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## Electronic Commerce: Will It Ever Truly Realize Its Global Potential

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# Electronic Commerce: Will It Ever Truly Realize Its Global Potential?

## I. Introduction

Electronic commerce is by definition global.<sup>1</sup> It is “rapidly expanding into a complex web of commercial activities transacted on a global scale between an ever-increasing number of participants, corporate and individual, on global open networks such as the Internet.”<sup>2</sup> Electronic commerce offers a radical new way of conducting commercial transactions, which could potentially increase economic growth and enhance development around the world.<sup>3</sup> The technology of electronic commerce is “based on the electronic processing and transmission of data including text, sound, and video.”<sup>4</sup> “It involves both products (i.e., consumer goods), services (i.e., information, financial and legal services), traditional activities (i.e., healthcare and education), and new activities (i.e., virtual malls).”<sup>5</sup>

“Electronic commerce dramatically reduces the economic distance between producers and consumers.”<sup>6</sup> “Consumers can make their purchases directly without involving traditional retailers, wholesalers, and in some cases distributors.”<sup>7</sup> Consumers “benefit from improved information, lower transaction costs,” more product variety, and “instant delivery for intangible services and products in digital form.”<sup>8</sup> Similar to consumers, sellers and producers benefit

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1. OECD Ministerial Conference, *A Borderless World: Realizing the Potential of Global Electronic Commerce*, SG/EC(98)14 final at 4 [hereinafter *A Borderless World*].

2. A European Initiative in Electronic Commerce: Communication to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, COM(97) 157 at 2 [hereinafter *A European Initiative in Electronic Commerce*].

3. *A Borderless World*, *supra* note 1, at 4.

4. *A European Initiative in Electronic Commerce*, *supra* note 2, at 2.

5. *Id.*

6. OECD Policy Brief, *Electronic Commerce*, No. 1-1997 at 2 [hereinafter *OECD Policy Brief*].

7. *Id.*

8. *Id.*

from electronic commerce.<sup>9</sup> “Producers can gain access to a global marketplace with relative ease.”<sup>10</sup> Sellers can market their goods or services without maintaining a physical store thereby enabling them to manage their inventory more efficiently.<sup>11</sup> Producers and sellers may also save in labor costs.<sup>12</sup>

By its nature, electronic commerce is transnational and encourages cross-border transactions of goods and services.<sup>13</sup> Electronic commerce offers new market opportunities and intensifies competition.<sup>14</sup> Electronic commerce gives peripheral regions new opportunities for accessing main markets thereby encouraging “cohesion and integration” around the world.<sup>15</sup>

Because electronic commerce is an inherently global enterprise and affords a multitude of lucrative economic opportunities, national governments, international organizations, and private sector businesses have been keenly aware of its development.<sup>16</sup> Many of these institutions hope to harness the economic potential of electronic commerce. To fully take advantage of these economic opportunities businesses, governments, and organizations have taken the position that the obstacles hindering the development of electronic commerce must be removed.<sup>17</sup> Although the governments, businesses, and international organizations that have addressed electronic commerce concur that the obstacles encumbering its evolution must be removed, not all of these institutions agree on what constitutes an obstacle to the development of electronic commerce and the proper means to dismantle it.<sup>18</sup>

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9. *Id.*

10. *Id.*

11. OECD Policy Brief, *supra* note 6, at 2.

12. *Id.*

13. A European Initiative in Electronic Commerce, *supra* note 2, at 5.

14. OECD Policy Brief, *supra* note 6, at 2.

15. A European Initiative in Electronic Commerce, *supra* note 2, at 5.

16. *See, e.g.*, Japan Paper on the Need for Strengthened International Coordination, June 29, 1998 *available at* <http://europa.eu.int/ISPO/ecommerce/policypapers.html> (last visited Oct. 4, 2001); Global Business Dialogue on Electronic Commerce, Nov. 16, 2000 *available at* <http://gbde.org/ie/index.html> (last visited Oct. 4, 2001) (GBD); Seminar on Electronic Commerce and Development, WT/COMTD/18 (Mar. 23, 1999) (WTO); A European Initiative in Electronic Commerce: Communication to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions, COM(97) 157; OECD Ministerial Conference, *A Borderless World: Realizing the Potential of Global Electronic Commerce*, Ottawa October 7-9, 1998, Conference Conclusions (OECD); G.A. Res. 51, UNCITRAL, U.N. Doc. A/162 (1996) (UNCITRAL Model Law on Electronic Commerce with Guide to Enactment).

17. *See* sources cited, *supra* note 16.

18. *See* sources cited, *supra* note 16.

The following are the most commonly identified obstacles preventing the advancement of electronic commerce. Because global information networks do not respect geographically defined borders, issues of sovereignty and jurisdiction trouble governments. A blurring of national borders necessarily implicates law enforcement and could potentially erode the national tax base and undermine regulatory control.<sup>19</sup> In addition, divergent national legislation creates uncertainty and distrust to those transacting online.<sup>20</sup> Differing national legislation also increases legal costs for businesses who must ensure that they are complying with all related foreign laws.<sup>21</sup> Because there are no supranational laws governing electronic commerce and national legislation varies, lawful activity in one nation may be outlawed by another nation.<sup>22</sup> Furthermore, the cross-border and transnational nature of electronic commerce exacerbates the problems created by the divergence in this area of the law.<sup>23</sup> A byproduct of divergent national legislation is the uncertain legal effect given to electronic contracts.<sup>24</sup> Some nations impose formal writing requirements on contracts, which are impossible to satisfy electronically.<sup>25</sup> As a result, some nations constructively prohibit electronic contracts by denying their legal enforceability; however, in other nations an electronic contract is given the same legal effect as a written contract.<sup>26</sup>

Although national governments, international organizations, and businesses agree on the importance of electronic commerce and predict its lucrative economic potential, many of these groups disagree as to means of realizing the potential of electronic commerce.<sup>27</sup> There exists a general consensus among international organizations, governments and businesses on an abstract level that

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19. John Dryden, *The Work of the OECD on Electronic Commerce* presented in the opening session, *The Role of Europe in a Global Perspective*, Seville (June 14-15, 1999).

20. *Id.*

21. Proposal for a European Parliament and Council Directive on Certain Legal Aspects of Electronic Commerce in the Internal Market, Eur. Parl. Doc. (COM 586) 98 (1998) [hereinafter *European Parliament Directive*].

