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Intersections of Business and Legal Dispute Resolution: Decision Analytic Modeling of Litigation Investment Decisions

George J. Siedel

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INTERSECTIONS OF BUSINESS AND LEGAL DISPUTE RESOLUTION: DECISION ANALYTIC MODELING OF LITIGATION INVESTMENT DECISIONS*

GEORGE J. SIEDEL**

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I. INTRODUCTION

In recent years, law schools and business schools across the United States have witnessed a growing interest in teaching and research related to the resolution of disputes. A large number of law schools currently offer courses in alternative dispute resolution, arbitration, negotiation, interviewing, and counseling.¹ Indeed, there appears to be “a new profession being born—the lawyer mediator. . . . More [young lawyers] are seeking an alternative to the adver-

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1. Courses, clinics or other dispute resolution programs are offered at 108 law schools. Ray, Kestner, & Freedman, *Dispute Resolution: From Examination to Experimentation*, 65 MICH. B.J. 898, 899 (1986). Nearly 75% of the 400 professors who responded to a survey by the Dispute Resolution Clearinghouse at the University of Wisconsin indicated that they teach alternative dispute resolution in some form. *Surveys Show ADR a Staple of Curricula*, ALTERNATIVES, Oct. 1985, at 7.

sary system and are open to alternatives such as mediation.”²

Interest in dispute resolution among business school professors is evidenced by an increase in the number of research papers and courses on dispute resolution.³ The number of papers presented at the annual meeting of the Academy of Management on Power, Negotiation and Dispute Resolution grew fourfold over six years, from six papers in 1980 to twenty-four in 1985.⁴ Likewise, only a few courses on these topics were in existence in 1980, while today approximately fifty courses are offered.⁵ At some schools, these courses are among the most popular offerings with students.⁶

In some respects, the law school and business school approaches to dispute resolution are similar. The principles of negotiation, for instance, are taught in both types of school.⁷ And the prospect of future cooperation be-

2. 1983 LAW SCHOOL DIRECTORY OF DISPUTE RESOLUTION PROGRAMS iii (K. Brannelly ed. 1983). The first law school textbook was published in 1985. S. GOLDBERG, E. GREEN & F. SANDER, *DISPUTE RESOLUTION* (1985). This textbook was followed by a casebook in 1986. L. KANOWITZ, *ALTERNATIVE DISPUTE RESOLUTION* (1986).

3. See *ADR Blossoms in Business Schools*, *ALTERNATIVES*, Oct. 1985, at 11. Like law schools, business schools across the country report that the burgeoning interest in dispute resolution has surfaced in a plethora of courses dealing with the subject. The trend has been spearheaded by a class of business professors keenly aware of the advantages of short-of-court solutions to business problems.

Id.

4. Academy of Management Proposal for the Formation of a Power/Negotiation/Conflict Resolution Interest Group 2 (January, 1986) (unpublished document) [hereinafter *Academy of Management Proposal*].

5. *Id.* at 5.

6. *Id.* At the Amos Tuck School of Business Administration at Dartmouth, for example, the Executive Power and Negotiation course is the most popular course in the school. When the course was first offered, twenty percent of the student population enrolled; the percentage today stands at ninety percent.

“I teach people to stay out of court,” says Prof. Leonard Greenhalgh of the Amos Tuck School of Business Administration at Dartmouth. “Almost all business situations have the potential for conflict, so the question is: How to deal with it?” he reasons. “Litigation is only one way, and it is often heavy-handed and not productive.”

The importance of dispute resolution (DR) for business is much on the minds of business students as well, Professor Greenhalgh maintains. While “business is certainly becoming dissatisfied with litigation,” he says, “the pressure for curricular treatment of the topic often comes from the students themselves.”

ADR Blossoms, *supra* note 3, at 11.

7. See, e.g., S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 19-89; L. KANOWITZ, *supra* note 2, at 39-76; and R. LEWICKI & J. LITTERER, *NEGOTIATION* (1985). However, to date, it appears that most of the literature on negotiation has been written by law professors or practicing attorneys. Menkel-Meadow, *Toward Another*

tween law schools and business schools is promising, as a result of the efforts of the Center for Public Resources, the American Arbitration Association, and the National Institute for Dispute Resolution. The Center for Public Resources has established an Education Project designed to promote curricular development, research, and interdisciplinary work.⁸ In 1983, the American Arbitration Association invited representatives of leading law and business schools to meetings to discuss dispute resolution teaching and research.⁹ These meetings led to the formation of a Task Force on Law and Business Schools which examined, among other issues, business school and law school cooperation.¹⁰ The National Institute for Dispute Resolution (NIDR) has established programs to support dispute resolution teaching and research in business schools and law schools.¹¹ And in 1985 and 1986, the Task Force and NIDR sponsored conferences on teaching negotiation and mediation attended by law and business school professors.¹²

Despite certain similarities and future prospects, however, fundamental differences exist between law school and business school approaches to dispute resolution. In law school, dispute resolution is often referred to as ADR—alternative dispute resolution. The focus is on disputes in which litigation is on the horizon,¹³ and negotiating processes take place within the

View of Legal Negotiation: The Structure of Problem Solving, 31 UCLA L. REV. 754, 755 n.1 (1984).

8. *Groups Increase Aid to ADR Professors*, ALTERNATIVES, Oct. 1985, at 12. The Center for Public Resources has developed an alternative dispute resolution pledge that has been signed by the chief executive officers of almost one hundred American corporations. See J. HENRY & J. LIEBERMAN, *THE MANAGER'S GUIDE TO RESOLVING LEGAL DISPUTES* 127-28, 154-56 (1985).

9. The business school meeting was hosted by Walter Wriston, then chairman of Citibank. Michael I. Sovern, President of Columbia University, chaired the law school meeting.

10. The Task Force focused its efforts in three areas: research, teaching, and the developing of workshops. *Reports of the AAA Task Force on Law and Business Schools*, ARB. J., Sept. 1985, at 17.

11. NATIONAL INSTITUTE FOR DISPUTE RESOLUTION, PROGRAM ON PROFESSIONAL EDUCATION: GRANTS ANNOUNCEMENT AND PROGRESS REPORT (1986).

12. The 1985 conference was attended by 120 law and business school professors. *ADR Blossoms*, *supra* note 3, at 11.

13. A dispute, for purposes of legal research, exists when a claim based on a grievance is rejected by the other party. Miller & Sarat, *Grievances, Claims, and Disputes: Assessing the Adversary Culture*, 15 L. & SOC'Y REV. 525, 527 (1980-81); Galanter, *Reading the Landscape of Disputes: What We Know and Don't Know (and Think We Know) About Our Allegedly Contentious and Litigious Society*, 31 UCLA L. REV. 4, 13 (1983); Trubek, Sarat, Felstiner, Kritzer & Grossman, *The Costs of Ordinary Litigation*, 31 UCLA L. REV. 73, 87 (1983). Some researchers, however, define a dispute as a conflict which is made public. See, e.g., Mather & Yngvesson, *Language, Audience, and the Transformation of Disputes*, 15 L. & SOC'Y REV. 775, 776 (1980-81).

shadow of the law.¹⁴ The law school approach views the attorney as a key player in the dispute resolution process; in other words, "lawyers serve as the gatekeepers for disputes."¹⁵

Business school professors tend to adopt a broader perspective than their law school counterparts by emphasizing conflict, which is viewed as an ubiquitous phenomenon that exists at all levels of an organization.¹⁶ Dispute resolution is not necessarily seen as an alternative to litigation because legal resolution of the conflicts with which business school professors are concerned may not be feasible.¹⁷ As a result, the role of the attorney is diminished in the business school approach¹⁸ and replaced to some extent by an interest in power theory¹⁹ and conflict intervention.²⁰

The relationship between law school and business school approaches to dispute resolution has not, to date, been clearly articulated and discussed. This is unfortunate because increased awareness of the differences in perspective would enrich dispute resolution theory and practice. The purpose of this paper is twofold. First, a dispute resolution taxonomy will be used to provide an overview of the linkage between law school-type ADR concepts and the business school interest in power theory and conflict intervention. Second, to illustrate the benefits that can arise from interaction between legal and business research, a specific technique—the use of decision tree analysis in resolving disputes—will be explored in depth.

II. DISPUTE RESOLUTION: AN OVERVIEW

This section will provide an overview of the relationship between alternative dispute resolution as taught in law schools and the business school concepts of power theory and conflict intervention. The framework for comparison will be a three-part dispute resolution taxonomy: dispute prevention, alternative dispute resolution, and dispute management.²¹

The sequence in which these categories are discussed represents to some extent the strategies used in dealing with disputes, presented in chronological order. Initially, the focus should be on *preventing* disputes. In cases where prevention fails, the emphasis moves to the methods of dispute resolution that serve as *alternatives* to litigation. If the alternatives fail, *management* of the

14. Mnookin & Kornhauser, *Bargaining in the Shadow of the Law: The Case of Divorce*, 88 YALE L.J. 950 (1979).

15. U. S. DEPT. OF JUSTICE, PATHS TO JUSTICE: MAJOR PUBLIC POLICY ISSUES OF DISPUTE RESOLUTION 20 (1984).

16. Academy of Management Proposal, *supra* note 4, at 1.

17. See, e.g., *infra* text accompanying note 55 on an employee's use of power.

18. See J. HENRY & J. LIEBERMAN, *supra* note 8, at 78.

19. See *infra* text accompanying notes 40-56.

20. See *infra* text accompanying notes 110-20.

21. CENTER FOR PUBLIC RESOURCES, CORPORATE DISPUTE MANAGEMENT xxvi (1982).

dispute becomes the main concern.

