

INTERNATIONAL LAW AND TECHNOLOGY

Exterminating the Millennium Bug: Practitioner Readiness for Y2K

J. Kate Burkhart*

I. THE YEAR 2000 PROBLEM	312
II. THE LEGAL ISSUES OF Y2K.....	313
III. READINESS IN THE UNITED STATES	317
IV. READINESS ABROAD	320
V. CONCLUSIONS.....	328
APPENDIX. Y2K RESOURCES AVAILABLE ON THE INTERNET	330

As 1999 begins, law firms, attorneys and corporate legal departments are preparing for the end of the millennium. The Year 2000 (Y2K) Problem, which will begin affecting systems before midnight, December 31, 1999, comes equipped with many legal ramifications. To cope with the difficulties arising with the turn of the century, many practitioners and firms have begun to act preemptively, instituting contingency plans for the problems certain to develop as 2000 approaches.

The level of preparation differs throughout the United States and the international legal community. The lack of preparation in one area will have an impact on many others due to the nature of the Year 2000 Problem. The interdependence of national economies, industrial supply chains, and the potential for cross-border disruptions all act to make this an international problem.¹ Disruptions related to the problem, such as a system's inability to process securities and other commercial transactions extending beyond 1999, will affect domestic and international trade.² The international nature of the problem

* J.D. candidate 1999, Tulane Law School. The author would like to give special thanks to Catharine Morisset and Brian Hildreth for their help in researching this Article.

1. See *The Year 2000 Problem: Impacts and Action*, Organization for Economic Cooperation and Development (OECD) Public Management Service at 6 (Sept. 30, 1998) [hereinafter *OECD Report*].

2. See *id.* at 20 (quoting Coopers & Lybrand Survey, 1997).

requires that legal communities throughout the world be prepared for any resulting legal issues.

I. THE YEAR 2000 PROBLEM

Hopefully by now, most attorneys have at least heard of the Year 2000 Problem, also known as the Millennium Bug. Portrayed as everything from the end of the world to much ado about nothing, the effects of the new year will be felt in almost every aspect of business.

Y2K problems are derived from an intentional programming method. Most systems employ a date recognition system of "mm/dd/yy" (month/day/year), where only the last two digits of any given year are used.³ Programmers used this system to save on the costs of data storage, foreseeing no problems since they expected the software to be in use for only a short time.⁴ Instead, companies continued to employ the old software or built their new systems on top of the old programming.⁵ The result is that computers throughout the world will fail to deal effectively with the dates of "99" for 1999 and "00" for 2000.⁶

The confusion caused by the two-digit dating is already apparent, as systems read the year "04" as 1904 instead of 2004. Unless corrected, when computer programs encounter the year "00," they will either recognize it as the year 1900 or shut down all together.⁷ Yet, we do not have to wait until next January to feel the effects of Y2K problems. The year "99" will cause problems in many systems using early programs or software expanding old programs, which often used a series of 9s as an indicator that the end of data had been reached and the computer should cease processing.⁸ As the systems encounter the year "99" or the date 09/09/99, it is possible that they will simply stop operating.⁹ While a complete system failure will be disastrous, many also see the mistaking of years after 2000 as 1900, 1901, 1902, etc. as equally hazardous. Such a "soft crash" will result

3. See Kurt Ehresman & Frederic Wilf, *The Legal Ramifications of the Year 2000 Problem*, 20 PA. LAW, Oct. 1998, at 15, 16; see also James Lehman & Kevin Hall, *Year 2000 for Lawyers: A Legal Primer on the Millennium Bug*, 10 S.C. LAW, July-Aug. 1998, at 14, 15.

4. See Ehresman, *supra* note 3, at 16.

5. See *id.*

6. See *id.*

7. See David Brodsky & James McBride, *The Millennium Approaches*, in WIN THE RACE AGAINST TIME: BE READY FOR THE YEAR 2000 1 (1998).

8. See Ehresman, *supra* note 3, at 16.

9. See *id.*

in faulty data and will impact everything from expiration dates on grocery inventories to Social Security benefits.¹⁰

The Y2K problem also extends to embedded systems—computer chips which run software.¹¹ Embedded systems are found in most communications and transportation systems, ranging from telephones and pagers to airplanes and automobiles.¹² The fact that these chips are embedded within the system makes them harder to repair, complicating the process of making such systems Y2K compliant.¹³ Experts estimate that only 1-3% of the world's embedded systems will experience a Y2K related failure, but this could involve up to 750 million chips.¹⁴

The process of making computer systems Y2K compliant involves massive amounts of time and labor.¹⁵ Estimates vary for the world-wide cost of making systems compliant and remedying the secondary problems. The Gartner Group's estimate of US\$300-600 billion is based upon a cost-per-line of code, excluding losses due to disruptions caused by noncompliance and the cost of replacing chips in embedded systems.¹⁶ The 1997 estimate by Software Productivity Research includes US\$530 billion for software repairs, US\$454 billion for repairs to databases, US\$76 billion for replacement of hardware chips, and US\$300 billion for litigation, damages, and other costs, for a total cost of US\$1.6 trillion.¹⁷ Estimates for the costs in the United States alone range from US\$95 billion¹⁸ to US\$520 billion.¹⁹ Incurred by a global problem, these costs will be felt world-wide.

II. THE LEGAL ISSUES OF Y2K

Attorneys will be involved both before their clients catch the Millennium Bug and after they experience the related symptoms. Attorneys and law firms will be asked to practice some preventative medicine as clients require advice in formulating compliance strategies and contingency planning for dealing with problems as they

10. See Brodsky, *supra* note 7; see also Ehresman, *supra* note 3, at 16.

11. See Ehresman, *supra* note 3, at 16.

12. See *id.*

13. See *id.*

14. The estimated number of installed chips/embedded systems is as many as 25 billion. OECD Report, *supra* note 1, at 6.

15. See Lehman, *supra* note 3, at 15.

16. See OECD Report, *supra* note 1, at 7.

17. See *id.*

18. *Id.*, Annex Table 1, at 43.