22. *Id.*

23. *See id.*

24. *See id.*

25. *See* RESTATEMENT (SECOND) OF CONTRACTS § 134 (1981). (The United States imposed a formal writing requirement referred to as the statute of frauds. Other nations also impose a writing requirement, e.g., United Kingdom.)

26. The United States modified its formal writing requirement on June 30, 2000 when it passed the Electronic Signatures in Global and National Commerce Act. The new law expands the traditional writing requirement to electronic media as well.

27. *See* sources cited, *supra* note 16.

electronic commerce is critical to economic growth in the twenty first century, and therefore must be allowed to develop unobstructed.<sup>28</sup> On a practical level, however, these institutions have developed different strategies to liberate electronic commerce from interference.<sup>29</sup> The disunity in their approaches has the potential to slow the evolution of electronic commerce. To allow electronic realize its unbridled potential, governments, businesses, and international organizations would need to come together and develop a coordinated and comprehensive strategy to remove these obstacles such that all nations and organizations would be taking steps in unison. A splintered effort will not likely bring about change rapidly enough to take full advantage of the economic opportunities presented by electronic commerce. At present, a means to blend national, regional, and supranational approaches so that they may converge and coexist has yet to be articulated.

This paper will illustrate the general consensus on an abstract level of international organizations, governments, and businesses. In contrast, this paper also seeks to illustrate the inconsistent efforts of these institutions on a practical level. To exemplify the uncoordinated effort of governments and international organizations with respect to electronic commerce, this paper will highlight the different directives and legislation regulating electronic signatures, which are imperative to the legal recognition of electronic contracts, and thus, the continued expansion of electronic commerce.

## II. Approaches to Electronic Commerce

### A. *National Governments*<sup>30</sup>

1. *The United States*—The United States has developed a policy framework with respect to electronic commerce and has urged other nations and international organizations to follow.<sup>31</sup> In order to allow for innovation, expanded services, broader participation, and lower prices to evolve from the expansion of electronic commerce, the United States believes that governments

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28. See sources cited, *supra* note 16.

29. See sources cited, *supra* note 16.

30. These countries were chosen because they have a well-defined electronic commerce policy. The United States, India and Japan are culturally and economically diverse, therefore providing a basis for comparison.

31. A Framework for Global Electronic Commerce (July 1, 1997), available at <http://www.ecommerce.gov/framework.htm> [hereinafter Framework for E-Commerce].

should let the private sector take the lead.<sup>32</sup> In accordance, the United States urges governments to allow self-regulation wherever appropriate and support the efforts of the private sector to develop mechanisms that facilitate the successful operation and expansion of the Internet.<sup>33</sup> When governmental regulation is necessary, private sector organizations should participate in the policy-making process.<sup>34</sup>

The United States warns governments not to impose undue restrictions on electronic commerce.<sup>35</sup> Unnecessary regulation of electronic commercial activities could distort the development of the electronic marketplace.<sup>36</sup> In addition, the United States cautions that any governmental regulation restricting electronic commerce will likely be outdated by the time it is enacted considering the accelerated speed that the electronic marketplace has been developing.<sup>37</sup> Such outdated or technology specific regulation could seriously impede the development of electronic commerce for the regulating nation as well as the rest of the world.<sup>38</sup>

When possible governments should develop a predictable, minimalist, consistent, and simple legal environment for electronic commerce.<sup>39</sup> In the areas where a government might need to legislate in order to facilitate electronic commerce or protect consumers, the government should establish a simple and predictable legal environment.<sup>40</sup> Any regulatory regime should be based on a decentralized contractual model of law rather than one based on top down detailed regulations.<sup>41</sup> When there is a need for a government to regulate, it should try to ensure competition, protect intellectual property and privacy, prevent fraud, foster transparency, support commercial transactions, and facilitate dispute resolutions.<sup>42</sup>

Furthermore, the United States urges all governments to review and revise all existing legislation that may put a damper on electronic commerce or ignore the unique characteristics of the

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32. *Id.*

33. *Id.*

34. *Id.*

35. *Id.*

36. Framework for E-Commerce, *supra* note 33.

37. *Id.*

38. *Id.*

39. *Id.*

40. *Id.*

41. Framework for E-Commerce, *supra* note 33.

42. *Id.*

Internet.<sup>43</sup> In addition, the United States recognizes the electronic commerce as a global marketplace and as such encourages nations to develop consistent principles regardless of jurisdiction.<sup>44</sup>

2. *Japan*—Japan has published a policy statement similar to that of the United States.<sup>45</sup> The Japanese Government recognizes the lucrative potential of electronic commerce and has issued some general aspirations, which it hopes will influence international discussion and eventually come to fruition in terms of global adoption of uniform principles supporting electronic commerce.<sup>46</sup>

Like many other industrialized and technically advanced countries, Japan believes that electronic commerce should be industry-led and national governments should support the private sector by establishing an environment conducive to electronic commerce.<sup>47</sup> Such an environment supports industry, promotes a dialogue between the private sectors and governments, and facilitates international coordination.<sup>48</sup>

Japan beseeches other countries to take the initiative and enact the necessary legislation in accordance with the guidance of international organizations so that there may be legislative harmony among all nations with respect to electronic commerce.<sup>49</sup> In particular, Japan focuses on the need for electronic authentication legislation, which it believes, is necessary to facilitate certainty and security in electronic commerce.<sup>50</sup> Although Japan calls for nations to construct legal frameworks for electronic signatures, Japan warns others nations not to simultaneously impose obstacles to trade.<sup>51</sup> Japan requests that other governments fully consider the opinions of industry and abstain from impeding

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43. *Id.*

44. *Id.*

45. *Compare* Japan Paper on the Need for Strengthened International Coordination June 29, 1998 available at <http://europa.eu.int/ISPO/ecommerce/policypapers.html> with A Framework for Global Electronic Commerce (July 1, 1997), available at <http://www.ecommerce.gov/framework.htm> (last visited Oct. 15, 2001).

46. Japan Paper on the Need for Strengthened International Coordination, June 29, 1998 available at <http://europa.eu.int/ISPO/ecommerce/policypapers.html> (last visited Oct. 15, 2001).