A. Dispute Prevention

1. The Law School Approach: Preventive Law

In law schools, dispute prevention comes in the guise of preventive law. The fundamental premise of preventive law is that it is often more important to predict how people will behave than what a court will do.²² In other words, winning a lawsuit can result in financial disaster, while preventing a lawsuit can be less expensive.²³ Dispute prevention includes five approaches which might be combined or used separately: (1) consensus building, (2) dispute analysis, (3) legal audits, (4) legal education of management, and (5) the use of an ombudsman.

Consensus building is useful in reducing the sense of injury felt by an aggrieved party and, in turn, the potential for resulting litigation. It is felt that those who participate in reaching a consensus are less likely to feel injured.²⁴ The consensus-building model has been especially successful in the environmental area—for example, in the National Coal Policy Project,²⁵ and in negotiated development of land use projects.²⁶

Dispute analysis involves the tracking of disputes in order to determine where and how they arise and the costs incurred in their resolution.²⁷ The law department of Bank of America, for instance, uses a preventive law log to track attorneys' suggestions to management.²⁸ Bank of America also established a Task Force which recommended a dispute resolution program that, in conjunction with the tracking of disputes, included a number of preventive measures such as consumer education, employee training, and a streamlined complaint process.²⁹

A legal audit—an audit of a company's legal affairs—might include the development of a statistical base to determine the areas in which the company is most susceptible to litigation.³⁰ However, audits are also used to prevent disputes that are less obvious³¹ and to establish procedures which better enable a company to defend a lawsuit. A litigation audit, for instance, might provide a process and a checklist for educating management with regard to discovery procedures, privileged communication, security matters, procedures for han-

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22. L. BROWN & E. DAUER, *PLANNING BY LAWYERS* 309 (1978).
 23. CENTER FOR PUBLIC RESOURCES, *supra* note 21, at xxviii-xxix.
 24. *Id.* at xxix.
 25. *Id.* at 125-37.
 26. *Id.* at 171-210.
 27. J. HENRY & J. LIEBERMAN, *supra* note 8, at 102.
 28. *Id.* at 105.
 29. CENTER FOR PUBLIC RESOURCES, *supra* note 21, at 211-18.
 30. J. HENRY & J. LIEBERMAN, *supra* note 8, at 104.
 31. L. BROWN & E. DAUER, *supra* note 22, at 335-58.

ding documents, and steps to follow once litigation arises.³³

Legal education of management could possibly be accomplished by means of a legal audit but should be viewed as a broader company responsibility that exists whether or not an audit procedure is in place. For example, the most advanced compliance effort a company might make in response to the threat of federal antitrust action is to integrate compliance with normal management functions. This benefits individual managers as well as the company.

Managers understand that they will enhance profitability and that their professional advancement requires an understanding of the law, the enforcement environment, and the complexity of promotion compliance among subordinates. Senior managers spend more time than they have spent in the past on legal matters. Several companies claim to keep a "Friends of Legal" list, which, in addition to being a resource for the legal department, helps discriminate among candidates for promotion.³⁴

An ombudsman is essentially a neutral fact-finder who has been authorized to investigate complaints and make recommendations.³⁴ With the demise of the employment-at-will doctrine,³⁵ the use of an ombudsman has become especially valuable in preventing litigation resulting from employee complaints. At McDonald's Corporation, for instance, the ombudsman handles between 150 to 180 employee complaints a year.³⁶

These five preventive law approaches are given short shrift in law school textbooks on dispute resolution. The use of an ombudsman receives the most coverage;³⁷ other preventive law methods such as the legal audit receive very little attention.³⁸

2. The Business School Approach: Power Theory

Dispute prevention in business schools falls within coverage of power the-

32. Gonser & Wilhelm, *The Litigation Audit*, 68 A.B.A. J. 446 (1982).

33. Beckenstein, Gable & Roberts, *An Executive's Guide to Antitrust Compliance*, HARV. BUS. REV., Sept.-Oct. 1983, at 101.

34. J. HENRY & J. LIEBERMAN, *supra* note 8, at 109.

35. See Note, *Protecting at Will Employees Against Wrongful Discharge: The Duty to Terminate Only in Good Faith*, 93 HARV. L. REV. 1816 (1980); Lopatka, *The Emerging Law of Wrongful Discharge—A Quadrennial Assessment of the Labor Law Issue of the 80s*, 40 BUS. LAW. 1 (1984).

36. J. HENRY & J. LIEBERMAN, *supra* note 8, at 110. For a description of the role of the ombudsman at Control Data Corporation, see CENTER FOR PUBLIC RESOURCES, *supra* note 21, at 229-41. If the ombudsman is unable to resolve a dispute, the mini-trial might be used as an alternative to litigation. *Id.* at 243-47. Mini-trials are discussed *infra* at text accompanying notes 81-96.

37. See, e.g., L. KANOWITZ, *supra* note 2, at 135-46; S. GOLDBERG, E. GREEN, & F. SANDER, *supra* note 2, at 298-300.

38. See, e.g., S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 548-49.

ory. Power theory receives little coverage in law school textbooks,³⁹ while in business schools, the role of power appears to be covered more extensively.⁴⁰

Power is broadly defined as the ability of people to bring about certain outcomes.⁴¹ The concept of power involves "the notion of getting someone to do something that he or she would not do in the absence of influence."⁴² Underlying most models of power are five power bases originally articulated by French and Raven:⁴³

- a. *Legitimate* power arises in situations in which one person feels that it is proper to obey the directions of another person.⁴⁴ For example, a subordinate obeys a manager because of the manager's superior power arising from their role relationship.⁴⁵
- b. *Referent* power arises when a person is attracted to or admires a powerholder⁴⁶ or a reference group.⁴⁷ A partner, for instance, might persuade a newly-hired associate to work evenings by noting that all partners worked evenings when they first became associated with the firm.
- c. *Expert* power exists when the powerholder has developed expertise in a particular area,⁴⁸ although the power might extend beyond the area of expertise.⁴⁹ A person who has developed an expertise in finance or marketing, for instance, might be able to exert power within an organization beyond these functional areas.
- d. *Punishment* power involves punishment of a person (e.g., dismissal or a pay cut) who does not comply with a request.⁵⁰ One problem with punishment power is that it requires surveillance by the powerholder to determine whether punishment is justified.⁵¹
- e. *Reward* power is the reverse of punishment power in that rewards are given

39. In L. KANOWITZ, *supra* note 2, at 41-68, a section on "Power Versus Reason" contains for the most part a case, *NLRB v. Ins. Agent's Int'l Union*, 361 U.S. 477 (1960), and readings on missiles, deterrents, and United States-Soviet Union negotiations. In addition, S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 29-33, contains an excerpt from Fisher, *Negotiating Power*, 27 AM. BEHAV. SCI. 149, 150, 160-64 (1983), in which Fisher acknowledges that "GETTING TO YES has been justly criticized as devoting insufficient attention to the issue of power."

40. See R. LEWICKI & J. LITTERER, *supra* note 7, at 239-57. The word "power" even appears in course titles. See, e.g., *supra* note 6.

41. R. LEWICKI & J. LITTERER, *supra* note 7, at 239.

42. Greenhalgh, *Changing Behavior Through Performance Appraisal*, in *THE MANAGER AS NEGOTIATOR AND DISPUTE RESOLVER* 132-33 (1985).

43. French & Raven, *The Bases of Social Power*, in *STUDIES IN SOCIAL POWER* 150-67 (D. Cartwright ed. 1959). See Greenhalgh, *supra* note 42, at 133.

44. R. LEWICKI & J. LITTERER, *supra* note 7, at 247.

45. Greenhalgh, *supra* note 42, at 133.

46. R. LEWICKI & J. LITTERER, *supra* note 7, at 252.

47. Greenhalgh, *supra* note 42, at 134.

48. R. LEWICKI & J. LITTERER, *supra* note 7, at 251.

49. Greenhalgh, *supra* note 42, at 134.

50. R. LEWICKI & J. LITTERER, *supra* note 7, at 244.

51. Greenhalgh, *supra* note 42, at 134-35.

when a person complies with the requests of the powerholder.⁵² One problem with the use of reward power, in addition to the surveillance problem that exists when punishment power is used, is that rewards must increase over time in order to satisfy the person being influenced. As a result, reward power can be costly.⁵³

The relationship between law, or at least litigation, and the five bases of power is subject to speculation. It appears that law is more closely related to legitimate power, expert power, and punishment power than to the other power bases. Law represents legitimate power to the extent it is accepted and obeyed by those it affects. Attorneys within and outside a company can exert expert power so long as their expertise is respected. As the legal education of managers increases, however, law becomes demystified and the power balance shifts from attorneys to management. Punishment power relates to the ability of a company to exercise legal rights in punishing employees, such as the right to fire an employee "at will."

Although the development of a more precise model of the relationship between law and power is a fertile area for future research, it is clear for the time being that the bases of power are complex and go beyond the law. A company (or an individual) that, in its failure to recognize this complexity, tends to equate law with power will encounter inevitable problems. These potential problems include the heavy transactions costs associated with litigation and the possibility that a change in the law might shift the corporate power structure.