19. *Id.*

arise.²⁰ Many firms have already begun the process of making clients aware of the problem and advising them as to compliance strategies. Problems arising later from failure to make systems Y2K compliant will involve a wide variety of legal issues: contract law, insurance, tax law, intellectual property, labor and employment law, and tort law involving fraud, misrepresentation, professional malpractice, and negligence.²¹

Issues of contract law are involved in all types of transactions. Clients will need to determine whether their Y2K problems are within the warranties provided by contracts of sale for their computers and software.²² One area of concern is whether a Y2K related disruption will fall within a contract's *force majeure* clause.²³ There seems to be some indication that Y2K problems will not qualify for *force majeure* protection. Unlike a hurricane or act of God, the Y2K problem has been a topic of major public discourse for the past several years and as such is not unexpected or unpredictable.²⁴ Clients will also want to determine where liability and obligations related to Y2K problems lie.²⁵ When a Y2K problem does arise, it will potentially involve breach of contract, breach of an express or implied warranty, misrepresentation or failure to disclose noncompliance by the vendor of the culpable software.²⁶ Fraudulent misrepresentation may also be involved if the vendor's advertising implied a warranty of Y2K compliance.²⁷ This is an aspect of *Atlaz International Ltd. v. Software Business Technologies, Inc.*, a class action suit filed in California in December 1997.²⁸

Clients will also be concerned about their insurance coverage. Many will want their policies reviewed to identify existing coverage for Y2K disruptions, losses and damages and whether additional coverage is needed.²⁹ Policies involving Y2K coverage include directors and officers policies, errors and omissions coverage and

20. See Daniel Patterson, *Advising Clients Regarding Year 2000 Compliance*, 27 COLO. LAW., Sept. 1998, at 1, 5-6.

21. See Ehresman, *supra* note 3, at 18.

22. See *id.*

23. See ANTHONY DAVIS & ROBERT SPENCER, *THE YEAR 2000 PROBLEM AND THE LEGAL PROFESSION* 12 (1998).

24. See *id.*

25. See Ehresman, *supra* note 3, at 18.

26. See Patterson, *supra* note 20 at 8-9.

27. See *id.* at 9.

28. *Atlaz Int'l Ltd. v. Software Bus. Tech., Inc.*, No. 172539 (Sup. Ct., Marin Cty. filed Dec. 2, 1997).

29. See Ehresman, *supra* note 3, at 19.

business interruption insurance.³⁰ However, since business interruption policies are normally only for cases of natural disturbances, it is unclear whether clients can claim Y2K losses under such policies.³¹ When companies experience Y2K-related disruptions, they will want advice on how to make claims under existing business insurance policies.³² Insurance companies have already begun to limit the risks associated with Y2K by designing their policies to limit the coverage for Y2K disruptions.³³ They also may deny Y2K claims as not being covered by business policies, requiring attorneys to either help clients sue for coverage or defend against such suits.³⁴

The Y2K problem will also have tax implications. Clients will be concerned with evaluating how costs of compliance and losses due to failed compliance measures will affect tax obligations and profitability.³⁵

Intellectual property rights are a large issue in the struggle to prevent Y2K disruptions, since the programming changes necessary for compliance involve altering programs which are often protected by copyright.³⁶ Clients will want to know whether they have the right to make protected software programs compliant or whether they can assert their intellectual property rights against those making alterations to their programs.

Labor and employment issues arise when clients, businesses, corporations and law firms decide to hire outside consultants and computer programmers in order to achieve Y2K compliance. Companies will often want to employ noncompetition agreements when hiring personnel to organize and implement compliance procedures. This is done to prevent competitors from luring away key employees within the next year, when fixing noncompliance problems is crucial.³⁷ Issues of enforcing such agreements are almost certain to arise.

Consulting groups involved in assisting in compliance measures may be held liable for professional malpractice or negligence if their services result in Y2K problems that cause damages. The potential for liability is found with consultants hired to upgrade existing systems in general and with consultants hired to specifically assess Y2K

30. See Lehman, *supra* note 3, at 17.

31. See *id.*

32. See Patterson, *supra* note 20, at 11.

33. See CASPER JONES, THE YEAR 2000 SOFTWARE PROBLEM 119 (1998).

34. See Patterson, *supra* note 20, at 11.

35. See *id.*

36. See Ehresman, *supra* note 3, at 19.

37. See *id.*

compliance or to engineer a compliance strategy.³⁸ It is also possible that software designers and consultants will be held to a professional standard of care.³⁹ Clients such as these should have their errors and omissions insurance policies carefully examined.⁴⁰ Attorneys may also be called upon to draft the contracts between consulting groups and their clients in order to allocate responsibility before problems arise.⁴¹

The Y2K problem will create many products liability problems. Failure of an embedded system can lead to death, personal injury and property damage, because such systems are found in airplanes, trains, telephones, and many everyday products.⁴² The liability for death or physical injury due to Y2K noncompliance may fall within a strict product liability claim.⁴³ A database's failure to recognize the new year can lead to faulty data, causing major economic losses for which the system manufacturer may be responsible.

Software manufacturers may be liable in simple negligence for producing a noncompliant product if the manufacturer knew or should have known of the potential processing error.⁴⁴ Clients may want to pursue (or have to defend against) claims of negligent programming or negligent product design.⁴⁵ Depending on the age of the programs at issue, such negligence claims may involve standards of scientific knowledge and technology at the time of tortious production.⁴⁶

Other legal issues will arise in the corporate context. Practitioners will be faced with the Securities Exchange Commission's (SEC) requirements for disclosure and the Y2K compliance-certification requests submitted by investors.⁴⁷ Requests for compliance-certification, and responses to such requests, will involve attorneys because the requested assurance of compliance is often refused to investors, or the response to the investor's request

38. See Patterson, *supra* note 20, at 11.

39. See *id.* (citing *Diversified Graphics, Ltd. v. Groves*, 868 F.2d 293 (8th Cir. 1989) (holding computer consultant to professional standard of care)); *Data Processing Servs. v. L.H. Smith Oil Corp.*, 492 N.E.2d 314 (Ind. 1986) (finding computer programmer should have reasonable skill and exercise diligence ordinarily possessed by members of trade or profession). *But see* *Hospital Computers Sys., Inc. v. Staten Island Hosp.*, 788 F. Supp. 1351 (D.N.J. 1992) (holding computer consultants are not professionals under New York law).