47. *See id.*

48. *See id.*

49. *See id.*

50. *See id.*

51. Japan Paper on the Need for Strengthened International Coordination, June 29, 1998 available at <http://europa.eu.int/ISPO/ecommerce/policypapers.html> (Oct. 15, 2001).

technological advancement and freedom in selecting electronic signature technology and products.<sup>52</sup>

In general, Japan's approach to electronic commerce and signature legislation is at best aspirational. Although in the abstract Japan supports international organizations with respect to their recommendations for electronic commerce legislation, Japan has not yet adopted UNCITRAL's Model Law concerning electronic signatures. Moreover, Japan's policies coincide with those embodied in UNCITRAL's Model Law, however, Japan has not enacted UNCITRAL's Model Law or some variation consistent with it. This abstract support for global uniformity in electronic commerce and signature legislation without a definitive step to actually harmonize legislation is commonplace, but nonetheless plagues the future of electronic commerce. Although Japan supports the important ideal of industry-led electronic commerce and minimalist legal intervention concerning electronic signatures, such support is of no consequence to the future success of electronic commerce if countries do not also adopt the legislation that embodies such ideals.

3. *India*—In contrast to Japan, India has adopted electronic commerce legislation that is generally consistent with the principles promoted by UNCITRAL.<sup>53</sup> In fact, India's Electronic Commerce Act is a conglomerate of various different countries' legislation and international organizations' proposals.<sup>54</sup> When drafting the Electronic Commerce Act, the Indian Government sought to strike a balance between safeguarding electronic commerce while encouraging technological development.<sup>55</sup> India took virtually every definition and provision of its law from the following sources: ABA, Uniform Electronic Transactions Act, Malaysia, Singapore, Texas, Illinois, UNCITRAL, and the United States.<sup>56</sup> India's policy concerning electronic commerce is consistent with that of the United States, Japan, and various other international organizations.

Although India's Electronic Commerce Act is consistent on a policy level with these other institutions, composite legislation still presents an obstacle for overall uniformity, and thus, the expansion of electronic commerce. A party attempting to adhere to the Indian legal requirements may still be uncertain with respect to

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52. *See id.*

53. Electronic Commerce Act, India, (Draft 10/19/98) available at <http://commin.nic.in/doc/ecact1.html#part1> (last visited Oct. 4, 2001).

54. *See id.*

55. *See id.*

56. *See id.* at Part I(2).

liability exposure. Taking parts of legislation from many legislative sources still frustrates uniformity. Although India is consistent with other countries and international organizations on a policy level, namely that electronic signatures and contracts are legally acceptable, the variegated legislation makes it more difficult to decipher what the law is in India. If India had adopted all of the UNCITRAL guidelines like the United States's Uniform Electronic Transactions Act, a foreign party would be able to transact with India with more certainty than with a law that incorporates many sources of electronic commerce law.

*B. International Organizations*<sup>57</sup>

1. *United Nations Commission on International Trade Law*—The United Nations Commission on International Trade Law (UNCITRAL) is the core legal body of the United Nations in the field of international law.<sup>58</sup> UNCITRAL has been active in the field of electronic commerce for more than ten years.<sup>59</sup> UNCITRAL has monitored the technical, legal, and commercial developments associated with the growth of electronic commerce.<sup>60</sup> After examining the developments in electronic commerce, UNCITRAL reports its findings to the General Assembly of the United Nations.<sup>61</sup> In several areas of electronic commerce UNCITRAL has drafted model laws which propose uniform rules of a statutory nature, which the General Assembly endorses, and Member States are urged to adopt.<sup>62</sup> UNCITRAL drafted a Model Law on Electronic Commerce, which outlines a suggested regulatory scheme concerning electronic signatures.<sup>63</sup> This Model Law will be discussed at length below.

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57. These international organizations were chosen based on their large and comprehensive member population, and the research and attention they give to electronic commerce. This list of international organizations is not intended to be exhaustive. Instead, these international organizations are regionally and conceptually representative of the available information on electronic commerce.

58. *Electronic Commerce in International Organizations Outside APEC*, § 5.1, available at <http://www.dfat.gov.au/apec/ecom/telecom2.html> (last visited Oct. 4, 2001).

59. *Id.*

60. *Id.*

61. *Id.*

62. *Id.*

63. G.A. Res. 51, UNCITRAL, at 15, U.N. Doc. A/162 (1996). (UNCITRAL Model Law on Electronic Commerce with Guide to Enactment), available at <http://www.uncitral.org/English/texts/electcom/ml-ec.htm> (last visited Oct. 4, 2001) [hereinafter Model Law].

2. *European Union*—The European Union has recognized the specific importance that electronic commerce has for Europe and the need for European countries to exploit its potential.<sup>64</sup> The European Union has based its decision that electronic commerce is indispensable to Europe on several premises. First, the European Union believes that electronic commerce will bring together the people of Europe, promote trade between them, and increase knowledge of cultural diversity.<sup>65</sup> Furthermore, the European Union believes that electronic commerce will provide increased access to goods and services of better quality at lower prices and heighten the attention given to the protection of citizens at a Community level, not only at a national level.<sup>66</sup> Finally, electronic commerce will provide considerable opportunities for growth and will encourage investment in innovation.<sup>67</sup>

In order for Europe to realize the potential of electronic commerce, the European Union has stated that certain objectives must be achieved to clear the path for economic expansion. The European Union has aimed to promote the technology and infrastructure necessary to ensure the competitiveness of the European electronic commerce industry, and put into place structures that will provide efficient access systems for existing and potential users.<sup>68</sup> The European Union has attempted to create a coherent regulatory framework for electronic commerce in Europe by dismantling the legal and regulatory obstacles created by divergent legislation.<sup>69</sup> When debating the possibility of regulatory guidelines and the future of electronic commerce, one of the main objectives of the European Union has been to promote trust and confidence in business making investors and consumers comfortable with electronic commerce.<sup>70</sup> In addition, the European Union has hoped to foster a favorable business environment for electronic commerce by promoting the development of technical skills thereby making consumers and industry comfortable with the medium of electronic commerce and aware of the opportunities it offers.<sup>71</sup> Most importantly, the European Union has tried to work toward a global consensus from a common European position to ensure

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64. European Parliament Directive, *supra* note 21, at 64.

65. *Id.* at 72.

66. *Id.* at 61.

67. *Id.* at 4.

68. A European Initiative in Electronic Commerce, *supra* note 2.

69. *Id.*

70. *Id.*

71. *Id.*

effective participation in current international cooperation and negotiation.<sup>72</sup>

3. *World Trade Organization*—The World Trade Organization (WTO) has begun to examine the development of electronic commerce paying particular attention to the implications that electronic commerce might have for international trade.<sup>73</sup> Electronic commerce provides a new mode of conducting commercial transactions, and thus, has a fundamental impact on the way business transactions are carried out.<sup>74</sup> As a result, electronic commerce has been of particular interest to the WTO.

