo, Raffaele Battaglini, and Luigi Cantisani	
8 <b>Digital Dispute Resolution: Blurring the Boundaries of ADR</b>	140
Pietro Ortolani	

<b>PART III LEGAL TECH IN CONSUMER RELATIONS AND SMALL CLAIMS</b>		
9	<b>Legal Tech in Consumer Relations and Small-Value Claims: A Survey</b> Francisco de Elizalde	159
10	<b>Regulation of Legal Services and Access to Justice in the Digital Age: A War Report</b> Jin Ho Verdonschot and Max Houben	179
11	<b>Legal Tech and EU Consumer Law</b> Martin Ebers	195
12	<b>The Two Faces of Legal Tech in B2C Relations</b> Eric Tjong Tjin Tai	220
<b>PART IV LEGAL TECH AND PUBLIC LAW</b>		
13	<b>Blockchain's Heterotopia: Technological Infrastructures and Lawyering in the Public Sector</b> Georgios Dimitropoulos	239
14	<b>Fundamental Rights and the Use of Artificial Intelligence in Court</b> Jean-Marc van Gyseghem	257
15	<b>Legal Tech in Public Administration: Prospects and Challenges</b> Antonios Kouroutakis	272
<b>PART V LEGAL ETHICS AND SOCIETAL VALUES CONFRONT TECHNOLOGY</b>		
16	<b>Ethics Guidelines for Trustworthy AI</b> Michel Cannarsa	283
17	<b>Ethical Digital Lawyering: From Technical to Philosophical Insights</b> Mathieu Guillermin, Arnaud Billion, Carine Copain-Héritier, and Emmanuel de Vaujany	298
18	<b>Law, Disintermediation and the Future of Trust</b> Christoph Kletzer	312
<b>PART VI FATE OF THE LEGAL PROFESSIONS</b>		
19	<b>Lawyering Somewhere between Computation and the Will to Act: A Digital Age Reflection</b> Jeffrey M. Lipshaw	327
20	<b>Surviving the Digital Transformation: A Method for Lawyers to Approach Legal Tech</b> Paw Fruerlund and Sebastian Peters	358
21	<b>Road Forward: Promise and Danger</b> Larry A. DiMatteo and Pietro Ortolani	372

## Detailed Contents

<b>1</b>	<b>Lawyering in the Digital Age</b>	<b>1</b>
1.1	Introduction	1
1.2	Scope and Structure of the Book	2
1.2.1	Effects of Technology on Legal Practice	3
1.2.2	Legal Tech and Alternative Dispute Resolution	4
1.2.3	Legal Tech in Consumer Relations and Small Claims	4
1.2.4	Legal Tech and Public Law	5
1.2.5	Legal Ethics and Societal Values Confront Technology	5
1.2.6	Fate of the Legal Professions	6
<b>PART I EFFECTS OF TECHNOLOGY ON LEGAL PRACTICE</b>		
<b>2</b>	<b>Disruptive Effects of Legal Tech</b>	<b>9</b>
2.1	Introduction	9
2.2	Legal Practice before the Age of Information	12
2.2.1	Dawning of a New Era: Pre-1970s	12
2.2.2	Advent of the Internet and the First Legal Databases	12
2.3	Twenty-First Century: Interface of Legal Practice and Technology	14
2.3.1	Baby Steps: E-Discovery and Early Staged Automation	15
2.3.2	Legal Tech: Augmenting the Lawyers' Work	16
2.3.2.1	Drafting Legal Documents	17
2.3.2.2	Analyzing Legal Documents	17
2.3.2.3	Measuring Legal Performance	18
2.3.2.4	Structuring and Management of Legal Workflows	18
2.3.2.5	Legal Research	19
2.3.3	Technology as a Legal Substitute	20
2.3.3.1	Online Pseudo-law Services	20
2.3.3.2	Internet Courts and the Use of Tamper-Proof Evidence	21
2.3.3.3	Notary Publics and the Blockchain	23
2.3.3.4	Smart Contracts and the Challenges of Implementation	25
2.4	Future of Legal Practice	26
2.4.1	Advanced AI: Thinking and Performing like a Lawyer?	27