40. See Lehman, *supra* note 3, at 16.

41. See Nancy James & Barbara O'Donnell, *A Primer on The Year 2000 Bug: A Role for Careful Counsel*, 44 NO. 3 PRAC. LAW. 21, 24 (1998).

42. See Lehman, *supra* note 3, at 16.

43. See Patterson, *supra* note 20, at 10.

44. See *id.*

45. See Lehman, *supra* note 3, at 19.

46. See *id.*

47. See *id.* at 16.

may create additional warranties.⁴⁸ If a client-company is required to make a Y2K disclosure to the SEC, it must include the company's state of readiness, cost of addressing the problem, risks to the company from the problem and the company's contingency plans.⁴⁹ Clients may also incur liability as a result of SEC enforcement proceedings or shareholder suits brought under securities laws.⁵⁰ This required disclosure brings with it an accountability for the statements made, which in turn involves corporate liability for any misrepresentations or failure to adequately disclose compliance issues and measures taken.⁵¹ Shareholders may have claims against corporations which fail to adequately address their Y2K problems.⁵² Failure to disclose anticipated costs, liabilities, problems and compliance measures may create a basis for shareholder action.⁵³ Directors and officers of corporations should make plans to demonstrate that they acted with due diligence in dealing with Y2K problems.⁵⁴

Given the diversity of legal issues involved in this crisis, it is likely that almost every attorney will be faced with some sort of Y2K problem, whether in dealing with clients or in the operation of a personal practice. Fortunately, U.S. attorneys have already begun to address the Y2K problem, as have many practitioners abroad. However, lower levels of readiness in certain areas of the world are sure to have ramifications on even the most prepared.

III. READINESS IN THE UNITED STATES

The cost of litigation related to Y2K problems has been estimated to be US\$1 trillion.⁵⁵ According to some, Y2K litigation "seems inevitable."⁵⁶ In anticipation of this potential business, U.S. attorneys have actively begun to prepare for the avalanche of Y2K-associated legal business. Indeed, "most law firms figure they have to have a Y2K practice if only to answer clients' day-to-day questions."⁵⁷

48. *See id.*

49. *See Patterson, supra note 20, at 10.*

50. *See Lehman, supra note 3, at 16.*

51. *See id.; see also Ehresman, supra note 3, at 19.*

52. *See Patterson, supra note 20, at 10.*

53. *See id.*

54. *See Lehman, supra note 3, at 16.*

55. *See Chris O'Malley, Apocalypse Not, TIME, June 15, 1998, at 62.* Lloyd's of London's prediction is US\$1 trillion for the United States alone. *See Larry Smith & Lori Tripoli, More Billables Than Superfund!, 17 NO. 10 OF COUNSEL at 1, 10 (1998).*

56. *Smith & Tripoli, supra note 55, at 1.*

57. *See id.*

Such widespread preparation for a single event is explained by the multidisciplinary nature of Y2K practice.⁵⁸

Preparation is not limited to firms with technology-intensive practices.⁵⁹ Firms such as Crowell and Moring in Washington, D.C., whose practice focus is government contracts, and Miller, Canfield, Paddock and Stone, a general practice firm in Detroit, have employed aggressive Y2K plans.⁶⁰ Larger firms have established Y2K practice groups.⁶¹ This strategy is analogous to the development of environmental law over the last two decades.⁶² Even smaller firms, such as Galland, Kharasch and Garfinkle in Washington, D.C. and Christie, Pabarue, Mortensen and Young in Philadelphia have begun to address their clients' Y2K needs.⁶³

A primary role for attorneys as 1999 ticks away is to counsel clients before they catch the Millennium Bug.⁶⁴ Many firms have developed Y2K questionnaires to help clients assess their situation and map out a compliance strategy.⁶⁵ Such surveys allow the client to test his supply chain by testing the Y2K compliance strategies of his suppliers, subcontractors, distributors, etc.⁶⁶ This communication between the links of the supply chain allows the client to tailor his Y2K strategy to fit his needs. Questionnaires include questions about current steps toward compliance, plans for monitoring and achieving compliance, and whether critical suppliers' systems are now compliant or are in the process of being made compliant.⁶⁷ Attorneys will not only be involved in developing a client's questionnaire, but also in helping a client answer a Y2K questionnaire from other members of his supply chain.⁶⁸

Attorneys are also becoming involved in transferring risk and allocating responsibility for their clients, a process that involves the clients, vendors, suppliers and other contract parties.⁶⁹ The New York

58. *See id.* at 10.

59. *See id.* at 1.

60. *See id.*

61. *See id.*

62. *See id.* at 10.

63. *See id.* at 15. Galland, Kharasch and Garfinkle's Y2K practice group was one of the earliest, formed by April 1997. *See id.*

64. *See id.* at 10.

65. *See Patterson, supra* note 20, at 6-7.

66. *See id.* at 6.

67. *See id.* Sample questionnaires can be found in Thomas Vartanian's "compliance checklist" and in THE YEAR 2000 PROBLEM AND THE LEGAL PROFESSION. *See* Thomas Vartanian, *Year 2000 Compliance Checklist*, 8 BUS. L. TODAY, Sept.-Oct. 1998, at 45, 48; *see also* DAVIS & SPENCER, *supra* note 23, at 27.

68. *See Patterson, supra* note 20, at 8.