The WTO has studied electronic commerce to help countries shape policy responses to this growing medium of business.<sup>75</sup> The WTO identified the following policy challenges for governments and regulatory authorities: congestion on the Internet, distorted pricing policies, inadequate legal frameworks, and the security and privacy of transactions.<sup>76</sup> In addition, this study also addressed the means by which the WTO can help facilitate electronic commerce and integrate it into the existing rules governing world trade.<sup>77</sup>

Moreover, the WTO has been especially concerned with creating ways to enhance the participation of developing countries in international trade of goods and services through the use of electronic commerce.<sup>78</sup> In accordance, the WTO looks to bridge the information and technology gap between developed and developing countries.<sup>79</sup> The WTO fears that if developing nations do not take advantage of the economic opportunities afforded by electronic commerce, the economic and technological gap between developed and developing nations will widen at an alarming rate.

#### 4. *Organization of Economic and Commercial Development*

The growth and potential of electronic commerce has garnered the attention of many Member countries of the Organization of Economic and Commercial Development (OECD). Given the widespread economic and social effects of electronic commerce,

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72. *Id.*

73. See Seminar on Electronic Commerce and Development, WT/COMTD/18 (Feb. 19, 1999), available at [http://www.wto.org/English/tratop\\_e/devel\\_e/d7even\\_e.htm](http://www.wto.org/English/tratop_e/devel_e/d7even_e.htm) (last visited Oct. 4, 2001).

74. *Id.*

75. Electronic Commerce in International Organizations Outside APEC, at <http://www.dfat.gov.au/apec/ecom/telecom2.htm>.

76. *Id.*

77. *Id.*

78. See Committee on Trade and Development, WT/COMTD/W/38 (Mar. 3, 1998), at <http://www.wto.org/> (last visited Oct. 4, 2001).

79. *Id.*

including the nature of work and the role of government, the OECD has stated that new procedures for conducting business and a reevaluation of governmental policies pertaining to commerce and traditional commercial practices should be made.<sup>80</sup> The inherently global nature of electronic commerce challenges the ability of national governments to address these issues on their own.<sup>81</sup> Because uncoordinated, inconsistent national policies for electronic commerce would be worse than no action at all, the OECD has decided that an internationally coordinated approach is necessary.<sup>82</sup>

The OECD has convened several conferences to address electronic commerce and the policy issues it raises.<sup>83</sup> The OECD conferences have focused on the following objectives. First, the OECD has sought to identify major policy problems, potential solutions, and the organizations able to develop and implement them.<sup>84</sup> Second, the OECD has taken an interest in the initiatives currently underway, and has attempted to ensure the consistency and effective coordination of the initiatives.<sup>85</sup> Finally, the OECD has tried to develop a consensus between business and government regarding some of the guiding principles that will constitute a framework for electronic commerce policies.<sup>86</sup>

The OECD has urged its Member countries not to over regulate electronic commerce. Because electronic commerce is still in an embryonic state, the OECD warns that overly restrictive regulations could stifle and retard the development of innovation.<sup>87</sup> Echoing the concerns of the WTO, the OECD has been concerned that Third World countries could suffer if they do not have the technology to access and use the electronic commerce infrastructure. To complicate matters, many OECD Member countries

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80. Dismantling the Barriers to Global Electronic Commerce, at <http://www.oecd.org//dsti/sti/it/ec/prod/DISMANTL.htm> [hereinafter Dismantling the Barriers].

81. *Id.*

82. *Id.*

83. For example, the Ministerial Conference on the Information Society held in Brussels in February of 1995; the Ministerial Conference on Global Information Networks held in Bonn in July of 1997; the Ministerial Conference Dismantling the Barriers to Electronic Commerce held in Turku; and the Ministerial Conference "The Borderless World: Realizing the Potential of Global Electronic Commerce" held in Ottawa in October 1998.

84. Dismantling the Barriers, *supra* note 80.

85. *Id.*

86. *Id.*

87. *Id.*

have regulatory schemes which limit market access.<sup>88</sup> The OECD has feared that these regulations will influence the framework in which service providers and users access and use communication infrastructures for electronic commerce applications and services.<sup>89</sup>

These regulatory structures could act as a disincentive to expand the infrastructure capacity.<sup>90</sup> The public within these regulated countries will either shy away from using the slow applications, or they will be unable to use sophisticated electronic commerce applications because their network lacks the bandwidth capability to run them.<sup>91</sup> The development of high-speed bandwidth is largely dependent on the existence of sufficient competition in the communications market.<sup>92</sup> Therefore, it is possible that the countries that currently have regulatory structures which limit market access will never be able to catch up technologically or economically with the rest of the world.<sup>93</sup>

The OECD issued certain suggestions to its Member countries after its Ministerial Conference in Ottawa in October of 1998.<sup>94</sup> One of the most important conclusions reached at the conference is that the cooperation of all players, including governments, consumers, businesses, labor and public institutions.<sup>95</sup> One of the OECD's suggestions encourages a social dialogue in policy-making to facilitate the development of global electronic commerce in all countries and international forums, and wherever possible all institutions should strive to be internationally compatible.<sup>96</sup> In addition, the OECD requested that governments promote a pro-competitive environment to allow electronic commerce to flourish and work to reduce unnecessary barriers to trade.<sup>97</sup> Furthermore, the OECD suggested that if government intervention is required it should be proportionate, transparent, consistent, predictable, and technologically neutral.<sup>98</sup>

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88. *Id.*

89. Dismantling the Barriers, *supra* note 80.

90. *Id.*

91. *See id.*

92. *Id.*

93. *See id.*

94. A Borderless World, *supra* note 1.

95. *Id.*

96. *Id.*

97. *Id.*

98. *Id.*

### C. *Businesses*

1. *Global Business Dialogue*<sup>99</sup>—The Global Business Dialogue on Electronic Commerce (GBDe) is a worldwide CEO-driven effort to strengthen international coordination in the development of policies that will promote global electronic commerce for the benefit of businesses and consumers.<sup>100</sup> The GBDe works with various international organizations, including the OECD and WTO, to maintain a dialogue, and to interject business insight into the electronic commerce discussion.<sup>101</sup> In addition, the GBDe monitors national legislation by alerting and advising other nations when potentially stunting electronic commerce legislation has been adopted.<sup>102</sup> Generally, the GBDe works to create a global policy in which nations work together and promote an environment in which electronic commerce may flourish.<sup>103</sup>

The goals of the GBDe are as follows: building consumer confidence, developing a concrete set of policy prescriptions, working to create global opportunities, and pursuing an aggressive implementation strategy.<sup>104</sup> Through these goals the GBDe believes it may foster electronic commerce expansion at its maximum potential.<sup>105</sup> Apparent from the GBDe's dialogue with international organizations, it recognizes the need for a comprehensive global approach to electronic commerce. By maintaining a working relationship with international organizations, the GBDe hopes that

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99. The Global Business Dialogue on Electronic Commerce was chosen as a representative of the business approach to electronic commerce. Because the membership of the organization includes many of the top technology and Internet companies in the world, it seemed that the GBDe was an expansive and influential organization which likely represented the opinions of most Internet related industries. Given the deference that many governments give to industry in the area of electronic commerce, it is important to also include their opinions when examining the policies concerning electronic commerce. Some of the members of the GBDe include AOL, Time Warner, Vivendi, Fujitsu Limited.