2.4.2	Smart Contracts and the Blockchain: Executable Law?	28
2.4.3	Future of Legal Ethics	28
2.5	Co-opting Legal Tech	30
2.5.1	Using Technology to Make Lawyering More Efficient	31
2.5.2	Retaining the Human Dimension of Lawyering	33
2.5.3	Reforming Legal Education	35
2.6	Conclusion	37
<b>3</b>	<b>The Effects of Technology on Legal Practice: From Punch Card to Artificial Intelligence?</b>	<b>38</b>
3.1	Introduction	38
3.2	Law and Technology: Two Opposing Worlds Colliding?	39
3.2.1	Traditional Character of Law as an 'Analogous' Field of Expertise	39
3.2.2	Entrenched Working Methods, Unwillingness to Change and Scepticism: Prejudice or Real Phenomenon?	41
3.2.3	Established Main Features of Working Methods and Methodology within Legal Practice: Lack of Formal Logic	42
3.2.4	Expectations of a Lawyer in the Course of Time: Yesterday and Tomorrow	43
3.2.4.1	Legal Practitioners and Law Firms	43
3.2.4.2	State Courts, Arbitral Tribunals and Other Means of Private Dispute Resolution	44
3.3	Artificial Intelligence: Lawyers in the Grip of Technological Change	46
3.3.1	The Gradual Embedding of Technology in Legal Practice	46
3.3.1.1	First Steps: Electronic Data Processing and Computing	46
3.3.1.2	Big Data and Modern Telecommunication	48
3.3.1.3	Artificial Intelligence, Algorithms and Automated Decision-Making (Legal Tech 3.0, ODR and Robo-judges)	49
3.4	Some Problems and Threats Identified	49
3.4.1	Lack of Legislative Will to Prepare Legal Practice for the Digital Age: The Example of Germany	49
3.4.2	Failure to Make Full Use of the Existing Legal Possibilities	51
3.4.3	Inequality of Arms: Disparities in Resources and Know-How for Investment in Digital Infrastructure	52
3.4.4	Possible Consequences for the Legal Service Market: The Human Lawyer at Risk of Becoming a Discontinued Model?	53
3.5	Outlook	55
<b>4</b>	<b>Legal Drafting and Automation</b>	<b>57</b>
4.1	Introduction	57
4.1.1	Automation and Legal Tech	57
4.1.2	Automation in the Context of AI	58
4.1.3	Automation and Blockchain	59
4.2	Legal Drafting	60
4.2.1	Drafting Background	60
4.2.1.1	Document Purposes	60
4.2.1.2	Expectations	60
4.2.1.3	Contract Logic	61

4.2.2	Quality Criteria for Contracts	61
4.2.2.1	Legal Validity	61
4.2.2.2	Transparency	62
4.2.2.3	Consistency	63
4.2.3	Internal Drafting Requirements	63
4.2.3.1	Precise Language	63
4.2.3.2	Clear Structure	63
4.2.3.3	Compliance	64
4.2.3.4	Velocity	65
4.2.4	Contract Content	65
4.2.4.1	Essential Rights and Obligations	65
4.2.4.2	Ancillary Rights and Obligations	66
4.2.4.3	Modifications and Business Logic	66
4.2.4.4	Boilerplate Provisions	66
4.3	Automation	66
4.3.1	Evolution of Contract Automation	67
4.3.1.1	Use of Precedents and Templates	67
4.3.1.2	Questionnaires and Annotations	68
4.3.1.3	Automated Templates (Contract Generators)	68
4.3.1.4	Robo-lawyers	69
4.3.2	Document Automation Requirements	69
4.3.2.1	Interface	69
4.3.2.2	Logic	70
4.3.2.3	Maintenance	70
4.3.2.4	Compatibility	70
4.3.3	Automation Instruments	71
4.3.3.1	Expert Systems	71
4.3.3.2	Artificial Intelligence and Blockchain	71
4.3.4	Best Practices for Contract Automation	72
4.3.4.1	Cost-Benefit Analysis (80/20 Rule)	72
4.3.4.2	User-Centric Contract Design	73
4.3.4.3	Open Source Practices	74
4.4	Conclusion and Outlook	75
5	<b>Emerging Rules on Artificial Intelligence: Trojan Horses of Ethics in the Realm of Law?</b>	
5.1	Introduction	77
5.2	Variety of Emerging Rules	79
5.2.1	International Level	79
5.2.2	European Level	80
5.2.3	National Level	81
5.2.4	Self-Regulation	82
5.3	Converging Substance of Emerging Rules	83
5.3.1	Control and Controllability	84
5.3.2	Disclosure	85
5.3.3	Safeguarding Individual Rights	86
5.3.4	Public Good Requirements	86