Changes in the employment-at-will rule, for example, have been expensive for companies relying on the traditional approach,⁵⁴ which typically has involved the use of punishment power to fire an employee. If, instead of relying on law-backed punishment power, a manager is sensitive to other bases of power, litigation might be avoided. An employee under review often possesses certain types of power, such as expert power (knowledge of lower-level operations) and reward power (ability to make the manager look good) that should be recognized by the superior.⁵⁵ If a manager is insensitive to the subordinate's power and relies too heavily on legitimate or punishment power, the subordinate might become hostile, leading to escalation of the dispute. Escalation, in turn, might result in dismissal of the employee and litigation.⁵⁶

If, on the other hand, the dynamics of power are recognized in the early stages of negotiation between the manager and subordinate, it is likely that the parties will be in a better position to address and resolve the substantive

52. R. LEWICKI & J. LITTERER, *supra* note 7, at 243.

53. Greenhalgh, *supra* note 42, at 134.

54. A 1982 study of California wrongful discharge cases that went to juries revealed that plaintiffs were successful in ninety percent of the cases and the average award was \$450,000. See Lopatka, *supra* note 35, at 3.

55. See, e.g., Greenhalgh, *supra* note 42, at 140-41.

56. *Id.* at 132.

problems that are at issue. In other words, power theory focuses more on preventing the conception of a dispute than on the later point in time when the dispute escalates and hostilities surface.

B. *Alternative Dispute Resolution*

1. The Law School Approach: Alternatives to Litigation

Law school teaching and research on dispute resolution places great emphasis on alternatives to litigation.⁵⁷ Although there is some disagreement regarding the classification of the alternatives,⁵⁸ they usually fall within two widely-known models of dispute resolution:⁵⁹ arbitration and mediation. Most alternatives, however, do not precisely match these two prototypes⁶⁰ and some methods, labeled "hybrid processes" in the discussion that follows, are especially difficult to categorize.

Mediation and arbitration will be defined below in terms of control, which is considered "the most significant factor in characterizing a procedural system."⁶¹ The two key control variables are control over the decision ("the degree to which any one of the participants may unilaterally determine the outcome of the dispute")⁶² and control over the process ("the development and selection of information that will constitute the basis for resolving the dispute").⁶³

a. The *arbitration* model, which is similar to adjudication,⁶⁴ calls for the

57. See U. S. DEPT. OF JUSTICE, *supra* note 15, at 4.

58. See, e.g., the classifications in CENTER FOR PUBLIC RESOURCES, *supra* note 21, at MH 16-17; U. S. DEPT. OF JUSTICE, *supra* note 15, at 34; S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 8; J. MARKS, E. JOHNSON & P. SZANTON, *DISPUTE RESOLUTION IN AMERICA: PROCESSES IN EVOLUTION* 42-50 (1984).

59. U. S. DEPT. OF JUSTICE, *supra* note 15, at 12.

60. "We usefully distinguish pure types like adjudication and mediation, but institutions usually do not operate in accordance with a single prototype. In practice these types are combined, and much dispute processing deviates from the avowed prototype." *Id.* at 30.

61. Thibaut & Walker, *A Theory of Procedure*, 66 CALIF. L. REV. 541, 546 (1978). See also THE ROLE OF COURTS IN AMERICAN SOCIETY 89 (J. Lieberman ed. 1984); Sheppard, *Third Party Conflict Intervention: A Procedural Framework*, 6 RES. IN ORGANIZATIONAL BEHAV. 141, 150 (1984). Other common denominators of alternative dispute resolution techniques are: retranslation of the problem from legal issues to the real issues, patent responsiveness to each party, access to third parties, and analysis of incentives to resolve disputes. CENTER FOR PUBLIC RESOURCES, *supra* note 21, at xxvii-xxviii.

62. Thibaut & Walker, *supra* note 61, at 546.

63. *Id.*

64. ROLE OF COURTS, *supra* note 61, at 95. See also Fuller, *The Forms and Limits of Adjudication*, 92 HARV. L. REV. 353, 392 (1978); J. HENRY & J. LIEBERMAN, *supra* note 8, at 69.

parties to control the process (in that they present proofs and arguments) but not the decision, which is rendered by a third party.⁶⁵ Parties may agree in advance of a dispute to arbitration in forty-three states⁶⁶ or may consent after a dispute has arisen.⁶⁷ And, as discussed later, the state may require certain cases to be submitted to arbitration.⁶⁸ Among the advantages that arbitration offers⁶⁹ are: speed, privacy, the use of an expert as arbitrator, flexibility in procedure and remedies, and cost savings.⁷⁰

Arbitration affords the opportunity for parties to utilize creative procedures such as a "high-low" contract.⁷¹ Under the "high-low" arrangement, which may also be used in litigation, the parties agree in advance on the parameters of the plaintiff's recovery. The agreement in a product liability action for \$400,000 might provide, for example, that if the jury decides that the defendant is not liable, the defendant will still pay \$50,000, while if the defendant is liable, the defendant will pay \$100,000. Through the agreement, the defendant has avoided the risk of substantial damages (\$400,000) while the plaintiff is protected from the possibility of no recovery.⁷²

Arbitration also may be used in conjunction with the court system. For instance, the use of private judges as referees is permitted by all states except Illinois and Louisiana.⁷³ Labeled "rent-a-judge" by the press,⁷⁴ this procedure offers several advantages of standard arbitration—notably speed, privacy, the ability to select an expert as arbitrator, and lower costs. The two major differ-

65. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 8; ROLE OF COURTS, *supra* note 61, at 89.

66. Meyerowitz, *The Arbitration Alternative*, 71 A.B.A. J. 78, 79 (1985).

67. ROLE OF COURTS, *supra* note 61, at 95.

68. See *infra* text accompanying notes 99-103.

69. U. S. DEPT. OF JUSTICE, *supra* note 15, at 12-13. These advantages, of course, do not apply to every situation. For example, in some cases arbitration may take as long as litigation. J. HENRY & J. LIEBERMAN, *supra* note 8, at 71-72.

70. For an example of cost savings, see CENTER FOR PUBLIC RESOURCES, *supra* note 21, at 338-39.

71. Other creative approaches include final-offer arbitration and one-way arbitration. With final-offer arbitration, the parties first make final offers, and then the arbitrator (without seeing the offers) makes an award. The actual award will be the final offer that is closer to the arbitrator's award. This procedure offers an inducement to the parties to make reasonable final offers. If the plaintiff, for instance, makes a reasonable offer that is closer to the arbitrator's award than the defendant's offer, the plaintiff will receive the amount of its offer. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 282.

With one-way arbitration, only one party, typically the more powerful party, agrees to be bound by the arbitration. J. MARKS, E. JOHNSON & P. SZANTON, *supra* note 58, at 47. For an example of the one-way arbitration procedure used by Ford Motor Co. see CENTER FOR PUBLIC RESOURCES, *supra* note 21, at 219-28.

72. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 281-82.

73. J. HENRY & J. LIEBERMAN, *supra* note 8, at 75.

74. Wall Street Journal, Aug. 6, 1980, at 1, col. 1.

ences are that the rules of evidence apply to the proceeding⁷⁵ and the referee's decision may be appealed on the basis of an error of law.⁷⁶ The use of private judges has been subject to criticism for providing "rich man's justice" because the referee is paid for by the litigants.⁷⁷

b. The *mediation* model calls for the involvement of a third-party mediator who attempts to assist parties in resolving a dispute but who has no power to render a decision.⁷⁸ Thus, as in negotiation without a third party, the parties who participate in mediation have control over both the process and the decision.⁷⁹ Among the advantages cited for mediation are the opportunity to deal with issues underlying a dispute, the avoidance of bitterness following a dispute by allowing the disputants to build understanding and trust, and cost savings.⁸⁰

The mini-trial represents an especially promising form of mediation. Despite its name, the mini-trial is not a trial but, instead, an information exchange which allows business executives to hear attorneys for both sides present their best case in abbreviated form. Following the presentation, the executives meet in an attempt to resolve the dispute in a business-like manner.⁸¹ Although model agreements have been developed,⁸² there is no one set procedure. For example, a mini-trial may utilize a neutral advisor, although one is not required,⁸³ and may take place with or without court supervision.⁸⁴

The original mini-trial was held in 1977, in an attempt to resolve a patent dispute between Telecredit, Inc. and TRW, Inc. In 1974, Telecredit sued TRW for patent infringement, seeking an injunction and \$6 million in damages. By 1977, 100,000 documents had exchanged hands, but a pretrial conference date had not yet been set. The parties then began to develop a procedure they called an "information exchange."⁸⁵ This procedure initially called

75. J. HENRY & J. LIEBERMAN, *supra* note 8, at 75.

76. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 281.

77. CENTER FOR PUBLIC RESOURCES, *supra* note 21, at 79.

78. Conciliation is similar to mediation, although in the former the third party plays a less active role. FEDERAL TRADE COMMISSION, HANDLING CUSTOMER COMPLAINTS: IN-HOUSE AND THIRD-PARTY STRATEGIES 9 (1980).