69. *See James, supra* note 41, at 23.

firm of LeBoeuf, Lamb, Greene and MacRae is “shaping due diligence records, preparing SEC responses, creating document retention plans and drawing up business continuity strategies” for clients as a way to prevent or minimize Y2K problems.⁷⁰

As U.S. attorneys prepare themselves and their clients for the new millennium, they “have to walk a fine line” between making clients aware of Y2K issues and “screaming that the sky is falling.”⁷¹ Firms such as Brown and Bain in Phoenix, which has a high-tech clientele, also emphasize the sensitivity of Y2K issues and the need to protect clients instead of causing public attention.⁷² Yet, a pro-active marketing approach has been endorsed by firms such as Mintz, Levin, Cohn, Ferris, Glovinsky and Popeo in Boston, since it allowed the firm’s Y2K working group to develop their expertise before clients needed it.⁷³

The structure of Y2K practice groups varies from firm to firm. Some firms have adopted the strategy of a technology-intense team for dealing with Y2K problems.⁷⁴ Other firms have drawn their working group attorneys from a more diverse pool of practitioners, including corporate, intellectual property and litigation.⁷⁵ Shughart, Thomson and Kilroy of Kansas City has formed a ten-attorney practice group, which includes the chair of the firm’s banking and finance group, two co-chairs of the intellectual property group, and the chair of the franchising and distribution group.⁷⁶ The Dallas firm of Haynes and Boone has even brought the head of its international section into their Y2K team.⁷⁷ This approach seems to best match the needs of the situation, since the “burning issues” of Y2K practice are “securities disclosure, [directors and officers] liability, insurance coverage, contracts, etc.”⁷⁸ Most predict that Y2K cases will involve “very standard commercial litigation [but] with a novel fact pattern.”⁷⁹ This seems to imply that most competent attorneys will be able to handle their clients’ Y2K needs even if they do not have a high-tech background.

70. Smith & Tripoli, *supra* note 55, at 10.

71. *Id.* at 11.

72. *See id.*

73. *See id.*

74. *See id.* at 13.

75. *See id.*

76. *See* Shughart, Thomson & Kiltor, *STK Legal Action Team* (visited Jan. 15, 1999) <<http://www.stklaw.com/y2k/html>>.

77. *See* Smith, *supra* note 55, at 13.

78. *Id.*

79. *Id.*

Many U.S. attorneys have acted preemptively by filing and even settling some Y2K suits before the new year arrives. Beatie, King and Abate of New York filed a class action suit against AT&T and Lucent Technologies on January 13, 1999. That suit charges the two corporations with violating New York consumer protection laws and breaching implied warranties of merchantability regarding many of their office communications products.⁸⁰ The plaintiffs in *Beatie, King & Abate, LLP v. Lucent Tech. Inc. and AT&T Corp.* claim that AT&T and Lucent knew or should have known that the Y2K processing problem would make its products obsolete, and that the corporations should have offered free repairs or upgrades to purchasers of the affected products.⁸¹ Intuit, Inc., which manufactures the Quicken software, has had six class action suits filed against it.⁸²

IV. READINESS ABROAD

While attorneys in the United States are actively making plans to capitalize on the predicted Y2K litigation bonanza, legal communities in other areas of the world are not so well prepared. Predictably, Canada and the United Kingdom, as well as other European Union nations such as the Netherlands, are rapidly approaching a peak level of preparedness. Such readiness to confront the new millennium has not been found in South America, Africa, Asia, or Russia and the former Soviet republics. These last two regions seem to be the source of most concern and have the most potential for crises on January 1, 2000.

The Gartner Group, whose research is extensive, uses a four level system to rank predicted mission-critical failure rates among a nation's companies.⁸³ Level 1 is a predicted failure rate of 15%;

80. See *Beatie, King & Abate, LLP v. Lucent Tech. Inc. and AT&T Corp.*, No. 600192/99 (Sup. Ct. New York County, NY, filed Jan. 13, 1999); see also Mealey Publications, *Mealey's Year 2000 Report* (visited Jan. 15, 1999) <<http://nt.excite.com:80/news/pr/990115/pa-mealeys-att-suit>>.

81. See *Beatie, King & Abate, LLP v. Lucent Tech. Inc. and AT&T Corp.*, No. 600192/99 (Sup. Ct. New York County, NY, filed Jan. 13, 1999).

82. See *Stein v. Intuit, Inc.*, No. 98603134 (Sup. Ct. New York County, NY, filed June 24, 1998); *Colbourn v. Intuit, Inc.*, No. 405095 (Super. Ct. San Mateo County, Cal., filed June 4, 1998); *Rubin v. Intuit, Inc.*, No. CV774287 (Super. Ct. Santa Clara County, Cal., filed May 27, 1998); *Fagenburg v. Intuit, Inc.*, No. 98602587 (Sup. Ct. New York County, NY, filed May 26, 1998); *Rocco Chiletto v. Intuit, Inc.*, No. 402582/98 (Sup. Ct. Nassau County, NY, filed May 13, 1998); *Issokson v. Intuit, Inc.*, No. CV773646 (Super. Ct. Santa Clara County, Cal., filed Apr. 28, 1998).

83. See David Legard, *Asia Will Face Big Y2K Hit*, *COMPUTERWORLD*, Nov. 13, 1998, at CNN Interactive (visited Jan. 15, 1999) <<http://207.25.71.25/TECH/computing/9811/13/asiahit.idg/>>.