5.4	Legal Relevance	87
5.4.1	Distinguishing between Law and Ethics	87
5.4.2	Formal Classification	88
5.4.3	Effective Impact	88
5.5	Fields of Application	89
5.5.1	Company Law (Robo-directors)	89
5.5.2	Securities Law (Robo-advisors)	91
5.5.3	Rules of Professional Conduct (Robo-lawyers)	92
5.5.3.1	Impact on Permissibility of Legal Tech	94
5.5.3.2	Impact on Standards of Ethical Conduct	94
5.6	Conclusion	95
<b>PART II LEGAL TECH AND ADR</b>		
6	<b>Legal Tech in ADR</b>	99
6.1	Introduction	99
6.2	ODR, ADR, DR and Courts: Navigating the Terminological Minefield	101
6.3	Technology as a Key to Dissemination of Effective Justice	103
6.3.1	Access to Justice	103
6.3.2	Efficiency	108
6.3.3	Blockchain: A Thorn in ADR's Side	110
6.3.4	Technology: ADR's Saviour or Undertaker?	112
6.4	Technology in Practice: Examples of 'New' ADR	113
6.4.1	Kleros	113
6.4.2	Juris	115
6.4.3	Mattereum	116
6.4.4	JUR	116
6.4.5	Jury Online	117
6.4.6	Aragon	117
6.4.7	RHUbarb	118
6.4.8	Multi-signature Smart Contract	119
6.4.9	Blockchain Arbitration Forum	119
6.4.10	ClickNSettle and Others	120
6.5	Conclusion	120
7	<b>A Blockchain-Based Smart Dispute Resolution Method</b>	122
7.1	Introduction	122
7.2	Arbitration and ADR: Current Status	122
7.2.1	Scope of Arbitration and ADR	123
7.2.2	Sovereign Jurisdictional Authority and Private Autonomy	123
7.2.3	Existing Framework and International Conventions	124
7.2.4	Advantages and Disadvantages of Arbitration and ADR	126
7.3	Advent of Blockchain-Based ODR	127
7.3.1	Brief Introduction to Blockchain and Smart Contract	127
7.3.2	Smart (Legal) Contracts and Their Inherent Limits	128
7.3.3	Smart Dispute Resolution: State of the Art	129