100. Global Business Dialogue on Electronic Commerce, GBDe 2000 Work Plan, available at <http://www.gbde.org/nn/> (last visited Oct. 4, 2001).

101. Global Business Dialogue on Electronic Commerce, GBDe Miami Conference Working Group Papers, available at <http://www.gbde.org/nn/2000/advocacy.html> (last visited Oct. 4, 2001).

102. Global Business Dialogue on Electronic Commerce, GBDe 2000 Miami Conference Working Papers Checklist of Global E-Commerce Legislative Activity, available at <http://www.gbde.org/nn/> (last visited Oct. 4, 2001).

103. Global Business Dialogue on Electronic Commerce, GBDe 2000 State of Global E-Commerce, available at <http://www.gbde.org/nn/> (last visited Oct. 4, 2001).

104. *See id.*

105. *See id.*

these supranational institutions will continue to act in ways that respond to industry and consumer needs.<sup>106</sup>

The GBDe will play an important role in the future success of electronic commerce. Because it relays industry and consumer perspectives to national governments and international organizations, all of these institutions will get the same information on which to base their future electronic commerce policies or directives. A smaller more factional representation of business interests would further increase the likelihood of uniform policy and legislation concerning electronic commerce. The GBDe helps to centralize business representation, and thus, plays a fundamental role in the future of electronic commerce.

### III. Electronic Signature Directives and Legislation

Many countries, including the United States, impose formal writing requirements that an agreement must be contained or set forth in a pen and paper writing.<sup>107</sup> In the U.S. these requirements are commonly referred to as the statute of frauds.<sup>108</sup> To ensure the veracity of an agreement, the statute of frauds requires parties seeking legal enforcement of an agreement to produce a signed writing.<sup>109</sup> In recent years, the statute of frauds has been widely criticized. Given the advancement and widespread use of electronic

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106. *See id.*

107. Model Law, *supra* note 63.

108. *See* RESTATEMENT (SECOND) OF CONTRACTS § 110 (1981).

§ 110 Classes of Contracts Covered—

(1) The following classes of contracts are subject to a statute, commonly called the Statute of Frauds, forbidding enforcement unless there is a written memorandum or an applicable exception:

- (a) a contract of an executor or administrator to answer for a duty of his decedent (the executor-administrator provision);
- (b) a contract to answer for the duty of another (the suretyship provision);
- (c) a contract made upon consideration of marriage (the marriage provision);
- (d) a contract for the sale of an interest in land (the land contract provision);
- (e) a contract that is not to be performed within one year from the making thereof (the one-year provision).

109. *See* RESTATEMENT (SECOND) OF CONTRACTS § 134 (1981).

§ 134 Signature

The signature to a memorandum may be any symbol made or adopted with an intention, actual or apparent, to authenticate the writing as that of the signer.

media, the arcane formal writing requirement of the statute of frauds impedes the development of electronic contracting.

The formal writing requirement is not the only obstacle in the path of the widespread use and success of electronic signatures and contracts. A government may dismantle the formal statute of frauds requirement, but in its place require parties to use certain technologies to complete their electronic contract. Such a technology requirement could be potentially devastating to electronic commerce.

Any legislative approach to electronic signatures and contracts must accommodate the inherent tension between the goal of technological neutrality and the goal of defining specific legal framework for the use of electronic authentication systems.<sup>110</sup> To the extent that legislation seeks to enable the use of diverse electronic signature and contract techniques, including those which have yet to be conceived, it becomes progressively more difficult to draft specific and meaningful legal consequences for the technology's use.<sup>111</sup>

In a science that technologically advances at a staggering rate, it is a potentially devastating and virtually impossible endeavor for legislators to draft and pass new legislation sanctioning every advancement of the Internet or electronic signature technology. Given the history of rapid technological advancement in the area of electronic commerce, legislators would be hard pressed to find spare time to address other political issues aside from reviewing and approving new technology for use in electronic contracts. If legislators were to impose technology specific requirements on electronic contracts, not only would they be unable to keep the legislation up to date, accounting for all the latest advancements in technology, but they would also be retarding the research and development of new technology. The development of new radical technology would be less attractive to programmers and investors who would have to fight an expensive legal and political battle to be able to introduce the technology into the marketplace.

Although technology neutral legislation is an important policy in the expansion and growth of electronic commerce, there is a compelling argument on the other side of the debate. Legislators are often hesitant to recognize and sanction technology in which

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110. Internet Law and Policy Forum, Survey of International Electronic and Digital Signature Initiatives, available at <http://www.ilpf.org/digsig/survey.htm>.

111. See *id.*

they are not confident of the reliability and security.<sup>112</sup> In many respects their caution is a valuable conservatism. It protects the citizenry from any naïve reliance on an unfamiliar technology that might compromise themselves or their business. However, when both arguments are balanced against each other, the need for a skeleton legal framework, which permits the advancement of technology, is greater than the need for legislative caution because advancement in technology is the cornerstone for the expansion of electronic commerce.

Not only does national legislation requiring a formal writing raise a barrier to the effective use of electronic media but the different regulatory schemes of other nations similarly hinders the growth of electronic commerce on a global scale.<sup>113</sup> Various international organizations have addressed the potential benefits of electronic commerce and the need to adopt a predictable institutional framework permitting electronic signatures, and thus, facilitating the borderless use of electronic contracting.<sup>114</sup> However, even though multinational organizations have recommended that member states adopt their proposed flexible regulatory scheme, nations have been slow to adopt the electronic signature initiatives.<sup>115</sup> Therefore, it seems that the realization of a truly global electronic commerce is not on the immediate horizon.

