

## Table of Contents

<b>Abbreviations</b> .....	17
<b>Introduction</b> .....	19
<b>Part I: Electronic signatures, from technology to law</b> .....	21
<b>Chapter 1: Signatures</b> .....	21
<b>A. The electronic environment</b> .....	21
I. Identity of the person .....	21
II. Integrity of the document.....	23
III. Confidentiality of communications.....	24
<b>B. Electronic signatures</b> .....	25
I. Signatures .....	26
1. Concept of signature .....	26
2. Functions of signatures .....	27
3. Terminology .....	30
II. Electronic signature techniques .....	31
III. Digital signatures .....	33
1. Cryptography .....	33
a) Symmetric cryptography.....	34
b) Asymmetric or public key cryptography .....	35
2. Cryptography applied to digital signatures.....	36
3. Functioning of digital signatures .....	38
a) Creation of the digital signature .....	38
b) Verification of the digital signature .....	39
4. Public Key Infrastructure .....	40
5. Strengths and weaknesses of digital signatures .....	42
<b>C. Conclusions</b> .....	44
<b>Chapter 2: The legal approach to electronic signatures</b> .....	47
<b>A. The legal question</b> .....	47
I. The need to regulate.....	47
II. The goal of legal regulation .....	48
<b>B. The different legal approaches</b> .....	50
I. The digital signature, mandatory or prescriptive approach .....	51
II. The minimalist or enabling approach .....	51
III. The hybrid or two-tier approach .....	52
<b>C. Technology neutrality in electronic signature statutes</b> .....	53
<b>D. Conclusions</b> .....	55

**Part II: Electronic signature legislation** ..... 57

**Chapter 3: The United States of America** ..... 57

**A. UETA and E-Sign** ..... 57

**B. Validity of electronic signatures**..... 60

    I. Recognition of electronic signatures ..... 60

    II. Concept of electronic signature..... 61

    III. Exclusion of electronic signatures ..... 62

        1. UETA ..... 63

        2. E-Sign..... 63

**C. Conclusions** ..... 64

**Chapter 4: The European Union and Germany** ..... 67

**A. Electronic Signatures Directive**..... 67

    I. Concept of electronic signature..... 68

        1. Electronic signatures ..... 68

        2. Advanced electronic signatures ..... 70

        3. Advanced electronic signatures based on qualified certificates created using a secure-signature-creation device..... 70

            a) Qualified certificate ..... 70

            b) Secure-signature-creation device..... 72

    II. Value of electronic signatures ..... 73

    III. Recognition of foreign electronic signatures ..... 75

    IV. Review of the implementation of electronic signatures in the EU ..... 76

    V. Writing requirement ..... 76

**B. Legal framework of electronic signatures in Germany**..... 78

    I. German Digital Signature Act..... 78

    II. Transposition of the Electronic Signatures Directive ..... 79

        1. Concept of electronic signature ..... 79

        2. Legal value of electronic signatures ..... 80

        3. Foreign electronic signatures ..... 81

        4. Licensing of certification authorities ..... 82

**C. Conclusions** ..... 82

**Chapter 5: Argentina** ..... 83

**A. Norms before the enactment of the Argentine Digital Signature Act** ..... 83

    I. Resolution 45/1997 of the Secretary of Public Function..... 83

    II. Resolution 293/1997 of the Superintendence of Retirement and Pension Fund Administrators..... 83

    III. Executive Order 427/1998 ..... 84

    IV. Resolution 4536/1999 of the Secretary of Communications ..... 85

    V. Executive Order 1023/2001 ..... 85

<b>B. Argentine Digital Signature Act</b> .....	86
I. Legislative process of the Argentine Digital Signature Act .....	86
1. Congressional debate .....	86
a) House of Representatives.....	86
b) Senate.....	89
2. Promulgation.....	89
II. Scope.....	89
III. Digital signatures .....	90
1. Concept of digital signature .....	90
2. Validity requirements.....	92
a) A valid digital certificate .....	92
b) Created while the digital certificate is in force .....	94
c) Due verification .....	94
IV. Electronic signatures .....	94
V. Legal value of digital and electronic signatures .....	95
1. Compliance with the legal requirement of a signature .....	95
2. Legal presumptions .....	97
a) Authorship presumption .....	98
b) Integrity presumption.....	98
c) Sender presumption .....	98
VI. Digital or electronic document.....	99
VII. Exclusions from the Argentine Digital Signature Act .....	100
1. Dispositions in case of death.....	101
2. Acts relating to family law.....	102
3. Acts of a personal character .....	102
4. Acts incompatible with the use of digital signatures .....	102
VIII. Foreign signatures and foreign certificates .....	103
IX. Public Key Infrastructure .....	104
1. Application authority .....	104
2. Licensing entity.....	105
3. Licensed certifiers .....	105
4. Advisory Commission for Digital Signature Infrastructure .....	106
<b>C. Conclusions</b> .....	107
<b>Chapter 6: The work of national and international institutions</b> .....	109
<b>A. UNCITRAL</b> .....	109
I. UNCITRAL Model Law on Electronic Commerce.....	110
II. UNCITRAL Model Law on Electronic Signatures .....	114
1. Background .....	114
2. Goals and principles.....	118
3. Electronic signatures.....	119
4. Recognition of foreign electronic signatures and foreign certificates .....	122
5. Effect on national legislation .....	125