7.3.3.1	Kleros	130
7.3.3.2	Mattereum	130
7.3.4	Limitations of Oracles-Based SDR Systems	131
7.3.4.1	Impartiality and Expertise of the Decision-Maker versus Economic Incentives Systems	131
7.3.4.2	Due Process and Legal Validity of the Decision	131
7.3.5	Advantages of the Oracles-Based SDR Systems	132
7.3.5.1	Small Claims Courts	133
7.3.5.2	Mediation	133
7.3.5.3	Arbitration	133
7.3.6	Summary of Oracle-Based SDR Systems	134
7.4	Proposal for Legally Binding SDR	134
7.4.1	Designing Decentralized Smart Arbitration	135
7.4.2	Economic Sustainability of the System	136
7.4.3	Anti-corruption Measures and Reserve Account	136
7.4.4	Preemptive Review on the Merits and Case Reassignment	137
7.5	Proposing a New <i>Lex Mercatoria</i> via Blockchain	137
7.5.1	Fairness and Best Practices for Smart Arbitration and Trade	138
7.5.2	Potential Benefits	138
7.6	Conclusion	138
<b>8</b>	<b>Digital Dispute Resolution: Blurring the Boundaries of ADR</b>	<b>140</b>
8.1	Introduction	140
8.2	Traditional Modes of Boundaries in ADR	142
8.2.1	Quasi-monopoly to Delegation: Courts and Arbitration	142
8.2.2	Enforceability without Adjudication: Rise of Mediation	144
8.2.3	Bounded Autonomy: Judicial Intervention and Review as Boundary-Defining	145
8.3	Rise of New Forms of Digital Dispute Resolution	146
8.3.1	Origins of Technology-Driven Self-Enforcement: Domain Name Dispute Resolution	147
8.3.2	Platforms as Dispute Resolution Service Providers	148
8.3.3	Smart Contracts and Settlement Agreements	150
8.3.4	Smart Online Dispute Resolution	151
8.4	Increasing Porousness of Procedural Law in Times of Technological Acceleration	152
8.4.1	Self-Enforcing Adjudication, Due Process and Judicial Review	153
8.4.2	End of Finality?	154
8.4.3	Public Policy and the Enforcement of Substantive Law	155
8.5	Conclusion	156
<b>PART III LEGAL TECH IN CONSUMER RELATIONS AND SMALL CLAIMS</b>		
<b>9</b>	<b>Legal Tech in Consumer Relations and Small-Value Claims: A Survey</b>	<b>159</b>
9.1	Introduction	159
9.2	Survey	160
9.2.1	Methodology	160

9.2.2	Results	161
9.2.2.1	Companies by Sector	161
9.2.2.2	Self-Assessment of Automation	163
9.2.2.3	Degrees of Automation and Control of the Self-Assessment Exercise: Technology and Success Rates in Court	163
9.2.2.4	Applicable Law and Automation	166
9.3	A Qualitative Assessment of the Survey	167
9.3.1	Classification of Companies by Degree of Automation	168
9.3.2	Suitability of Law for Automation and Variations in Technological Efficiency	169
9.3.3	How Law Determines Automation	171
9.3.3.1	Air Carriage	171
9.3.3.2	Banking	173
9.3.3.3	Tenancy in Germany	176
9.3.3.4	Telecommunications	177
9.4	Conclusion	178
10	<b>Regulation of Legal Services and Access to Justice in the Digital Age: A War Report</b>	179
10.1	Introduction	179
10.1.1	Global Access to Justice	179
10.1.2	New Delivery Concepts	180
10.1.3	What Now?	181
10.2	LegalZoom	181
10.3	LegalDutch	183
10.4	WenigerMiete	185
10.5	Doctrine	187
10.6	Demander Justice	189
10.7	Concluding Remarks	193
11	<b>Legal Tech and EU Consumer Law</b>	195
11.1	Introduction	195
11.1.1	Rise of LT in Consumer Markets	195
11.1.2	Underlying Technology: From Hand-Coded to Data-Learned Knowledge	197
11.1.3	Opportunities for Consumers	198
11.1.4	Risks for Consumers	199
11.2	Current Regulatory Framework in a Nutshell	200
11.2.1	The Interplay between Legal Services Regulation, EU Consumer and Data Protection Law	200
11.2.2	Evaluation	201
11.3	Legal Services Regulations and LT	202
11.3.1	Regulation of Legal Services in the EU	202
11.3.2	LT as a Challenge for Legal Services Regulation	203
11.3.3	Contract Generators as Unauthorized Practice of Law?	204
11.3.4	Risks from Unregulated LT Providers	205
11.4	EU Consumer Law and LT	205
11.4.1	Regulation of Consumer Law in the EU	205
11.4.2	Applicability of EU Consumer Law to LT	206