## A. UNCITRAL

1. *UNCITRAL Model Law on Electronic Commerce*—UNCITRAL has drafted and the General Assembly of the United Nations has adopted the Model Law on Electronic Commerce, which supports the use of international contracts in electronic commerce.<sup>116</sup> The purpose of the Model Law is to offer national legislators a set of internationally acceptable rules dismantling a number of the legal obstacles and securing the legal environment for electronic commerce.<sup>117</sup> In response to a growing concern over antiquated laws addressing the communication and storage of information, which had been conceived at a time when electronic

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112. *See id.*

113. *See* UNCITRAL Model Law, *supra* note 63, at 14.

114. *See, e.g.,* UNCITRAL Model Law, *supra* note 63; Proposal for a European Parliament and Council Directive on a Common Framework for Electronic Signatures, Eur. Parl. Doc. (COM 297 final) (1998).

115. *See* UNCITRAL, Status of Conventions and Model Laws *available at* <http://www.uncitral.org>

116. Model Law, *supra* note 63.

117. *Id.* at 14.

commerce did not exist, UNCITRAL drafted the Model Law.<sup>118</sup> A number of nations have legislation limiting the means of communication and contracting to written, signed or original documents.<sup>119</sup> As a result, consumers, sellers, and businesses are often uncertain about the legality of any information that is not presented in the traditional paper form.<sup>120</sup> In response, UNCITRAL sought to enable or facilitate electronic commerce by providing equal treatment to users of paper-based documentation and to users of computer-based information.<sup>121</sup> In drafting the Model Law, UNCITRAL believed that these objectives would foster the electronic economy and promote efficient international trade.<sup>122</sup>

The Model Law (1) establishes rules and norms that validate and recognize contracts formed through electronic means, (2) sets default rules for contract formation and governance of electronic contract performance, (3) defines characteristics of a valid electronic writing and an original document, (4) provides for the acceptability of electronic signatures for legal and commercial purposes, and (5) supports the admission of computer evidence in courts and arbitration proceedings.<sup>123</sup>

UNCITRAL's Model Law adopts the "functional equivalent" approach, which is based on an analysis of the purposes and functions of the traditional paper-based requirement with a view to determining how those purposes or functions can be fulfilled through electronic medium.<sup>124</sup> UNCITRAL did not intend to define a computer-based equivalent to any form of paper document.<sup>125</sup> Instead, the Model Law attempts to single out basic functions of paper based form requirements.<sup>126</sup> Once an electronic message satisfies these criteria, it may enjoy the same level of legal recognition as a corresponding paper document performing the same function.<sup>127</sup> For example, by requiring a document to be in writing, an individual hopes to achieve reliability, traceability and

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118. *Id.* at 15

119. *Id.* The United States was one of these nations until it modified its statute of frauds to include electronic communications, signatures and contracts with the federal law, Electronic Signatures in Global and National Commerce Act § (2000)

120. *Id.*

121. Model Law, *supra* note 63.

122. *Id.*

123. Framework for E-Commerce, *supra* note 31.

124. *Id.* at 18.

125. *Id.* at 19.

126. *Id.*

127. *Id.*

unalterability.<sup>128</sup> An electronic message which has the same qualities should not be denied legal validity solely based on its electronic form.

The following discussion addresses the primary sections of the Model Law. These sections will provide the foundation for a later comparison to the legal approach in the United States.

*a. Authentication and Attribution*—Where a law requires the signature of a person, this requirement is met if that person uses a method that identifies that person, indicates approval of the information, and is as reliable as is appropriate for the purpose of the information contained in the message.<sup>129</sup> Whether an electronic message has satisfied the legal requirements of a signature should be settled by substantive law external to the Model Law.<sup>130</sup> As a result, the Model Law leaves intact national law which imposes certain requirements for a signature.<sup>131</sup>

*b. Security Procedures*—Because UNCITRAL intends to promote and encourage the implementation of new technologies, the Model Law does not favor a particular security technology.<sup>132</sup> Instead, the Model Law requires a security procedure which is appropriate to the purpose for which the electronic message was generated.<sup>133</sup> In general, the Model Law is considerably flexible on this point.<sup>134</sup> The appropriate security measures should be determined in light of all the circumstances, including any agreement between the parties.<sup>135</sup> The Guide for Enactment issued by UNCITRAL outlines several factors which would help to determine the appropriateness of security measures.<sup>136</sup>

*c. Retention of Records*—When a law requires information to be retained, such requirement is fulfilled when the information is accessible for subsequent reference, and it is retained in a form that accurately reflects the information.<sup>137</sup> When a law requires information to be retained in its original form, such a

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128. See Framework E-Commerce *supra* note 31.

129. *Id.* at 8.

130. *Id.* at 36.

131. For example, in the United States an individual must have intended to do a legally significant act when she signs a document, thus becoming a legally valid signature.

132. *Id.* at 26.

133. *Id.*

134. *Id.* at 34.

135. A Framework for Global Electronic Commerce (July 1, 1997), available at <http://www.ecommerce.gov/framewrk.htm>.

136. *Id.* at 35.

137. *Id.* at 9.

requirement is satisfied if there is reasonable assurance that the integrity of the information has not been compromised, and the information is capable of being displayed to whom it is presented.<sup>138</sup>

*d. Status of Enactment*—Legislation based on the UNCITRAL Model Law has been adopted in Australia, Bermuda, Columbia, France, Hong Kong, Mexico, Ireland, the Republic of Korea, Singapore, Slovenia, the Philippines, Canada, and the United States.

## *B. United States*

*1. Electronic Signatures in Global and National Commerce Act*—The purpose of Electronic Signatures in Global and National Commerce Act (E-SIGN) is to facilitate the continued success of electronic commerce by enabling parties to agree to use electronic signatures and records in commercial transactions affecting interstate commerce.<sup>139</sup> E-SIGN will provide federal and state law uniformity and give parties engaged in electronic commerce certainty that electronic signatures and records will have the same legal effect and enforceability as written signatures and contracts.<sup>140</sup> Congress intended E-SIGN to facilitate the ability of private parties to engage in interstate transactions and agree among themselves on the terms and conditions on which they use and accept electronic signatures and records.<sup>141</sup> Furthermore, Congress intended to promote the development of a consistent national legal infrastructure necessary to support electronic commerce at the federal and state levels within existing areas of jurisdiction.<sup>142</sup>

E-SIGN gives electronic signatures and records the same legal recognition as written signatures or documents by expanding the legally acceptable methods of transacting.<sup>143</sup> E-SIGN neither alters substantive legal requirements governing the formation and enforceability of contracts nor affects the use of written documents or non-electronic methods of transacting.<sup>144</sup> Moreover, E-SIGN

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138. *Id.* at 8.