- III. United Nations Convention on the Use of Electronic Communications in International Contracts ..... 125
- IV. Signature requirement in United Nations conventions ..... 128
  - 1. Convention on the Recognition and Enforcement of Foreign Arbitral Awards..... 128
  - 2. United Nations Convention on the Carriage of Goods by Sea ..... 128
  - 3. United Nations Convention on International Bills of Exchange and International Promissory Notes..... 129
  - 4. United Nations Convention on the Assignment of Receivables in International Trade..... 129
- B. Other organizations..... 129**
  - I. International Chamber of Commerce..... 129
  - II. Internet Law & Policy Forum ..... 130
  - III. American Bar Association ..... 131
- C. Conclusions ..... 131**
  
- Part III: Electronic signatures and international contracts ..... 133**
  
- Chapter 7: General aspects of international contracts..... 134**
- A. The international contract..... 134**
  - I. Concept ..... 134
  - II. Elements determining the internationality of a contract..... 135
    - 1. Domicile of the parties..... 136
    - 2. Place of contracting or execution..... 137
    - 3. Place of performance ..... 137
    - 4. The economic criterion ..... 137
    - 5. Nationality of the parties..... 138
    - 6. Choice of law provision..... 139
- B. The laws governing substance and form ..... 139**
  - I. Formal validity ..... 140
  - II. The law applicable to the contract ..... 142
- C. Conclusions ..... 146**
  
- Chapter 8: The international contract in international legal instruments ..... 147**
- A. Convention on the Law Applicable to International Sales of Goods .... 148**
  - I. Background ..... 148
  - II. International contracts..... 148
  - III. Formal validity..... 149
  - IV. Applicable law ..... 149

<b>B. United Nations Convention on Contracts for the International Sale of Goods</b> .....	150
I. Background .....	150
II. International contracts .....	152
III. Formal validity .....	152
IV. Applicable law .....	153
<b>C. Convention on the Law Applicable to Contractual Obligations</b> .....	156
I. Background .....	156
II. International contracts .....	157
III. Formal validity .....	158
IV. Applicable law .....	159
1. Party autonomy .....	160
2. Choice of law rules .....	163
a) General presumption .....	163
i) The characteristic performance .....	164
ii) The habitual residence or central administration .....	165
iii) The time of execution of the contract .....	165
b) Other presumptions .....	166
3. Consumer contracts .....	166
a) Concept of consumer contract .....	166
b) Article 5.2 consumer contracts .....	166
c) Freedom of choice .....	167
d) Absence of choice .....	168
<b>D. Convention on the Law Applicable to Contracts for the International Sale of Goods</b> .....	168
I. Background .....	168
II. International contracts .....	168
III. Formal validity .....	169
IV. Applicable law .....	169
<b>E. Inter-American Convention on the Law Applicable to International Contracts</b> .....	170
I. Background .....	170
II. International contracts .....	170
III. Formal validity .....	171
IV. Applicable law .....	171
<b>F. UNIDROIT Principles of International Commercial Contracts</b> .....	172
I. Background .....	172
II. International contracts .....	173
III. Formal validity .....	173
IV. Applicable law .....	173
<b>G. United Nations Convention on the Use of Electronic Communications in International Contracts</b> .....	175
I. Background .....	175

II. International contracts.....	175
III. Formal validity.....	176
IV. Applicable law.....	177
<b>H. Conclusions.....</b>	<b>178</b>
<b>Chapter 9: The international contract under domestic law.....</b>	<b>181</b>
<b>A. Argentine law.....</b>	<b>181</b>
I. International contracts.....	181
II. Formal validity.....	184
III. Applicable law.....	185
1. Party autonomy.....	185
2. Absence of a choice of law.....	186
3. Place of performance.....	188
4. Jurisprudence.....	190
IV. Contracts between absent and present parties.....	192
<b>B. German law.....</b>	<b>194</b>
I. International contracts.....	194
II. Formal validity.....	195
III. Applicable law.....	198
<b>C. US law.....</b>	<b>200</b>
I. International contracts.....	200
II. Formal validity.....	200
III. Applicable law.....	200
<b>D. Conclusions.....</b>	<b>202</b>
<b>Chapter 10: The interaction of electronic signature legislation.....</b>	<b>203</b>
<b>A. Argentine law governing the form.....</b>	<b>203</b>
I. Formal requirements under Argentine law.....	203
II. The Argentine Digital Signature Act in international contracts.....	208
1. Argentine and US law.....	208
2. Argentine and German law.....	211
III. The Argentine Digital Signature Act in domestic contracts.....	213
1. Digital signatures in the legal sense.....	213
2. Digital signatures in the technical sense (electronic signatures).....	214
3. Electronic signature.....	215
<b>B. German law governing the form.....</b>	<b>215</b>
I. Form requirements under German law.....	215
II. Written form required by law and the Argentine Digital Signature Act.....	219
1. Foreign certification-service-provider accredited in the European Union.....	220

- 2. Certification-service-provider domiciled in a EU member state  
guarantees the certificate..... 221
- 3. Agreement recognizes the certificate or the certification-  
service-provider ..... 221
- III. Written form not required by law ..... 222
- C. US law governing the form ..... 222**
  - I. Statute of Frauds ..... 222
  - II. Electronic Signatures: Argentina and the United States of America.. 223
- D. Conclusions ..... 224**
- Final Conclusions ..... 227**
- Bibliography..... 231**