11.4.3	Prohibition of Unfair Commercial Practices	208
11.4.4	Information Requirements and the Right of Withdrawal	208
11.4.5	Quality of Service	209
11.4.6	Legal Ethics and Fairness	210
11.4.7	Further Gaps in Consumer Protection	212
11.4.8	Summary	212
11.5	EU Data Protection Law and LT	213
11.5.1	Legal Services Regulation and Data Protection Law	213
11.5.2	LT and Data Protection under the GDPR	213
11.5.3	Limits of the GDPR	214
11.5.4	Summary	216
11.6	Outlook	216
11.6.1	Unresolved Questions	216
11.6.2	Current Approaches of Regulators	216
11.6.3	Alternative Approaches: Regulatory Sandboxes	217
11.6.4	The Future (European) Legal Framework	218
12	<b>The Two Faces of Legal Tech in B2C Relations</b>	220
12.1	Introduction	220
12.2	The Promise of Legal Tech in B2C Relations	221
12.2.1	General Considerations regarding Legal Tech in Businesses	221
12.2.2	Customer Communications	221
12.2.3	Business Protocols	222
12.2.4	IT to Execute and Enforce Contracts	224
12.2.5	Summary	224
12.3	Consequences of Legal Tech in B2C	224
12.4	Case of eBay	228
12.5	Traditional View of Regulation of Complaint Handling	230
12.6	Legal Regulation of B2C Relations: Bad Faith Insurance	231
12.7	Professional Diligence as Fundamental Principle for Legal Tech	233
12.8	Toward Developmental Diligence	234
12.9	Conclusion	235

#### PART IV LEGAL TECH AND PUBLIC LAW

13	<b>Blockchain's Heterotopia: Technological Infrastructures and Lawyering in the Public Sector</b>	239
13.1	Introduction	239
13.2	Blockchain and the "Infrastructural Paradox" of Contemporary Public Law	242
13.2.1	Conflicting Trends in Public Law	242
13.2.2	Rise of Physical Infrastructure in Public Law	244
13.2.3	Infrastructural Dimension of Blockchain	245
13.2.3.1	Physical Manifestations	246
13.2.3.2	Effects on the Individual and Society	247
13.2.3.3	Blockchain as a Technological Infrastructure	248
13.3	Law and Lawyering in the Digital Age of Blockchain	248
13.3.1	Law's Stance and Regulatory Reaction to the Rise of Blockchain	249

13.3.2	Lawyering in the Digital Age: Reconciling Antitheses	251
13.3.2.1	Reconciling Innovation with Regulation	251
13.3.2.2	Reconciling Decentralization with Accountability	252
13.3.2.3	Reconciling the Coexistence of Multiple Infrastructures	254
13.4	Conclusion	255
<b>14</b>	<b>Fundamental Rights and the Use of Artificial Intelligence in Court</b>	<b>257</b>
14.1	Introduction	257
14.2	Transparency	259
14.2.1	Principles	259
14.2.2	Transparency of AI	260
14.3	Impartiality and Presumption of Innocence	265
14.3.1	Principle	265
14.3.2	Impartiality and Presumption of Innocence and AI	266
14.4	Equal Access to Justice	269
14.5	Further Processing	270
14.6	Conclusion	271
<b>15</b>	<b>Legal Tech in Public Administration: Prospects and Challenges</b>	<b>272</b>
15.1	Introduction	272
15.2	The Prospect of Legal Tech in Public Administration	273
15.3	Publictech Challenged: Concerns Coming from Case Law and Theory	277
15.4	Preliminary Review and Scrutiny of Publictech	279
15.5	Conclusion	280
<b>PART V LEGAL ETHICS AND SOCIETAL VALUES CONFRONT TECHNOLOGY</b>		
<b>16</b>	<b>Ethics Guidelines for Trustworthy AI</b>	<b>283</b>
16.1	Introduction: Artificial Intelligence but Real Concerns	283
16.2	Ethical Guidelines for Trustworthy AI: An Inflationary Trend	285
16.2.1	Definition of Trustworthy AI	285
16.2.2	Focus on Human Rights and Privacy	288
16.2.3	Response Still under Construction	290
16.3	Impact on the Law: Some Examples	293
16.3.1	New Civil Liability Framework	293
16.3.2	New Professional Framework	295
16.4	Conclusion	296
<b>17</b>	<b>Ethical Digital Lawyering: From Technical to Philosophical Insights</b>	<b>298</b>
17.1	Introduction	298
17.2	Ethical Evaluation of New (Legal) Technologies: Need for Contextualization	299
17.2.1	Insights from Technical Realities: Gain in (Economic) Efficiency?	300
17.2.2	Gain in Objectivity, Rationality, or Neutrality?	301
17.3	Influence of Theoretical Backgrounds and Debates	304
17.3.1	Argument of Standardization	304
17.3.2	Purging Subjectivity as a Gain in Rationality	307
17.4	Conclusion	310