139. *See id.* *See* Electronic Signatures in Global and National Commerce Act, U.S.C. § (2000); *see also* 146 Cong. Rec. S5215 (daily ed. June 15, 2000) (statement of Sen. McCain, Kerry, Wyden, Leahy, Abraham, Robb, Boxer, Lautenberg, Hollings, Sarbanes).

140. *See id.*

141. *See id.*

142. *See id.*

143. Electronic Signatures in Global and National Commerce Act, 15 U.S.C.A. § 7001(a) (2001).

144. *Id.*

leaves intact an individual's decision to refuse to transact electronically.<sup>145</sup>

*a. Consumer Consent*—The model inspiring the principles set forth in E-SIGN involves two willing parties transacting electronically.<sup>146</sup> To ensure the accuracy of this paradigm, E-SIGN requires parties to explicitly consent to transact electronically and further outlines the procedure necessary to ensure that consent is actually given.<sup>147</sup> Under E-SIGN, an electronic signature or record satisfies the statute of frauds written requirement when the consumer has affirmatively consented to transact electronically and a clear and conspicuous statement describing the consumer's rights has been presented prior to consent.<sup>148</sup> This clear and conspicuous statement must inform the consumer of her right to transact in a non-electronic form and withdraw her consent to transact electronically.<sup>149</sup>

*b. Authentication*—E-SIGN does not require a specific technology to create a valid signature.<sup>150</sup> Instead, E-SIGN outlines two basic requirements for a valid signature.<sup>151</sup> A person must intend to sign the electronic record or contract, and the sound, symbol, or process employed must be linked or logically associated with the document that the person intends to authenticate.<sup>152</sup> To determine the legal effect of a signature, E-SIGN applies common law principles regarding manual signatures to those of electronic signatures; thus, the legal effect will be determined by all relevant contexts and surrounding circumstances.<sup>153</sup>

*c. Security Procedures and Technology*—E-SIGN is technologically neutral because it does not arbitrarily favor a technology or security procedure.<sup>154</sup> Instead, E-SIGN permits flexibility in interpretation and allows for innovation in the advancement of electronic commerce.<sup>155</sup> E-SIGN provides the procedural framework to remove the legal barriers impeding the

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145. *Id.*

146. *Id.*

147. *Id.*

148. Electronic Signatures in Global and National Commerce Act, 15 U.S.C.A. § 7001(1) (A)(B) (2000).

149. *Id.*

150. Electronic Signatures in Global and National Commerce Act, 15 U.S.C.A. § 7001(D)(1) (2001).

151. Electronic Signatures in Global and National Commerce Act, 15 U.S.C.A. § 7001 (2001).

152. *Id.*

153. *See id.*

154. *Id.*

155. *See supra* note 53 and accompanying text.

growth of electronic commerce.<sup>156</sup> Because consumers and businesses utilizing the electronic signatures and contracts are in a better position to make decisions concerning the need of security procedures and the technology best suited to their needs, E-SIGN does not interfere.<sup>157</sup>

*d. Attribution*—E-SIGN ensures that the existing rules of attribution also apply to electronic signatures.<sup>158</sup> An electronic signature or record is attributable to a person if it is the act of that person.<sup>159</sup> The act of the person may be shown in any manner, including a showing of the effectiveness of a security procedure used.<sup>160</sup> A signature is not the only means of attributing a record or contract to a person.<sup>161</sup>

*e. Retention of Record*—If a statute, regulation, or other rule of law requires that a contract or other record relating to an interstate transaction be retained, the requirement is met by retaining an electronic record of the information that accurately reflects that information and remains accessible to all persons entitled to access.<sup>162</sup> If a contract or record is accurate and accessible as required by E-SIGN, it can be considered an original for the purposes of satisfying other laws requiring the retention of record in its original form.<sup>163</sup>

*f. Relationship to State Law*—E-SIGN preempts all state law regulating electronic signatures and contracts unless the state has adopted the Uniform Electronic Transactions Act (UETA) in a uniform manner.<sup>164</sup> If a state adopts UETA, but also modifies the provisions of UETA in any meaningful way, such modifications are preempted by E-SIGN to the extent that they violate the principle of technological neutrality or are otherwise inconsistent with E-SIGN.<sup>165</sup>

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156. *See id.*

157. *See* 146 Cong. Rec. S5215 (daily ed. June 15, 2000) (statement of Sen. Leahy).

158. *See* Uniform Electronic Transactions Act § 2 cmt. 7 (1999); *see supra* text accompanying note 53.

159. *See id.*

160. *See* Uniform Electronic Transactions Act § 2 cmt.7, § 9 cmt. 4 (1999); *see supra* text accompanying note 53.

161. *See id.*

162. Electronic Signatures in Global and National Commerce Act, 15 U.S.C.A. § 7001(d)(1) (2001).

163. *Id.*

164. Electronic Signatures in Global and National Commerce Act, 15 U.S.C.A. § 7002(a) (2001).

165. *Id.*

2. *Uniform Electronic Transactions Act*—In 1999 the NCCUSL drafted UETA in response to the increasing problems and uncertainty created by the disunity in state law dealing with electronic contracts. To remove the barriers to electronic commerce, the NCCUSL attempted to validate and effectuate electronic records and signatures.<sup>166</sup> The NCCUSL wanted to create certainty in electronic commerce by constructing a legal foundation to expand the statute of fraud writing requirements to include electronic records and electronic signatures.<sup>167</sup> UETA provides a procedural framework so that courts may apply the provisions to new and unforeseen technologies and practices in the future.<sup>168</sup> By promoting uniformity in state law dealing with electronic contracts, the NCCUSL hoped to also promote the use of electronic and similar technological means of effecting and performing commercial and governmental transactions.<sup>169</sup> Furthermore, the NCCUSL wanted to promote public confidence in the validity of electronic transactions and promote the development of the legal and business infrastructure necessary to implement electronic commerce transactions.<sup>170</sup>

UETA employs a minimalist and procedural approach to bring about the legal recognition of electronic signatures.<sup>171</sup> UETA attempts to remove the barriers of electronic commerce without disturbing the efficacy of substantive rules of contracts.<sup>172</sup> The provisions of UETA are intended to ensure that electronic signatures and documents are treated in the same manner, under existing law, as written signatures and documents.<sup>173</sup> UETA permits electronic transactions to be accomplished with certainty within the confines of preexisting rules and requirements of contracts.<sup>174</sup>

### C. *European Union*

1. *Directive of the European Parliament and of the Council on a Community Framework for Electronic Signatures*—The European Directive obligates the fifteen Member States of the European Union to enact national legislation implementing the

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166. See Uniform Electronic Transactions Act § 1-21, prefatory note (1999).