Level 2 is a predicted failure rate of 33%, Level 3 is 50%,⁸⁴ and Level 4 is a 66% predicted failure rate.⁸⁵ The failure rates among private enterprises may correlate with the level of practitioner readiness in that nation's legal community, since legal services are required to effectively initiate most compliance strategies. The United States, whose attorneys are highly motivated to meet the new millennium, has a Level 1 rank, indicating that only 15% of U.S. companies are predicted to suffer mission-critical failures.⁸⁶

Like the United States, Canada has received a Level 1 failure rate from the Gartner Group.⁸⁷ Practitioners in Canada seem to have benefited from the close proximity, both regional and in practice, to U.S. firms preparing for the new year. A prime example of this relatively high level of practitioner preparation is Clark, Wilson, an intellectual property firm in Vancouver. According to the firm's extensive website, Clark, Wilson's practice group has adopted a multidiscipline approach. It has addressed the issue from a Canadian and U.S. standpoint, benefiting those clients involved in cross-border trade, transactions and investment.⁸⁸ The firm's Y2K practice group is made up of a tax practitioner, securities practitioner, and two insurance and commercial litigation lawyers.⁸⁹

The United Kingdom has one of the highest levels of Y2K preparation in the world.⁹⁰ As in the United States, members of the British legal community are taking advantage of the potential Y2K bonanza. An exemplary firm is that of Tarlo Lyons in London. With a practice predominantly concentrating on commercial and information technology law and with an international clientele, Tarlo Lyons is in a prime position to capitalize on the Y2K problem.⁹¹ Recognizing the global nature of this issue, Tarlo Lyons has not limited its Y2K practice to the United Kingdom; instead, the firm has devoted an entire area of its extensive website to the U.S. Good Samaritan Act⁹² and that law's impact on clients outside the United

84. *See id.*

85. *See id.*

86. *See id.*

87. *See id.*

88. *See* Clark, Wilson, *The Millennium Challenge* (visited Jan. 15, 1999)

<<http://www.cwilson.com/y2k/newsletters/Mcfall98.htm>>.

89. *See id.*

90. *See* Legard, *supra* note 83.

91. *See* Tarlo Lyons, *What We Do* (visited Jan. 30, 1999) <<http://www.tarlo-lyons.com/whatwedo.html>>.

92. Year 2000 Information and Readiness Disclosure Act, Oct. 19, 1998.

States.⁹³ One of the more aggressive Y2K practice groups in the United Kingdom, the Tarlo Lyons practice group was actively advising clients regarding Y2K issues as early as 1996.⁹⁴ Their practice group boasts a “leading U.K. lawyer specializing in Year 2000 legal issues” according to the U.S. Government’s Central Office.⁹⁵

While the Netherlands has been seen as one of the best prepared to meet the new year, there remain areas of major concern. A study by ING Barings in May 1998 warns that medium-sized and small businesses in the Netherlands have not paid sufficient attention to the impending problems.⁹⁶ Because the businesses were not adequately prepared by their legal advisors, the Dutch government created the Millennium Platform, headed by Jan Timmer, to mediate between problem-solvers and enterprises faced with Y2K problems.⁹⁷ This governmental intervention is encountering resistance from the umbrella organization, MKB, representing the smaller businesses.⁹⁸ While MKB did not act to assist its constituents in formulating compliance strategies, it is now lobbying for government sponsored remedial actions.⁹⁹ Timmer has stated that “each firm has its own responsibility to solve its problems,” indicating that the Dutch government is not willing to assume a primary role in making these businesses compliant.¹⁰⁰ This leaves an opening for Dutch legal practitioners to assume a dominant role in private businesses’ last minute efforts to prepare for the new year. Whether the legal community will step in remains unclear.

When the Gartner Group ranking system was applied to European Union member states, several members appear to have fallen short of the mark. France, Italy, and Spain all received Level 2 rankings.¹⁰¹ Germany received only a Level 3, which means that 50% of the nation’s companies are predicted to experience severe

93. See Tarlo Lyons, *Good Samaritan Act Press Release* (visited Jan. 30, 1999) <<http://www.tarlo-lyons.com/read-disc.html>>.

94. See *id.*

95. See *id.* The lawyer in question, Andrew Rigby, contributed to Browne & Co.’s *Legal Liability and the Year 2000* and was the only lawyer from the United Kingdom to speak at the Year 2000 Summit, Rome, Oct. 15-16, 1998. See *id.*

96. See Emma Muller, *Interview: Dutch Rift Compounds Millennium Problem*, Y2K TODAY, Dec. 1, 1999 (visited Jan. 30, 1999) <<http://www.y2ktoday.com/modules/news/>>; see also OECD Report, *supra* note 1, at 38.

97. See Muller, *supra* note 96.

98. See *id.*

99. See *id.*

100. See *id.*

101. See Legard, *supra* note 83.

information technology failures.¹⁰² These low levels of Y2K preparedness may be due to the European Union's transition to the Euro, which has required a great deal of planning, attention and effort in order to be successfully introduced. Hopefully, the low levels of predicted company failures in Belgium, Sweden, Denmark, the Netherlands, Ireland and the United Kingdom will help to minimize the cross-border effect of this lack of preparation.¹⁰³

So poor is the level of Y2K preparation in Russia and Eastern Europe that 50-66% of companies are expected to suffer mission critical information technology failures.¹⁰⁴ The failure of these governments and legal communities to address Y2K issues may be disastrous, since system failures could shut down food supply chains and power grids in the middle of winter.¹⁰⁵ The international ramifications of a shut down of Russian and Eastern European energy industries due to lack of Y2K compliance could be staggering, as they are a major source of power for Western Europe.¹⁰⁶

Australia is the best prepared of all the Pacific Rim nations.¹⁰⁷ However, Australian lawyers are now faced with a shortage of Y2K expertise because many compliance professionals are employed by U.S. industries urgently trying to prepare for the new year.¹⁰⁸

Asia seems to be one of the least prepared regions of the world. According to members of the Gartner Group, the rate of mission-critical failures in Asian nations will exceed the predicted 40% average for companies worldwide.¹⁰⁹ Gartner Group researchers have ranked all Asian nations at or below a Level 2 readiness.¹¹⁰

102. See *id.*

103. See Legard, *supra* note 83. There is concern over cross-border disruption, such that the Netherlands has threatened to isolate its power grid in order to protect domestic energy supplies. See Charles Devarics, *Foreign Countries Lagging on Y2K, Congress Told*, Y2K TODAY, Jan. 21, 1999 (visited Jan. 30, 1999) <<http://www.y2ktoday.com/modules/news/>>.