18	<b>Law, Disintermediation and the Future of Trust</b>	312
	18.1 Introduction	312
	18.2 Peer-to-Peer: Allure of Trustlessness	314
	18.3 Limits of Smartness	317
	18.4 Reliance, Kantian Trust and Human Nature	319
	18.5 Trust and the Law	322
	18.6 Conclusion	323
<b>PART VI FATE OF THE LEGAL PROFESSIONS</b>		
19	<b>Lawyering Somewhere between Computation and the Will to Act: A Digital Age Reflection</b>	327
	19.1 Introduction	327
	19.2 Digital Capability and Lawyering	331
	19.2.1 Algorithmic Decision-Making Tools Generally	332
	19.2.2 State of the Art in Algorithmic Lawyering	333
	19.2.2.1 Well-Established Usages	333
	19.2.2.2 Cutting Edge	334
	19.3 Ends, Thought, and Action	337
	19.3.1 Segue (or a Leap) from Algorithms (Machines) to Ends (Minds)	337
	19.3.2 Embodied <i>Telos</i>	339
	19.3.2.1 Evolution of Ends	339
	19.3.2.2 <i>Telos</i> of System 1 Thinking	343
	19.3.3 Intuition as More Than Mere Thought	345
	19.3.4 Insight	347
	19.3.4.1 Difference between Intuition and Insight	347
	19.3.4.2 Non-deliberation as Insight or Inspiration	349
	19.3.5 Action and Will	352
	19.3.6 Lawyering in the Face of Irreconcilable Complementarities	354
	19.3.7 Rest of the Caregiving Story (a Microcosm in Lawyering)	356
	19.4 Conclusion	357
20	<b>Surviving the Digital Transformation: A Method for Lawyers to Approach Legal Tech</b>	358
	20.1 Scope and Perspective	358
	20.2 Buzzwords	360
	20.2.1 Fake Tech	360
	20.2.2 Hype Tech	361
	20.2.3 Actual Legal Tech	361
	20.2.4 Typical Lawyer	362
	20.3 Developing or Adapting Legal Tech in a Law Firm	363
	20.3.1 Ideation	363
	20.3.1.1 Getting the Right People: Facilitator and the Participants	363
	20.3.1.2 Getting the Ideas	364
	20.3.1.3 Selecting the Good Ones	366
	20.3.2 Business Case	366
	20.3.2.1 Going from the Solution to the How	366

20.3.3	Minimum Variable Product	367
20.3.4	Sprinting!	368
20.3.5	Implementation	369
20.3.5.1	Inclusion from Beginning to End	369
20.3.5.2	Right Users at the Right Time	369
20.3.5.3	Implementation after Going Live	370
20.3.5.4	Handoff to Operations and Maintenance	370
20.4	Conclusion	370
<b>21</b>	<b>Road Forward: Promise and Danger</b>	<b>372</b>
21.1	Introduction	372
21.2	Law and Technology	373
21.3	Legal Practice and Competition	373
21.4	Consumers, Access to Justice, and Regulation	374
21.5	Technology and ADR	377
21.6	LT, Legal Education, and Legal Ethics	378
21.6.1	Legal Education	378
21.6.2	LT and Legal Ethics	378
21.7	Conclusion	379