79. ROLE OF COURTS, *supra* note 61, at 96.

80. U. S. DEPT. OF JUSTICE, *supra* note 15, at 14.

81. E. FINE, CPR LEGAL PROGRAM MINI-TRIAL WORKBOOK, app. 7 (1985); see also Comment, *Whose Dispute Is This Anyway?: The Propriety of the Mini-Trial in Promoting Corporate Dispute Resolution*, 1987 MO. J. DISP. RES. 133.

82. J. HENRY & J. LIEBERMAN, *supra* note 8, at 129-37.

83. *Id.* at 32. TRW used a minitrial without a neutral advisor in resolving a dispute with NASA. HOW TO KEEP YOUR COMPANY OUT OF COURT 48 (P. Allen ed. 1984).

84. E. FINE, *supra* note 81, at 56.

85. For a description of the procedure chosen by the three parties involved in the Telecredit-TRW mini-trial, see Green, Marks & Olson, *Settling Large Case Litigation: An Alternative Approach*, 11 LOY L.A.L. REV. 493 (1978). See also *Text of TRW-*

for expedited discovery, which would last six weeks. Following discovery, a two-day meeting was scheduled. At the meeting, the attorneys for each side were given four hours to present their best case, followed by short periods for reply and rebuttal. The proceedings were moderated by a neutral advisor (a patent law expert), who was to provide a nonbinding opinion if the parties failed to settle the case.⁸⁶ The executives in attendance (the president of Telecredit and vice-president of TRW), who had authority to settle, met for thirty minutes following the presentations and reached a settlement agreement, thus saving an estimated \$1 million in attorneys' fees.⁸⁷ In the years following the TRW-Telecredit precedent, mini-trials have been used in more than one hundred cases.⁸⁸

One of the major advantages of the mini-trial is that executives, having heard the best case presentation of the opposing attorney, come to the realization that there are two sides to the issues in dispute.⁸⁹ The information gained during the proceeding will enable them to evaluate the litigation as they would other investments and negotiate a settlement that preserves business relationships.⁹⁰ The mini-trial also offers savings in time and money.⁹¹ It is estimated that the cost of a mini-trial is ten percent of the cost of traditional litigation.⁹²

The mini-trial offers executives the opportunity to use creative problem solving in shaping a "win-win" resolution of the dispute, as opposed to the "all or nothing" solutions often rendered in litigation.⁹³ However, there are legal limits to creativity. For example, the executives handling the negotiation, if they are not already familiar with antitrust law, should be briefed on *per se* offenses such as price fixing,⁹⁴ tying arrangements,⁹⁵ and reciprocal dealings.⁹⁶

Telecredit Mini-Trial Protocol, ALTERNATIVES, Apr. 1984, at 15.

86. For a description of the Telecredit-TRW mini-trial by the neutral advisor, see Davis, *A New Approach to Resolving Costly Litigation*, 61 J. PAT. OFF. SOC'Y 482 (1979).

87. A detailed account of the Telecredit-TRW mini-trial is found in J. HENRY & J. LIEBERMAN, *supra* note 8, at 19-25. See also E. FINE, *supra* note 81, at 31-33 and CENTER FOR PUBLIC RESOURCES, *supra* note 21, at MH 22-36.

88. Silas, *Mini-trials Lauded*, 71 A.B.A. J. 25 (1985). See, e.g., CENTER FOR PUBLIC RESOURCES, *supra* note 21, at MH 26-53; E. FINE, *supra* note 81, at 34-55.

89. J. HENRY & J. LIEBERMAN, *supra* note 8, at 9, 31.

90. *Id.* at 43-44.

91. *Id.* at 36-39, 46-47.

92. *Minitrials to the Rescue?* 70 A.B.A. J. 134 (1984).

93. J. HENRY & J. LIEBERMAN, *supra* note 8, at 39-42.

94. See *United States v. United States Gypsum Co.*, 438 U.S. 422 (1978).

95. See *Northern Pacific Ry. v. United States*, 356 U.S. 1 (1958).

96. See *F.T.C. v. Consolidated Foods Corp.*, 380 U.S. 592 (1965). For examples of other *per se* offenses that might relate to mini-trial negotiations, see CENTER FOR PUBLIC RESOURCES, *supra* note 21, at MH 76-77. Executives should also understand the law of contracts and evidence. See G. WILLIAMS, *LEGAL NEGOTIATION AND SETTLEMENT* 91-109. (1983).

c. *Hybrid* processes fall somewhere between mediation and arbitration with regard to the disputants' control over the process and decision.⁹⁷ Three prominent examples are the summary jury trial, court-annexed arbitration, and med-arb.

The summary jury trial is a procedure that utilizes an advisory jury in order to encourage parties to reach a settlement. Attorneys first present short (e.g., one hour) summaries of the case to the jury. The jury deliberates for a short period of time and then answers specific questions about liability and damages.⁹⁸ Through this procedure, attorneys are presumably better able to evaluate and settle the case.

The use of court-annexed (or court-ordered) arbitration has been authorized by sixteen states and ten federal district courts.⁹⁹ Under this procedure, courts order arbitration in all cases in which the claim for damages falls below a certain amount, in many states between \$10,000 and \$15,000.¹⁰⁰ A party who does not accept the arbitrator's award is entitled to a trial *de novo*.¹⁰¹ Although evidence from the arbitration is usually not admissible during the trial,¹⁰² sanctions may be imposed if the party requesting the trial does no better than in the arbitration. The sanctions, which can include payment of the costs of both the arbitration and the trial, have been upheld when attacked on constitutional grounds.¹⁰³

Med-arb is a process in which a third party first acts as a mediator and then, if mediation fails, as an arbitrator. An advantage of this process is that the parties will be induced to settle the dispute when a mediator-arbitrator provides hints regarding the likely outcome of an arbitration.¹⁰⁴ One variation of med-arb calls for the third party to act as an advisory arbitrator if mediation fails.¹⁰⁵ Another variation gives the mediator the power to recommend a

97. J. MARKS, E. JOHNSON & P. SZANTON, *supra* note 58, at 44.

98. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 282-83. *See also* Lambros & Shunk, *The Summary Jury Trial*, 29 CLEVE. ST. L. REV. 43 (1980); J. MARKS, E. JOHNSON & P. SZANTON, *supra* note 58, at 46.

99. NATIONAL INSTITUTE FOR DISPUTE RESOLUTION, COURT-ORDERED ARBITRATION ISSUE 4 (1985).

100. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 225, 228; J. MARKS, E. JOHNSON & P. SZANTON, *supra* note 58, at 46.

101. NATIONAL INSTITUTE, *supra* note 99, at 3.

102. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 225, 230-31. In states where the findings of an arbitration panel are admissible in court, the procedure has withstood challenges on constitutional grounds. *See, e.g.*, Johnson v. St. Vincent Hosp., Inc., 273 Ind. 374, 404 N.E.2d 585 (1980); Parker v. Children's Hosp., 483 Pa. 106, 394 A.2d 932 (1978).

103. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 230. *See, e.g.*, In re Smith, 381 Pa. 223, 112 A.2d 625 (1955).

104. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 246.

105. *See* Goldberg, *The Mediation of Grievances Under a Collective Bargaining Contract: An Alternative to Arbitration*, 77 NW. U.L. REV. 270 (1982).

decision to an arbitrator.¹⁰⁶

2. The Business School Approach: The Manager as a Dispute Resolver

The business school approach to alternative dispute resolution differs from the law school perspective in that there is interest in both the inquisitorial process (in addition to mediation and arbitration) and the manager as a third-party dispute resolver.

The inquisitorial process receives little coverage in legal publications on dispute resolution.¹⁰⁷ In business school research, however, relying heavily upon the procedural taxonomy developed by Thibaut and Walker,¹⁰⁸ the inquisitorial (or autocratic) system found in Europe receives more attention. In the inquisitorial process, court investigators gather evidence on behalf of the judge, who calls and questions witnesses before reaching a decision.¹⁰⁹ The third party (judge) thus controls both the process and the decision.

The study of managers as third-party dispute resolvers is considered appropriate because conflict intervention is a major part of their jobs.¹¹⁰ A study by Sheppard¹¹¹ of the procedures used by managers in conflict intervention, as compared with arbitration, mediation, and inquisitorial processes, yielded surprising results. The most common intervention procedure involved management control of both the process and the decision—that is, inquisitorial intervention.¹¹²

The second most common procedure, which Sheppard labelled “providing impetus,”¹¹³ does not match precisely any of the three processes. The example given by Sheppard is a dispute between the head of the data processing department in a retail store chain, who wanted to hire summer interns immediately, and the person who headed personnel, who argued that normal hiring practices should be followed.¹¹⁴ In intervening in this dispute, the company vice president told the managers that they had “damn well better go back and work it out.”¹¹⁵

106. S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 247. See also J. FOLBERG & A. TAYLOR, *MEDIATION* 277-80 (1984).

107. See, e.g., *ROLE OF COURTS*, *supra* note 61, at 98; J. MARKS, E. JOHNSON & P. SZANTON, *supra* note 58, at 44, 48.

108. J. THIBAUT & L. WALKER, *PROCEDURAL JUSTICE: A PSYCHOLOGICAL ANALYSIS* (1975), noted in Sheppard, *supra* note 61, at 150.

109. See Sheppard, *Managers as Inquisitors: Some Lessons from the Law*, in *NEGOTIATING IN ORGANIZATIONS* 193, 207 (M. Bazerman & R. Lewicki eds. 1983).

110. *Id.* at 194.