104. See Legard, *supra* note 83. Russia, Lithuania, and Romania have all received the lowest Gartner Group ranking, while companies in Poland, Yugoslavia, Bulgaria, and the Czech Republic are predicted to experience a Level 3 rate of system failures. See *id.*

105. See Devarics, *supra* note 103.

106. See Reuters, *Nervous in '99: International Y2K Fears Grow in 1999*, ABCNEWS.COM, Dec. 11, 1998 (visited Jan. 30, 1999) <<http://204.202.137.114/sections/tech/DailyNews/Y2Kpanic981211.html>>. Germany receives 40% of its power from Eastern European sources. See *id.*

107. The Gartner Group has predicted a 15% mission-critical failure rate for Australian companies. See Legard, *supra* note 83.

108. See Stuart Kennedy, *Gartner Sees Y2K Misery in Asia*, COMPUTER DAILY NEWS, NEWSBYTES NEWS NETWORK, Mar. 25, 1998 (visited Jan. 8, 1999) <http://www.nb-pacifica.com/headline/gartnerseesy2kmisery_1271.shtml>.

109. See Legard, *supra* note 83.

110. See *id.*

Only Taiwan, Singapore and South Korea have Level 2 rankings.¹¹¹ Singapore's relatively high level of governmental Y2K readiness has not reached its small and medium-sized businesses, which are "woefully unprepared."¹¹² This may be evidence that the attorneys for the Singaporean government have kept up with the needs of the Y2K problem, but private practitioners have failed adequately to prepare their business clients. Supporting this view is the fact that less than 100 of Singapore's 92,000 small and medium-size enterprises (SME) have applied for government grants to assist in compliance measures.¹¹³ One local businessman blames ignorance of the Y2K problem on Singapore's lack of business preparation and fears that profit-seekers have exaggerated the impact of the new year.¹¹⁴

In spite of the relatively low predicted failure rate in Taiwan, the Taiwanese government announced on January 3, 1999, that approximately 400,000 of the nation's one million SME's were still unprepared for the new year.¹¹⁵ Citing ignorance of the repercussions of the Y2K programming problem, the government has decided to increase awareness programs and to assist SMEs in compliance efforts, arguably something Taiwan's lawyers should be doing for their clients.¹¹⁶

At Level 3, with a predicted 50% rate of failure among national companies are India, Malaysia, North Korea, and Japan.¹¹⁷ According to Jim Duggan of the Gartner Group, the alarming lack of readiness in Japan "could cause major problems to ripple out."¹¹⁸ Bob Hayward, also of the Gartner Group, has predicted that the lack of Y2K compliance by Japan's businesses will cause such chaos as to create a global recession by 2001.¹¹⁹ In light of these predictions, Japanese Prime Minister Keizo Obuchi's Y2K panel announced in January 1999 that 70% of companies in finance, transport, energy, telecommunications and medicine "have completed modifying their computer programmes to tackle the Year 2000 computer bug."¹²⁰ This

111. *See id.*

112. *See id.*

113. *See id.*

114. *See id.*

115. *See Reuters, Some 400,000 Taiwanese Companies Not Ready for Y2K, Y2K TODAY, Jan. 4, 1999 (visited Jan. 30, 1999) <<http://www.y2ktoday.com/modules/news/>>.*

116. *See id.*

117. *See Legard, supra note 83.*

118. *See id.*

119. *See Kennedy, supra note 108.*

120. *Reuters, Japan Key Industries Prepared for Y2K Bug, Y2K TODAY, Jan. 22, 1999 (visited Jan. 30, 1999) <<http://www.y2ktoday.com/modules/news/>>.*

announcement, however, does not address whether these companies have prepared for the legal ramifications of Y2K disruptions, nor whether these companies have assessed the strength of their supply chains in the face of a Y2K system failure or whether they have established a strategy for dealing with problems arising with the new year.

Asia's least prepared nations are China, the Philippines, Cambodia, Indonesia, Laos, Pakistan, Thailand, and Vietnam.¹²¹ The fact that these national enterprises are so poorly prepared seems to reflect a low level of readiness among the region's governments and legal communities. Had attorneys in these countries been working to raise awareness, make their clients Y2K compliant and protect against future liabilities and losses, surely these nations' companies would have higher levels of Y2K preparedness.

In Hong Kong, a July 1998 exhibition and seminar of Y2K compliance issues drew business owners "in droves."¹²² Many of Hong Kong's companies have yet to begin any sort of Y2K planning or compliance strategy.¹²³ According to one local businessman, Hong Kong SMEs "know they have a problem but they don't know what to do about it."¹²⁴ Surely this is a sign that Hong Kong's legal community has either failed to address the Y2K issues of their clients completely or is suffering an equally poor rate of preparation.

The lack of practitioner and government awareness and preparation in Asia is so great that private industry is stepping in to fill the void.¹²⁵ Hewlett-Packard announced in January 1999 that teams of experts would be assembled to help their clients in Asia tackle the Millennium Bug.¹²⁶ Dick Warmington, President and Managing Director of Hewlett-Packard's Asia Pacific Operations, has attributed the lack of preparation to the focus on financial issues "arising from the region's economic crisis," which has left little time to address a programming problem.¹²⁷

The lowest levels of Y2K preparation are found among developing nations and the industries often present in such nations:

121. See Legard, *supra* note 83.

122. Megan Scott, *SMEs Face "Widespread Panic" Over Y2K*, COMPUTERWORLD HONG KONG, July 24, 1998 (visited Jan. 8, 1999) <<http://www.cw.com.hk/News/n980724001.htm>>.

123. See *id.*

124. *Id.*

125. See Reuters, *HP to Form Asian Y2K Crisis Teams*, Y2K TODAY, Jan. 15, 1999 (visited Jan. 30, 1999) <<http://www.y2ktoday.com/modules/news/>>.

