

Contents

<i>Dedications</i>	v
<i>About the authors</i>	vii
<i>Acknowledgements</i>	ix
<i>List of Abbreviations</i>	xv
1 INTRODUCTION	1
The Internet of Things	3
Blockchain	4
Cryptocurrency	6
Smart contracts	10
Decentralised autonomous organisations	10
Global regulation	12
Initial coin offerings	12
Natural resources industry	14
General Data Protection Regulation	15
The Metaverse	15
2 WHAT ARE BLOCKCHAIN AND CRYPTOCURRENCY?	17
Blockchain	17
Introduction	17
Characteristics of DLT	22
Cryptocurrency	23
Introduction	23
3 REGULATORY AND LEGAL CHALLENGES	35
Regulatory challenges	35
Cryptoassets	35
Regulation of crypto-assets	39
Regulation of DLT	40
Legal challenges	40
Criminal	40
Money laundering	41
Data privacy/protection	43
Does a user’s public key constitute ‘personal data’?	43
Ownership of IP of information contained in the blockchain	44
What is the legal status of decentralised autonomous organisations?	45
Is the data on the blockchain ‘property’ for the purposes of the Law of Property Act 1925?	46
Jurisdictional issues	46
What is the effect of this?	47
Contracts	47
Smart contracts – what are they?	47
Who are the parties to a ‘smart contract’?	47
What are the benefits of a ‘smart contract’?	48
What are the ingredients for a ‘smart contract’?	48

Contents

Is a ‘smart contract’ sufficient to govern a contractual relationship on its own?	48
Where does the liability fall under a ‘smart contract’?	49
4 GLOBAL REGULATION: UK AND EU MEMBER STATES	51
Softly, softly, catchee monkey	51
Choice of jurisdiction	54
Declaration for European Blockchain Partnership	56
The EU Blockchain Observatory and Forum	57
Regulation and treatment in the UK	57
What are the requirements of being an authorised person?	59
How is currency regulated across the EU?	60
MiFID II controversies	61
Regulation in other European jurisdictions (case studies)	62
Estonia	62
France	62
Malta	64
Jersey	68
Tax considerations	70
5 GLOBAL REGULATION: NORTH AMERICA	71
Canada	71
Mexico	73
United States	76
Licensing	80
Money transmission laws	81
Regulatory guidance	82
6 GLOBAL REGULATION: THE REST OF THE WORLD	85
Introduction	85
Divergent philosophies on cryptocurrency and blockchain regulation	88
China	88
Gibraltar	93
Hong Kong	96
India	98
Israel	99
Japan	100
Kazakhstan, Belarus and Estonia	101
Kyrgyz Republic	101
South Korea	101
Russia	102
Switzerland	102
7 INITIAL COIN OFFERINGS	105
Introduction	105
What is an ICO?	106
What is the regulatory picture in the United States?	108
When is an ICO an investment contract? The ‘ <i>Howey Test</i> ’	111
ICOs and the Howey Test	112

Investment companies	115
What is the regulatory position in the UK?	117
How will ICOs be regulated in the UK?	119
Restrictions of marketing an ICO which is a CIS or an AIF	125
E-Money Tokens	126
Unregulated Tokens	127
Facilitating Regulated Payment Systems	128
The limited approach of the European Union	128
Current EU provisions	143
The Chinese case study of prohibition	133
8 THE INTERNET OF THINGS	137
Introduction	137
What is the IoT?	138
Security problems with the IoT	140
How does a director mitigate this security concern?	142
Who owns the data collected through the IoT?	143
UK regulation of the IoT	144
EU regulation of the IoT	153
How does GDPR apply to the IoT?	153
Will the ePrivacy Regulation apply to the IoT?	155
What is the Cybersecurity Certification Framework?	157
Why does the Network Infrastructure Security Directive (‘NISD’) not apply to the IoT?	162
US regulation of the IoT	163
Voluntary guidance in the US	167
So who owns the data?	170
9. RIGHT TO BE FORGOTTEN AND RIGHT TO ERASURE	173
Introduction	173
Right to erasure	174
Right to be forgotten	174
Fundamental issues with right to erasure/right to be forgotten and their enforcement	175
Methods of data protection and data privacy	178
What are the effects on compliance if data is pseudonymised?	179
The right to amendment	180
Other DLTs and GDPR compliance	180
10. ENVIRONMENTAL (NATURAL RESOURCES), SOCIAL, AND GOVERNANCE METRICS	185
Introduction	185
Regulatory reform	187
What is the key regulatory question?	188
What other regulatory issues need to be addressed?	188
Decentralisation	189
Areas of application	190
Non-renewables and intermediaries	191
Renewables and electricity	191
The reality	193

Contents

Digitisation	194
Information storage, transparency and real-time tracking	194
Distributed technology and the energy market	195
Obstacles for blockchain in the natural resources industry and energy sector	197
Blockchain as a disruptive technology	198
Legal issues	198
Current regulation	199
Strong and weak smart contracts	200
Data privacy	202
Public or private	202
Security implications for nodal location and access	203
Moving forward	208
 11. DECENTRALISED AUTONOMOUS ORGANISATIONS: REGULATION AND LIABILITY	 209
Understanding decentralised autonomous organisations	209
The legal status and other issues around DAOs	213
Risks	215
 12. THE METAVERSE	 219
The Metaverse's Regulatory Framework	222
Contract	222
Intellectual Property	225
Trademarks	226
Copyrights	228
Patents	231
Regulation of behaviour	231
The jurisdictional issue	236
Appendix 1 General Data Protection Regulation	239
Appendix 2 Cryptoassets Taskforce: final report (October 2018)	367
Appendix 3 Cryptocurrencies and blockchain – Legal context and implications for financial crime, money laundering and tax evasion (European Parliament, July 2018)	425
<i>Index</i>	427