111. *Id.* at 203.

112. *Id.*

113. *Id.* at 204.

114. *Id.*

115. *Id.*

The third intervention procedure, called "adversary intervention"¹¹⁶ by Sheppard, is similar to the arbitration model in which a manager controls the decision but allows the disputants to control the process (the presentation of evidence and arguments). Notably absent from the procedures used by managers is the mediation process. In other words, "managers most frequently appear to utilize one of three procedures which are quite different from those generally recommended [conciliatory or mediation procedures] in the Organizational Behavior literature."¹¹⁷

As Sheppard's study illustrates, alternative dispute resolution offers great potential for collaborative business and legal research. Business research would be enriched by comparative law research on the two legal systems—inquisitorial and adversarial—that strongly parallel two of the three management intervention procedures.¹¹⁸ Existing legal research on the relative strengths and weaknesses of the two systems, for instance, "suggests at least five hypotheses that can begin to form the basis of a contingency model of managerial conflict intervention."¹¹⁹ Furthermore, legal research regarding modification of the two legal systems to minimize their weaknesses would be useful in analyzing managerial intervention strategies.¹²⁰

Legal research would benefit from closer scrutiny of the processes, such as managerial conflict intervention, that take place before the conflict is recognized as a legal dispute. A study of the frequency of litigation¹²¹ revealed that for every 1000 grievances, 718 claims were made to the offending party.¹²² Of these claims, 449 resulted in disputes.¹²³ In the 103 of these disputes where lawyers were retained, actual complaints were filed in 50 cases.¹²⁴ A conclusion that might be drawn from this survey is that the lawyer's role as the

116. *Id.* at 205.

117. Sheppard, *supra* note 61, at 162.

118. Sheppard, *supra* note 109, at 208.

119. *Id.* at 208-209. These hypotheses are:

First, adversary intervention will be perceived by the disputing employees as more fair than inquisitorial interventions. . . . [Second,] more information relevant to the task of the intervening manager will be generated using adversary intervention than will be generated using inquisitorial intervention. . . . [Third,] managers using adversary intervention will be less likely to become prematurely biased and draw premature conclusions than will managers using inquisitorial intervention. . . . [Fourth,] inquisitorial intervention will generate less distorted or biased information than adversary information will. . . . [Fifth,] inquisitorial intervention will result in less conflict during the resolution process than will adversary intervention.

Id.

120. *Id.* at 209-10.

121. Trubek, Sarat, Felstiner, Kritzer, Grossman, *supra* note 13, at 86-88.

122. *Id.*

123. *Id.*

124. *Id.*

“gatekeeper for disputes”¹²⁵ is greatly overblown in that only 10.3 percent of the grievances reached an attorney.

This conclusion means that the role of non-professional dispute resolvers, such as managers, is more important than may have been assumed by legal researchers. Indeed, dispute resolution by managers might be described as primary dispute resolution rather than alternative dispute resolution because most individuals with grievances (89.7 percent) apparently do not consider the legal system as an option to which processes such as managerial intervention might be seen as alternatives. Legal researchers who are conversant with business research will be challenged to develop new processes aimed at fair resolution of the great majority of disputes that never reach the legal system.

C. Dispute Management

Models of dispute management are based on two assumptions. First, it is assumed that litigation can be managed using the tools of cost accounting and business judgment. Second, the work of the law department, like other corporate departments, is viewed as a center for the management of investments.¹²⁶ To accomplish successful dispute management, managers must be educated about litigation,¹²⁷ and corporate attorneys must be knowledgeable about budgetary systems.

In 1976, for example, Xerox Corporation decided that a system of budgetary planning was necessary to control legal expenses.¹²⁸ Xerox realized that the timing of litigation expenses is an important factor, for a company must be aware of projected cash flows.¹²⁹ Staff lawyers at Xerox initially argued that it was not possible to use a budgetary system for litigation because of uncertainties relating to actions by adversaries and judges.¹³⁰ However, Xerox proceeded to develop its budgetary system on the realization that “recognizing the existence of unknown factors, and estimating their impact, is hardly unheard of in financial planning.”¹³¹ The results at Xerox are noteworthy. Between 1976 and 1982, Xerox reduced outside legal expenses from \$12 million to \$3 million and its law department staff from 152 to 70 lawyers.¹³²

125. See *supra* text accompanying note 15. As Prof. McKay has observed, “disputants do not see the issue as courts or something else. They want resolution of their dispute by whatever device is most likely to be fair, speedy and inexpensive.” *ADR Book Review*, ALTERNATIVES, Oct. 1985, at 15 (emphasis in original).

126. CENTER FOR PUBLIC RESOURCES, *supra* note 21, at xxviii.

127. *Id.* at 64.

128. *Id.* at 312.

129. *Id.*

130. Banks, *Companies Struggle to Control Legal Costs*, HARV. BUS. REV., Mar.-Apr. 1983, at 169.

131. *Id.*

132. *Id.* at 168. Other factors, however, may account in part for the reduction in expenses and staff. For instance, in 1976 Xerox Corp. “was in the throes of major

It is ironic that dispute management, which perhaps holds the most promise of any dispute resolution strategy for joint business and legal research, has been ignored for the most part by researchers in law and business schools. The small amount of research on dispute management tends to be conducted by practitioners for practicing attorneys or managers.¹³³ This is an area of research which obviously has great future potential and should be explored.

III. DECISION TREE ANALYSIS

In the preceding section, a three-part dispute resolution taxonomy was used to provide an overview of the relationship, in theory, between law school alternative dispute resolution concepts and the business school interest in power theory and conflict management. Several topics which hold special promise for collaborative research were also noted. In this section, a specific technique that illustrates the benefits that might arise from joint legal and business research—decision tree analysis—is examined in greater detail.

One major theme underlying business and legal research in dispute resolution is the importance of management involvement in preventing and resolving disputes and in managing litigation. However, increased management involvement is problematic in that executives frequently have difficulty incorporating legal analysis, with its inherent complexity and uncertainty, into management decision making. Decision tree analysis offers a solution to this problem and, by so doing, allows executives to become more effective participants in dispute resolution processes.

Decision tree analysis has been used for many years in making business decisions under conditions of uncertainty.

Personalized decision analysis has become an accepted part of the staff services that major corporations draw on routinely, much as they do industrial psychology, cost analysis, marketing research, and economic analysis. And virtually all the major areas of government have adopted decision analysis in one form or another.¹³⁴

The use of decision trees cuts across the business spectrum,¹³⁵ as applications

litigation." CENTER FOR PUBLIC RESOURCES, *supra* note 21, at 312. Settlement of such litigation would presumably reduce the need for legal services.

133. See, e.g., Allen, *How to be a Smart Consumer of Legal Services: Controlling Legal Fees and Lawyers*, in HOW TO KEEP YOUR COMPANY OUT OF COURT, *supra* note 83, at 23-40; J. HENRY & J. LIEBERMAN, *supra* note 8, at 96-98, 147-53; Chayes, Greenwald & Wing, *Managing Your Lawyers*, HARV. BUS. REV., Jan.-Feb. 1983, at 84; Quinn, *Preparing the Litigation Budget*, ALTERNATIVES, Feb. 1983, at 1; Warshauer, *Litigation Management Techniques*, ALTERNATIVES, Nov. 1984, at 7.

134. Ulvila & Brown, *Decision Analysis Comes of Age*, HARV. BUS. REV., Sept.-Oct. 1982, at 131. See also M. PETERSON, NEW TOOLS FOR REDUCING CIVIL LITIGATION EXPENSES 25 (1983); Fisher, *He Who Pays the Piper*, HARV. BUS. REV., Mar.-Apr. 1985, at 158.

135. See CONCEPTS AND APPLICATIONS OF MODERN DECISION MODELS (V.

have been developed in accounting,¹³⁶ economics,¹³⁷ finance,¹³⁸ marketing,¹³⁹ organizational behavior,¹⁴⁰ and corporate strategy.¹⁴¹ Decision tree analysis has also been used in medical decision making.¹⁴²

Corporate counsel began to recognize the benefits of decision tree analysis in the early 1980's and today references to this method of analysis for making legal decisions appear in law school textbooks¹⁴³ and other books.¹⁴⁴ However, apart from a few, short articles in journals oriented toward practitioners,¹⁴⁵ decision tree analysis has been virtually ignored to date in academic journals.

In this section, the use of decision tree analysis in building a model of a litigation decision will be described using a hypothetical case for illustrative purposes. The model will then be used in making several management decisions relating to litigation. The section will close with a review of the extent to which decision trees are currently used in corporate practice.

Tummala & R. Henshaw eds. 1976).

136. See, e.g., R. ANTHONY & J. REECE, ACCOUNTING: TEXT AND CASES 726-28 (1983).

137. See P. MARSHALL, MANAGERIAL ECONOMICS: TEXT AND CASES 245-51 (1973).

138. See R. BREALEY & S. MYERS, PRINCIPLES OF CORPORATE FINANCE 204-13 (1981).

139. See W. O'DELL, A. RUPPEL & R. TRENT, MARKETING DECISION MAKING: ANALYTIC FRAMEWORK AND CASES 96-100 (1976).

140. See Hatvany, *Decision Making: Managers and Cognitive Models*, in MANAGING ORGANIZATIONS (D. Nadler, M. Tushman & N. Hatvany eds. 1982).