167. See *id.*

168. See *id.*

169. See *id.*

170. See *id.*

171. See Uniform Electronic Transactions Act § 1-21, prefatory note (1999).

172. See *id.*

173. See *id.*

174. See *id.*

Directive's requirements.<sup>175</sup> The Directive attempts to harmonize the national policies concerning electronic signatures across the diverse range of national legal systems of its Member States.<sup>176</sup> The European Union recognizes that divergent rules with respect to the legal recognition of electronic signatures in the Member States may create a significant barrier to the use of electronic communications and electronic commerce.<sup>177</sup> A clear Community framework, on the other hand, will strengthen confidence and the general acceptance of new technologies.<sup>178</sup> As a result, the European Union drafted and adopted the following legal framework for electronic signatures to contribute to their legal recognition and to ensure the proper functioning of the internal market.<sup>179</sup>

Under the Directive, the term "electronic signature" means data in electronic form, which are attached to or logically associated with other electronic data and serve as a method of authentication.<sup>180</sup> An "advanced electronic signature" refers to an electronic signature which meets the following requirements:<sup>181</sup> the electronic signature must be (1) uniquely linked to the signatory; (2) capable of identifying the signatory; (3) created using means that the signatory can maintain under his sole control; and (4) linked to the data to which it relates in such a manner that any subsequent change of the data is detectable.<sup>182</sup> The Directive requires Member States to ensure that advanced electronic signatures, which are based on qualified certificates and created by a secure-signature-creation device, satisfy the legal requirements of a signature and are admissible in a legal proceeding.<sup>183</sup> A qualified certificate and a secure-signature-creation device are terms of art under the Directive.<sup>184</sup> Essentially, both must meet the requirements outlined in the Annex of the Directive.<sup>185</sup>

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175. Internet Law and Policy Forum, *Survey of International Electronic and Digital Signature Initiatives*, available at <http://www.ilpf.org/digsig/survey.htm>.

176. *Id.*

177. Directive of the European Parliament and of the Council on a Community Framework for Electronic Signatures, Eur. Parl. Doc. (1999/93/EC) (1999) [hereinafter European Parliament on Electronic Signatures].

178. *Id.*

179. *Id.*

180. *Id.*

181. *Id.*

182. European Parliament on Electronic Signatures, *supra* note 177.

183. *Id.*

184. *Id.*

185. *Id.*

#### *D. Similarities Between Approaches*

The UNCITRAL Model Law, UETA, and E-SIGN all promote party autonomy. With the confidence that both are legally valid means of contracting, an individual may choose to use an electronic medium or traditional paper-based means of contracting. All of the aforementioned approaches intend to be minimalist by providing a procedural framework so as not to arbitrarily stunt the innovation of electronic commerce. All of these regulatory schemes are technologically neutral, so as not to impede the development of new technology in the future.

Although similar on a policy level, the American legislation differs slightly from the UNCITRAL Model law in approach. UNCITRAL's Model Law adopts the functional equivalent approach whereas UETA and E-SIGN adopt a minimalist approach. Although the regulatory schemes are technically based on different approaches, on a practical level all of the aforementioned legislation has virtually the same result. UNCITRAL, UETA, and E-SIGN are skeleton regulatory schemes, which intend to set basic standards of acceptability for electronic signatures. All of these approaches give parties as much independence in dealing as possible.

Under the EU Directive, Member States are obligated to ensure that an electronic signature is not denied legal effect solely on the grounds that the signature is in electronic form. The EU Directive adopts a relatively high technical standard under which electronic signatures benefit from non-discrimination. The EU Directive has a significantly more prescriptive and stringent standard than UNCITRAL's Model Law, E-SIGN, and UETA. Although the Directive does not explicitly require the use of certain security technology, the strict requirements for an "advanced electronic signature" seem to mandate the use of digital signature technology. In this respect, the Directive is more regulatory and technology specific than the UNCITRAL Model Law, UETA, and E-SIGN. The EU Directive will allow Member States to set a fairly high threshold for the types of electronic signatures that benefit from non-discrimination based on their electronic form. Essentially, parties dealing with European parties will have to use certain advanced technologies reinforced by security protections to use electronic signatures without worry of non-legal recognition. The Directive seems to be an obstacle, albeit not an insurmountable one, in the way of uniformity in electronic commerce regulation.

#### IV. Conclusion

As illustrated in this paper, most governments, international organizations, and businesses agree that obstacles should be removed from the path of electronic commerce so that it may truly realize its amazing economic potential. These governments, international organizations, and businesses also agree on general policy issues concerning electronic commerce. For example, these institutions want to foster consumer trust and security, protect privacy, and permit continued technological innovation. When it comes time to act, however, general policy agreement does not necessarily translate into a consistent global regulatory scenario or perhaps even the likelihood of one in the future.

There are many factors that may affect the lack of uniformity on a practical level with respect to electronic commerce. For example, a country may require parties within their jurisdiction to use certain domestically developed technologies to create a legally enforceable contract. Domestic companies may create and sell these legally recognizable technologies; thus, any party wanting to transact with another party within the jurisdiction of that country would have to purchase the technologies created by their companies. It is a possibility that countries could exploit electronic commerce to their immediate benefit but to the long term detriment of electronic commerce on a global scale. Electronic commerce presents nations with the temptation to enact legislation which will economically benefit their domestic industry but also seriously impede the future development of electronic commerce. In essence, electronic commerce presents both the perception of a zero sum game and the temptation to renege on a mutually advantageous arrangement (i.e. uniformity in electronic commerce regulation) to the individual benefit of each nation.

The discussion describing electronic signature legislation illustrates the agreement of governments, international organizations, and businesses on an abstract level, but also illustrates the practical differences that corrupt uniformity. The differences in regulatory approaches need not be great to create uncertainty. For example, the European Union's requirements concerning the technology used to create an electronic signature, although rather a minor in detail, creates a major discrepancy between the UNCITRAL and American approaches.

At present, the likelihood of any widespread uniformity in electronic signature regulation, and thus electronic commerce, is at best doubtful. Although most governments, international organiza-

tions, and businesses proclaim to support uniformity, it is unlikely that they will convene on a supranational level to compromise and implement policy and regulation. As a result, electronic commerce will never truly realize its global potential.

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