126. See *id.*

127. See *id.*

chemical processing, natural gas and oil, farming and agriculture.¹²⁸ With an expected failure rate of 50-60%,¹²⁹ much of Latin America¹³⁰ and Africa¹³¹ are extremely unprepared for the Y2K problems, which are sure to strike despite the relatively low level of computerization in these nations.¹³² In fact, some attribute the low levels of industrialization in Africa and other developing economies as the reason that these regions are so unprepared. There is a misconception that the lack of extensive computerization will actually immunize these nations from the Millennium Bug.¹³³ The actual result may be that, due to reliance on a few older computer systems, developing nations will feel a greater impact.¹³⁴

A recent World Bank report indicates that the low levels of readiness in these regions may retard these nations' ability to obtain food, health care and electricity.¹³⁵ To compensate for low levels of domestic preparation, the World Bank has authorized a \$30 million loan to Argentina for subsidizing its compliance efforts.¹³⁶ The need for such international intervention may be an indication that the legal community in Argentina, like other developing countries, has failed to effectively address the Y2K problems facing its clients. Direct evidence of a lack of practitioner readiness in Africa's legal communities is found in the fact that the World Bank has organized Y2K awareness programs to help raise levels of compliance (a function served by the legal communities of nations such as Canada, the United Kingdom and the United States).¹³⁷ Joyce Amenta of the

128. Legard, *supra* note 83.

129. *See id.*

130. Only Brazil and Peru have received Level 2 preparation rankings. *See id.* Argentina, Colombia, Guatemala, and Venezuela have been ranked at Level 3, while Costa Rica, Ecuador, El Salvador, and Uruguay are all at the bottom of the spectrum. *See id.*

131. Egypt, Kenya, and South Africa are among the best prepared, and they are still expected to experience a 50% failure rate. *See id.* The least prepared nations include Ethiopia, Chad, Morocco, Kenya, Mozambique, Somalia, Zaire, Zimbabwe, and Nigeria. *See id.*

132. *See* Jeff Cochrane, *Y2K and the Uzbek Power Grid*, WESTERGAARD2000 INTERNATIONAL WATCH, Oct. 2, 1998 (visited Feb. 9, 1999) <<http://www.y2ktimebomb.com/IW/AK/index.htm>>; *see also* Mike Fletcher, *Letter from Kazakhstan*, WESTERGAARD2000 INTERNATIONAL WATCH, Oct. 16, 1998 (visited Feb. 9, 1999) <<http://www.y2ktimebomb.com/IW/AK/index.htm>>.

133. *See* Associated Press, *Poor Countries Unprepared for Y2K*, Y2K TODAY, Jan. 26, 1999 (visited Jan. 30, 1999) <<http://www.y2ktoday.com/modules/news/>>.

134. *See id.*

135. *See* The World Bank Group, *Developing Countries Poorly Prepared to Combat Millennium (Y2K) Bug in 2000*, The World Bank Group New Release, Jan. 26, 1999 (visited Feb. 9, 1999) <<http://www.worldbank.org/html/extdr/extme/2078.htm>>; *see also* Jan. 20, 1999 Cong. Record for House Govt'l Reform & Science committees.

136. *See Poor Countries Unprepared for Y2K*, *supra* note 133.

137. *See id.*

World Bank attributes the lack of preparation in developing nations to a perception that the Y2K problem is “a vague and distant threat,” and so “the daily survival faced by developing countries have distracted [them] from fixing the Y2K problem.”¹³⁸

Of special concern is the situation in Brazil, the eighth largest economy in the world and a major source of food grains and industrial components.¹³⁹ The Gartner Group predicts that 33% of Brazil’s companies will experience mission-critical system failures in 2000.¹⁴⁰ Experts worry that Brazil will be unable to keep their problems within their borders.¹⁴¹

The lack of practitioner readiness in the oil producing nations of the Middle East, Africa and South America is sure to have a global impact.¹⁴² The low levels of readiness in the oil and gas industry, as well as the related areas of transportation, power and shipping all foreshadow a major crisis as the new year approaches.¹⁴³ Given the fact that offshore oil platforms utilize thousands of microchips in hundreds of embedded systems,¹⁴⁴ it is unclear why industry management and counsel have failed to prepare for the potential crisis in 2000. There is a huge lack of Y2K awareness among SMEs in the United Arab Emirates.¹⁴⁵ Instead of the attorneys in the U.A.E. raising levels of awareness, it is information technology companies with contacts in the U.S. or Europe.¹⁴⁶ Unlike the U.S., the U.A.E. has not required multinational corporations operating within its borders to make disclosures about their compliance status.¹⁴⁷ This prevents informed investing and leaves members of these corporations’ supply chains open to Y2K disruptions caused by failures in other parts of the chain.

The legal communities of the best prepared nations—Canada, the United States, the United Kingdom, etc.—have been vocal and conspicuous in their Y2K activities. There is very little evidence of Y2K practice groups and firm activity elsewhere. To gauge levels of

138. *Id.*

139. *See Nervous in '99: International Y2K Fears Grow in 1999, supra* note 106.

140. *See Legard, supra* note 83.

141. *See Nervous in '99: International Y2K Fears Grow in 1999, supra* note 106.

142. *See Devarics, supra* note 103.

143. *See id.* These industries have received a Level 3 rating from the Gartner Group. *See Legard, supra* note 83.

144. *See Devarics, supra* note 103.

145. *See Sunil Madhock, Y2K in Arab Lands: Complacency Leads to Panic, WESTERGAARD2000 INTERNATIONAL WATCH*, June 5, 1998 (visited Feb. 9, 1999) <<http://www.www.y2ktimebomb.com/IW/AK/iw9822.htm>>.