141. See Duncan, *What is the Right Organizational Structure? Decision Tree Analysis Provides the Answer*, ORGANIZATIONAL DYNAMICS, Winter 1979, at 59.

142. See, e.g., S. BARNOON & H. WOLFE, MEASURING THE EFFECTIVENESS OF MEDICAL DECISIONS (1972); P. HILL, H. BEDEAU, R. CHECHILE, W. CROCHETIERE, B. KELLERMAN, D. DUNJIAN, S. G. PAUKER, S. P. PAUKER & J. RUBIN, MAKING DECISIONS 152-76 (1979) [hereinafter P. HILL].

143. See S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 549; R. GILSON, THE LAW AND FINANCE OF CORPORATE ACQUISITIONS 86-99 (1986).

144. See J. HENRY & J. LIEBERMAN, *supra* note 8, at 98-99; R. BEHN & J. VAUPEL, QUICK ANALYSIS FOR BUSY DECISION MAKERS 133-62, 234-70 (1982); H. RAIFFA, THE ART & SCIENCE OF NEGOTIATION 66-77 (1982); M. PETERSON, *supra* note 134, at 25-28.

145. See, e.g., Beron, *Litigation Analysis: A Comprehensive, Logical Approach to Litigation Decision-Making*, SAN FRAN. ATT'Y, Aug.-Sept. 1984, at 1; Bodily, *When Should You Go to Court*, HARV. BUS. REV., May-June 1981, at 103; Greenberg, *The Lawyer's Use of Quantitative Analysis in Settlement Negotiations*, 38 BUS. LAW. 1557 (1983); James, *Decision Tree Analysis of Lawsuits*, PREV. LAW REP., Apr. 1984, at 150; Raker, *Calculating Litigation Prospects*, Nat'l L.J., Apr. 14, 1986, at 19, col. 4; Siedel, *The Decision Tree: A Method to Figure Litigation Risks*, 11 BAR LEADER, Jan.-Feb. 1986, at 18; Victor, *The Proper Use of Decision Analysis to Assist Litigation Strategy*, 40 BUS. LAW. 617 (1985).

A. *Building a Model of a Litigation Decision*

Decision analysis, a term coined in 1963,¹⁴⁶ is defined as “a discipline comprising the philosophy, theory, methodology, and professional practice necessary to formalize the analysis of important decisions.”¹⁴⁷ The decision tree is a decision analysis technique for dealing with the uncertainty that is inherent in most difficult decisions.¹⁴⁸ “Decision tree analysis” refers to the use of the decision tree technique in analyzing a problem.

The use of a decision tree to build a model of a litigation decision is a three-step process. First, the decision is depicted in the form of a tree on its side. Next, probabilities are assigned to each of the uncertain events on the decision tree. Finally, values are specified at the end of the tree’s branches.

1. The Decision Tree

An intellectual property case will be used to illustrate the development and use of a decision tree model. The plaintiff in the case, Alpha, Inc., produces software that runs on IBM computers. Alpha is now adapting the software for use on non-IBM equipment, and will be in a position to market the new product in about a year. The defendant, Beta, Inc., purchased Alpha’s software two years ago and signed a licensing agreement prohibiting the sale of the software to others. Alpha alleges that Beta is now working on a translation of Alpha’s software for use on non-IBM equipment and asks the court for an injunction that would prevent Beta from marketing the translation.

Beta has made a final settlement offer to Alpha in which Beta would pay \$1.5 million in cash and, in return, would receive Alpha’s permission to continue with its development and marketing of the translation. Alpha estimates that if the injunction is issued, the present value¹⁴⁹ of its returns from the adapted software will be \$5.3 million greater than without the injunction. Expenses and fees paid to outside counsel total \$75,000 to date, and, if Alpha proceeds with discovery and a trial, it expects to expend another \$100,000—the present value of future legal fees and costs.

146. READINGS ON THE PRINCIPLES AND APPLICATIONS OF DECISION ANALYSIS vii (R. Howard & J. Matheson eds. 1983).

147. *Id.* at viii. Decision analysis has also been categorized as “a discipline for [the] systematic evaluation of alternative actions [which serves] as a basis for choice among them.” R. BROWN, A. KAHR & C. PETERSON, DECISION ANALYSIS, AN OVERVIEW vii (1974).

148. READINGS, *supra* note 146, at viii. The classic reference on decision analysis is H. RAIFFA, DECISION ANALYSIS (1970). For a concise introduction to the topic see R. BROWN, A. KAHR & C. PETERSON, *supra* note 147; *see also* P. HILL, *supra* note 142; R. BEHN & J. VAUPEL, *supra* note 144. For an introduction to descriptive decision making, see G. WRIGHT, BEHAVIORIAL DECISION THEORY (1984).

149. *See* Greenberg, *supra* note 145, at 1559-61; G. WILLIAMS, *supra* note 96, at 120.

The president of Alpha wants to take an active role in reaching a settlement decision and in managing the litigation (for example, by making budgeting decisions) should the case proceed to trial. The president asks counsel for an analysis of the legal issues in the case and Alpha's chances for success. Counsel responds with a memorandum which observes that Alpha's action is based upon Beta's copyright infringement and misappropriation of Alpha's trade secrets. The memorandum then describes the key legal issues as follows (as quoted from the memorandum):

- a. *Similarity*. In order to win on either the copyright infringement or the trade secrets theory, we must prove that the Beta software is substantially similar to our software. This is a difficult issue to resolve; we must hire several experts and take a number of depositions before we know better whether or not similarity exists. However, the chances are better than even that we will be able to prove substantial similarity in court.
- b. *Access*. In order to win on either theory we must also prove that Beta had access to our software before developing its own software. Beta claims that its software was in the development stage before it purchased our software. Although there is evidence to support Beta's claim, we have concluded that access to our software was essential in completing the Beta software and that it is likely we will be able to prove prior access in court.
- c. *Validity of Copyright*. Beta claims that our copyright is invalid on the grounds that our program cannot be separated from the idea (the algorithm) it implements and ideas cannot be copyrighted. Because this claim has little or no merit, there is a high probability that the court will hold that our copyright is valid (which means that we win the case and an injunction will be issued).
- d. *Preemption*. Even if the court decides that our copyright is invalid, we might still prevail on a trade secrets theory. There are really two trade secrets issues which the court must decide. First, the court must determine whether or not federal copyright law preempts state trade secrets law. We have determined that the probability of the court deciding that copyright law does not preempt state trade secrets law (and therefore that we may proceed with our trade secrets argument) is very high.
- e. *Trade Secrets Violation*. The second trade secrets issue is whether Beta has misappropriated our trade secrets. It is likely that we will prevail on this issue.

Making decisions based on this legal analysis is difficult for the president because the case is complicated and there are several uncertainties. The president, therefore, decides to create a decision tree representation of the problem. Two key elements in a decision tree are the decision fork, represented by a box, and the chance fork, represented by a circle. Decision forks represent alternatives over which the president has control, while chance forks represent uncertain events beyond the decision maker's control. The specific alternatives and uncertain events are represented by branches emanating from the forks.

To date, decision tree models of litigation decisions have appeared in two forms. In one form, all issues in the case are combined in one chance fork with

two branches: "win case" and "lose case," as in Figure 1.¹⁵⁰

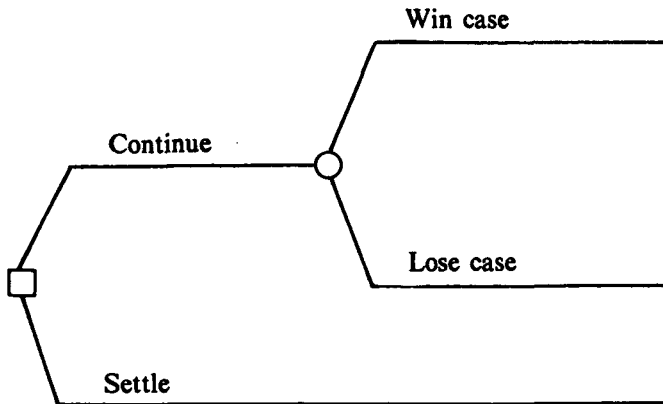


Figure 1.

In the other, more sophisticated form, each legal issue is specified within the tree.¹⁵¹ Because the decision tree loses its utility as a powerful analytical tool when the simple form is used, we will assume that the president selects the sophisticated form. Figure 2 represents an illustration of one such sophisticated form.

In preparing the decision tree, the president realizes that there is one decision to be made at this time: Should Alpha accept the settlement offer or continue with the litigation? This decision fork is represented by the box on the left side of the decision tree in Figure 2. There are five uncontrollable events, the five issues discussed in the memorandum from counsel, and these are represented on the tree as chance forks. The issues central to both the copyright validity and trade secrets issues—similarity and access—are represented as the first two uncertainties on the tree in Figure 2.

150. See Victor, *supra* note 145, at 617, 627. For examples of the simple form, see R. BEHN & J. VAUPEL, *supra* note 144, at 134; Bodily, *supra* note 145, at 108; Greenberg, *supra* note 145, at 1557; M. PETERSON, *supra* note 134, at 26; H. RAIFFA, *supra* note 144, at 72.

151. See, e.g., Beron, *supra* note 145, at 7; James, *supra* note 145, at 153; Raker, *supra* note 145, at 24; Siedel, *supra* note 145, at 19-21; Victor, *supra* note 145, at 620.

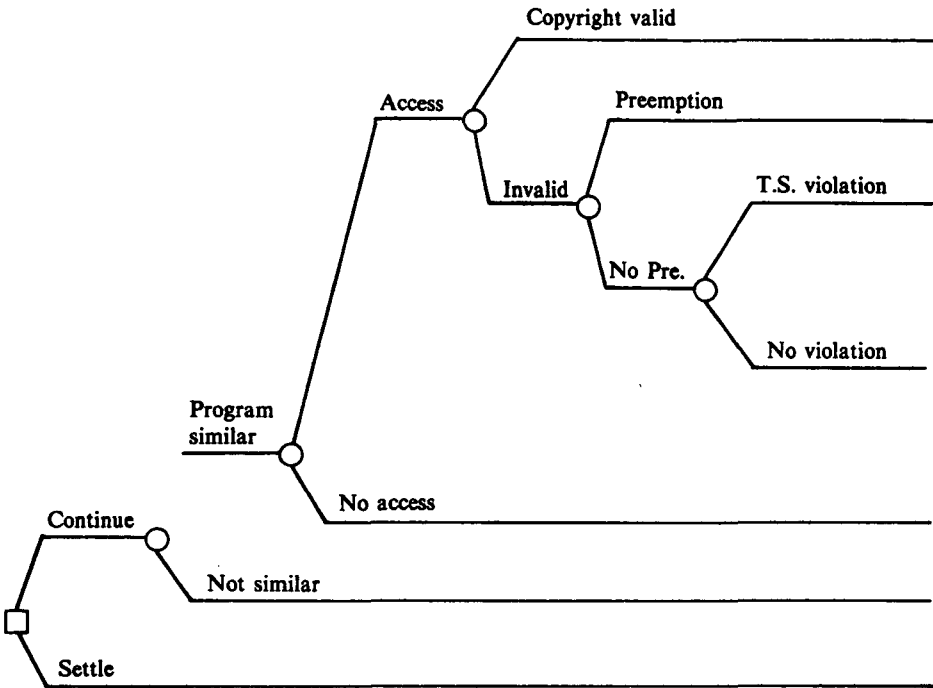


Figure 2

2. Assignment of Probabilities

The next step in building the model of a litigation decision is to assign probabilities at each of the chance forks. The assignment of probabilities is part of the everyday work of attorneys¹⁵² and Alpha's attorney has already assigned probabilities in the action against Beta. The problem, however, is that the attorney's assessment is stated verbally, not in numbers.

Various studies have shown that verbal probability statements mean different things to different people.¹⁵³ For example, the attorney's memorandum

152. See R. EGGLESTON, *EVIDENCE, PROOF AND PROBABILITY* 4 (1978); G. WILLIAMS, *supra* note 96, at 115-19; PLI, *PRODUCT LIABILITY OF MANUFACTURERS* 733 (1979). Eggleston notes:

When the legal advisers of a party advise a settlement, they must of course form some sort of judgment as to the probability of success in the action, and indeed the decision whether or not to settle involves all the elements of a betting transaction. One must estimate the chances of success, what it will cost the client if he loses, and what he is likely to gain if he wins.

EGGLESTON, *EVIDENCE* at 4.

153. See, e.g., R. BEHN & J. VAUPEL, *supra* note 144, at 75-78; Beyth-Marom,

indicates that "there is a high probability that the court will hold our copyright valid." What does "high probability" mean? In one study some people interpreted this as a 40 percent chance, others as a 98 percent chance, with a median of 85 percent.¹⁵⁴ If the attorney means 40 percent when using the words "high probability" and the executive interprets the words to mean 98 percent, serious miscommunication has occurred which can lead to costly decisions.¹⁵⁵

Despite their usefulness in facilitating communication, however, the assignment of probability numbers has been criticized on the grounds that lawyers are not trained in providing probability estimates.¹⁵⁶ A strong argument can be made that such criticism is unjustified because estimating probabilities is at the heart of legal education and law practice.¹⁵⁷ And, even if there is some validity to the criticism, techniques are available to assist the attorney in probability assessment.

One tool used by decision analysts to assess probabilities is the decision wheel, which has been described as follows:

[A decision wheel] is a two-color wheel where the relative amount of each color can be varied (from 0% blue/100% orange to 100% blue/0% orange). Counsel then adjusts the two colors until they are in the same relative proportion as the more and less likely legal outcomes are. Use of the wheel is very important because a visual representation makes people think harder before answering a question, and because most people have a very imperfect idea of probabilities: 80 and 90 percent seem similar until one sees that 80% is 4 to 1 odds and 90% is 9 to 1 odds.¹⁵⁸

Other techniques might include some of the alternative dispute resolution methods discussed earlier in this paper. For example, the neutral advisor in a

How Probable is Probable? A Numerical Translation of Verbal Probability Expressions, 1 J. FORECASTING 257 (1982); Lichtenstein & Newman, *Empirical Scaling of Common Verbal Phrases Associated with Numerical Probabilities*, 9 PSYCHOLOGY SCI. 563 (1967).

154. R. BEHN & J. VAUPEL, *supra* note 144, at 76.

155. Misinterpretation of the word "fair," for instance, may have led to the Bay of Pigs fiasco. *Id.* at 77. Interpretation of local sayings is a special problem. Some Texas lawyers use the expression "[t]hat dog won't hunt," which is interpreted to mean less than a 25 percent chance. Victor, *supra* note 145, at 625.

156. See, e.g., M. PETERSON, *supra* note 134, at 16; Gonser, Soma & Wilhelm, *The Computer as a Tool for Legal Decision Making*, PRAC. LAW., Sept. 1981, at 12. For a general introduction to the subjective interpretation of probability, see R. WINKLER, INTRODUCTION TO BAYESIAN INFERENCE AND DECISION 15-18 (1972).

157. "I wish, if I can, to lay down some first principles for the study of this body of dogma or systematized prediction which we call the law, for men who want to use it as the instrument of their business to enable them to prophesy in their turn. . . ." Holmes, *The Path of the Law*, 10 HARV. L. REV. 457 (1897).

158. M. Victor, *Litigation Risk Analysis* 5 (Nov. 4, 1982) (unpublished manuscript). See also Spetzler & Stael von Holstein, *Probability Encoding in Decision Analysis*, 22 MGMT. SCI. 348-50 (1975).

mini-trial might be asked to give an opinion of the strong and weak points of each party's case and the probable trial result.¹⁵⁹

Regardless of the specific technique selected, probability assessment provides counsel with the opportunity to formalize the process of analyzing arguments on both sides of each issue.¹⁶⁰ This process is especially important because, as shown by studies conducted by Kahneman and Tversky,¹⁶¹ individuals tend to make estimates by starting with an initial value (the "anchor") and then making adjustments in order to reach a conclusion.¹⁶² However, adjustments are usually insufficient, which results in bias toward the initial value.¹⁶³

The attorney for Alpha, after a careful probability assessment, translates the verbal probability statements into the following numbers:

- a. Similarity ("better than even") = 60 percent
- b. Access ("it is likely") = 70 percent
- c. Validity of Copyright ("high probability") = 80 percent
- d. Preemption ("very high probability") = 90 percent
- e. Trade Secrets Violation ("it is likely") = 70 percent

These probabilities are noted at the chance forks on the decision tree in Figure 3.

3. Endpoint Values

As the final step in building a litigation decision model, values are noted at the end of each of the decision tree branches. The endpoint value for the "settle" branch, as noted in Figure 3, is the \$1.5 million settlement offer made by Beta.

The calculation of the other branch endpoint values is more complicated. The president has determined that the present value¹⁶⁴ of the injunction is \$5.3 million. The president deducts from this amount the present value of future legal fees and costs, \$100,000. The sunk costs of \$75,000 are not taken into account. However, another expense has been overlooked by the president

159. See *supra* text accompanying note 86 and *infra* note 169. For examples of mini-trials in which neutral advisors have served this function, see Taylor, Fine & Moukand, *CPR Working Taxonomy of Alternative Legal Processes*, ALTERNATIVES, May 1983, at 14. Other alternative dispute resolution methods that might be used in probability assessment are med-arb and court-annexed arbitration. See *supra* text accompanying notes 99-106.

160. Victor, *supra* note 145, at 619, 621.

161. Tversky & Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 SCI. 1124, 1128-29 (1974). See also JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (D. Kahneman, P. Slovic & A. Tversky eds. 1982).

162. Tversky & Kahneman, *supra* note 161.

163. *Id.*

164. See *supra* note 149.

and counsel¹⁶⁶—the cost of management involvement in litigation. This cost, although difficult to quantify,¹⁶⁶ represents the largest litigation expense.¹⁶⁷ For example, studies indicate that the “disruption factor” in a patent infringement case can translate into hundreds of thousands of dollars in lost market share.¹⁶⁸ We will assume that Alpha analyzes the extent of management involvement and determines its cost to be \$200,000 (present value). When this amount is deducted, along with future legal fees and costs, from \$5.3 million, Alpha will net \$5 million if it wins the case. This amount is specified at the end of the two “win” branches in Figure 3. If Beta prevails in the case, Alpha will lose \$300,000, the combined legal and management costs. This figure has been noted at the end of each of the “lose” branches in Figure 3.