146. *See id.*

147. *See id.*

practitioner preparation, recourse has been made to the level of readiness found among a nation's SMEs. This seems to be correlative for several reasons. First, small and medium-sized enterprises are most likely to retain private legal counsel for compliance issues, since their size often precludes having extensive in-house legal departments. Second, the statistics seem to indicate a relationship. In Canada, a survey of SMEs in October 1997 and again in May 1998 found that small businesses, 39% of which were making preparations in October, had a 66% preparation rate in May.¹⁴⁸ The proportion of Canada's medium-sized firms preparing for Y2K problems increased from 70% in October to 90% in May.¹⁴⁹ When the U.K. Action 2000 group surveyed British SMEs in June 1998, it found that 98% of those polled knew of the Y2K problem, 7% were fully compliant, 17% had completed enough changes to function after the new year, 39% had adopted compliance programs and 30% had calculated the costs of compliance.¹⁵⁰ These high levels of readiness by small and medium-sized business enterprises correspond with high levels of attorney activism. Over 35% of German SMEs were not prepared for the new year in the latter portion of 1998.¹⁵¹ A French survey of over 700 SMEs, revealed that 44% of respondents viewed the Y2K problem as unimportant and 39% thought the issue had been exaggerated.¹⁵² With Level 3 and Level 2 Gartner Group rankings, respectively, both of these nations are relatively unprepared to handle Y2K related disruptions. In March 1998, a Korean survey discovered that 34% of SMEs planned to take no compliance actions.¹⁵³ South Korea's companies are expected to lose 33% of systems to mission-critical failures, while North Korea is expected to have a 50% failure rate.¹⁵⁴ These statistics seem to indicate that lower levels of Y2K readiness among a nation's SMEs indicate a lower level of legal practitioner preparations.

V. CONCLUSIONS

There is general consensus that January 1, 2000, will have some sort of global impact connected with the Y2K programming problem. While some see a mild inconvenience ahead, others are planning for a

148. See OECD Report, *supra* note 1, at 31.

149. See *id.*

150. See *id.*

151. See *id.* at 30.

152. See *id.*

153. See *id.*

154. See Legard, *supra* note 83.

doomsday effect with airplanes falling from the sky, power outages and empty grocery store shelves. Many of the world's attorneys have caught the Millennium Bug, and are eagerly reaping the benefits of its symptoms. In the U.S. and its most industrialized colleagues, legal practitioners are carving a billion dollar niche for themselves based on the Year 2000. The result is that in these nations, levels of public awareness, government action and SME preparation are extremely high. Predictions of Y2K disruption for these well-prepared nations are relatively mild. However, in those regions where the legal communities have been either preoccupied by economic crises or new currencies or have underestimated the impact of the new year, the exact reverse situation is found. Public awareness is minimal, governmental action has been delayed and usually very passive, and national SMEs are under prepared, if at all.

Given the global scope of the Y2K problem and the increased interdependence of national economies, a massive Y2K "hit" in one region will cause disruptions in varying degrees around the world. This is why it is imperative that attorneys maintain present levels of readiness, while fostering increased compliance efforts among clients and colleagues at home and abroad.

APPENDIX. Y2K RESOURCES AVAILABLE ON THE INTERNET

U.S. GOVERNMENTAL SITES

Office of Management and Budget, cio.gov/decdraftg.htm

The full text of the OMB 7th Quarterly Report, *Progress on Year 2000 Conversion*, Dec. 8, 1998 is available here.

International Governmental Sites

Canada Year 2000 Activity, www.info2000.gc.ca

Nicely organized with charts, tables and graphs, this site provides access to a large amount of information about governmental compliance efforts, including links to most major Canadian federal agencies for further information on Y2K efforts.

Y2K Indonesia, www.pdat.co.id/y2k/muka.htm

Though sponsored by the Indonesian government, this site includes links to Y2K news stories about most Asian nations, as well as Russia and the Pacific Rim. No links to governmental materials are offered.

Y2K Malaysia, www.y2k.gov.my

The main feature of this site is Deepak Pillai's analysis of legal issues related to the Y2K problem.

United Kingdom, www.open.gov.uk/citu/2000

Offering an amazing amount of U.K. governmental materials, the CITU home page includes links to speeches, news releases and quarterly progress reports on government compliance for England, Wales, Scotland and Northern Ireland.

UNITED NATIONS SITES

www.un.org/members/yr2000/meeting

This site includes papers on international cooperation in Latin America and Mexico and a piece on the electric power industry in North America.

LAW FIRM SITES

Clark, Wilson, www.cwilson.com/y2k

Established by Clark, Wilson, this site includes a firm profile as well as articles on Y2K issues written by members of the firm.

Debevoise & Plimpton, www.debevoise.com

One of America's largest international law firms, Debevoise and Plimpton has a searchable site which includes a firm profile and Y2K

memos and articles on subjects such as requirements for filing ADV-Y2K Forms with the SEC.

McGuire, Woods, Battle & Boothe, LLP, Tysons Corner, VA, www.mwbb.com

This firm spotlights its Y2K practice group instead of the problem itself.

Tarlo Lyons, London UK, www.tarlo-lyons.com

This firm's site has an extensive collection of Y2K related materials, including a piece on legal issues specifically associated with embedded systems by Andrew Rigby.

Thelen, Marrin, Johnson & Bridges, LLP, San Francisco, www.bluemarble.net

With a number of links to related articles, the primary feature of this site is an examination of Y2K legal issues by Rauer Meyer and Steven Hock.

NEWS SITES

Y2K Today, www.y2ktoday.com

Consistently updated and on point, this site offers timely new coverage of Y2K issues worldwide and an archive of past articles. This site is also searchable, making retrieval of information easy.

Westergaard2000, International Watch, www.y2ktimebomb.com

This site includes a wide variety of brief articles about Y2K issues worldwide by authors from many different areas of expertise.

Other Sites of Interest

American Bar Association, www.abanet.org/tech/ltrc/2000/y2ktech.html

The ABA provides technical information about Y2K issues on this site.

The Gartner Group, www.gartner.com

This site includes M. Hotle's February 1998 research note, *Year 2000 Planning: Honesty Is The Best Policy*.

SOS 2000, strategis.ic.gc.ca

Focused on Canadian industry, this website follows the progress of private enterprises' compliance efforts and includes materials such as Task Force Year 2000 news releases.

Timothy Feathers, www.year2000.com/archive

This site provides help with compliance contract language.