165. The failure of executives to consider the cost of management involvement might be attributed to the fact that the decisions in disputes are usually “framed” by attorneys, who often fail to take into account such considerations. “The same decision can be framed in several different ways; different frames can lead to different decisions.” Kahneman & Tversky, *The Psychology of Preferences*, 246 *SCI. AM.* 160, 166 (1982). Although the theory has not yet been researched, one would suspect that framing the issues in a dispute as *business*, rather than *legal*, would improve the chances of successfully resolving that dispute, without resorting to litigation. *See also infra* note 189.

166. In his 1982 report on the state of the judiciary, Former Chief Justice Warren E. Burger noted:

A common thread pervades all courtroom contests: lawyers are natural competitors, and once litigation begins they strive mightily to win using every tactic available. Business executives are also competitors, and when they are in litigation, they often transfer their normal productive and constructive drives into the adversary contest. Commercial litigation takes business executives and their staffs away from the creative paths of development and production and often inflicts more wear and tear on them than the most difficult business problems.

Burger, *Isn't There a Better Way*, 68 *A.B.A. J.* 275 (1982).

167. J. HENRY & J. LIEBERMAN, *supra* note 8, at 46. *See also* Gonser & Wilhelm, *supra* note 32, at 446.

168. CENTER FOR PUBLIC RESOURCES, *supra* note 21, at 338-39.

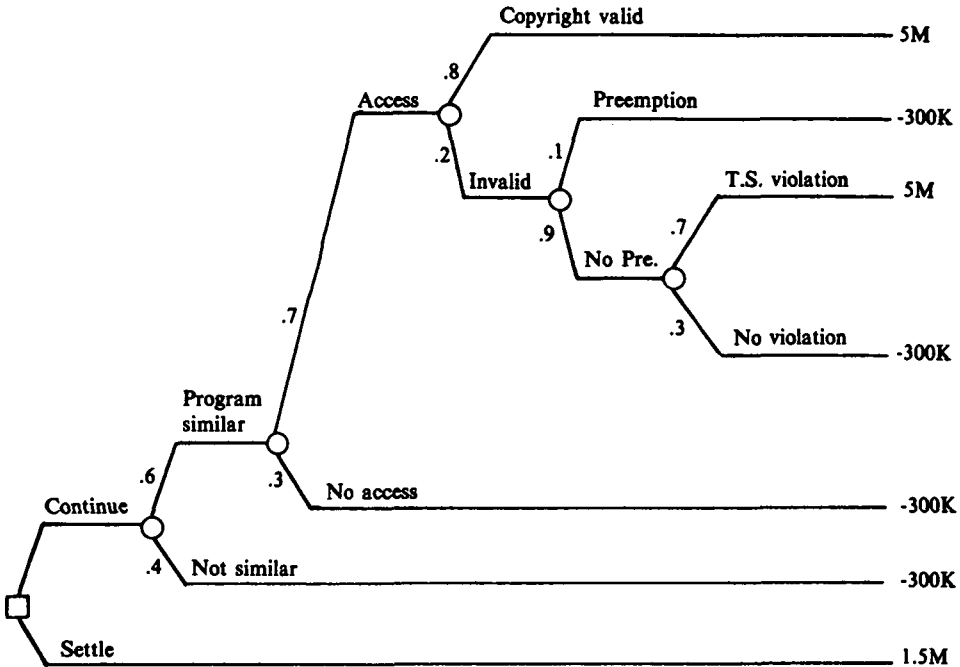


Figure 3

For purposes of this discussion, we assume that the values that have been noted at the endpoints in Figure 3 were determined by the president in conjunction with Alpha's finance department. In calculating these values, a finance department might develop its own decision tree model, with probability distributions at each chance fork.¹⁶⁹ Alternatively, depending on the nature of the litigation, the plaintiff might enter into a high-low contract with the defendant,¹⁷⁰ which would enable the parties to specify with certainty the value of a win or loss.

B. Use of the Model for Litigation Decisions

Having developed the model of the litigation decision, the president of Alpha is now ready to use the model in making a settlement decision or, if settlement fails, in actively managing the litigation or in utilizing alternatives such as the mini-trial.

169. High, medium and low estimates from a neutral advisor in a mini-trial might be used to establish the model. See CENTER FOR PUBLIC RESOURCES, *supra* note 21, at MH-27.

170. See *supra* text accompanying notes 71-72.

1. The Settlement Decision

The decision tree can be used in three ways which will enable the president to reach an informed settlement decision. First, an "expected value" of the litigation investment can be calculated and compared with the value of the settlement offer. Second, the decision tree can be used to calculate the overall probability of success, should the case go to trial. Finally, given time and money resource constraints, the decision tree will enable the president to make a rational selection of the particular issues that warrant further research.

The expected value of the litigation is a value determined by calculating the weighted average of the "continue" option. This calculation is accomplished through a process called "folding back" the decision tree.¹⁷¹ Moving from right to left on the tree, weighted averages are calculated for each chance fork. For example, the weighted average of the trade secrets fork is \$3.41 million, the sum of $(.7 \times \$5 \text{ million})$ and $(.3 \times -\$300,000)$. The weighted average at the preemption fork is \$3.039 million, the sum of $(.1 \times -\$300,000)$ and $(.9 \times \$3.41 \text{ million})$. By folding back the tree, the president calculates that the litigation has an expected value of \$1.761 million, as noted in Figure 4.

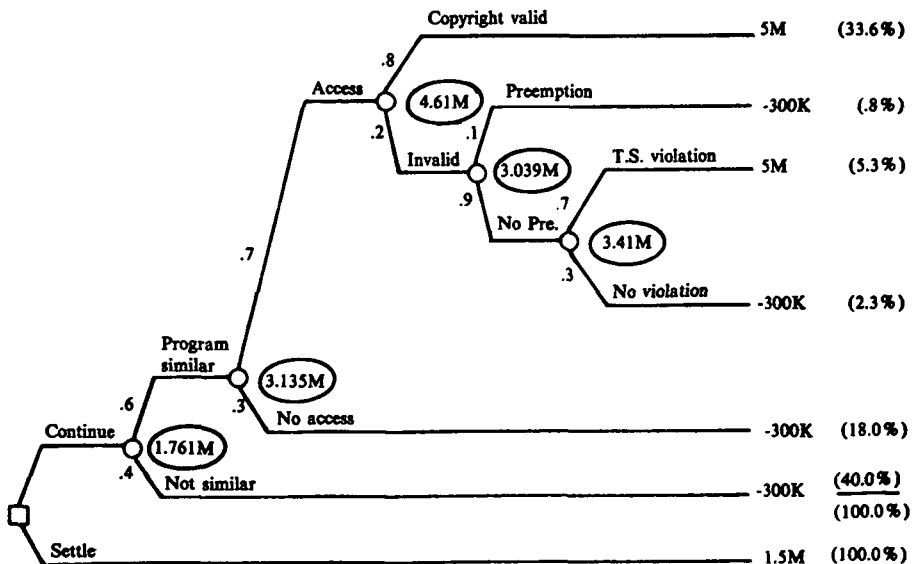


Figure 4

The president at this point might decide to continue with the litigation because the expected value of the litigation (\$1.761 million) exceeds the settlement value (\$1.5 million). The president might reason that, if several major

171. See R. BROWN, A. KAHR & C. PETERSON, *supra* note 147, at 11-15.

investment decisions—such as the litigation decision—are made over the next few years, the company will do better by “playing the averages.” Other executives, however, might feel less comfortable with playing the averages, possibly because of a different risk profile. These executives would probably use the decision tree to clarify their decision making rather than as the sole basis for the decision.¹⁷²

A second use of the decision tree is to calculate the overall probability of success. The tree shows two paths to success, the copyright validity path and, if the copyright validity theory fails, the trade secrets path.¹⁷³ The overall chance for success is calculated by multiplying the “win” probabilities along these two paths¹⁷⁴ and then combining the two figures. As indicated in Figure 4, the chance for success on the copyright validity issue is 33.6 percent ($.6 \times .7 \times .8$) while the chance for success on the trade secrets issue is 5.3 percent ($.6 \times .7 \times .2 \times .9 \times .7$). These two figures are added together to arrive at an overall probability for success of 39 percent.

The chance for success in a lawsuit is often the first question raised by a client, but a question that many attorneys are ill-equipped to answer. The reason for this might be attributed in part to the case method used in law schools. Law school training tends to have a single-issue orientation in which the pros and cons of each issue in a case are articulated and debated in great detail with no attempt, at the conclusion of a discussion, to weave together separate issues and assess the overall chance for success.

As a result, when a client attempts to probe the details of a case, which is necessary if alternative dispute resolution and litigation management are to be effective, the attorney's response is often similar to the five-issue analysis presented by the Alpha attorney. This leads to miscommunication and overestimation of the chance for success by the client. When asked to state the overall chance for success given the attorney's summary of the issues in the Alpha case, for example, executives give estimates ranging from 24 to 90 percent, with a median of 65 percent.¹⁷⁵

Why does the client's estimate of success (median of 65 percent) differ so

172. See *infra* text accompanying notes 188-93.

173. Delineating a trade secrets path along the copyright validity path would not aid the analysis because, if the copyright is valid, Alpha will win regardless of the trade secrets outcome.

174. “There is a theorem in probability theory that tells me that I can find the probability of any string of branches through the tree simply by multiplying all of the component probabilities together.” R. BROWN, A. KAHR & C. PETERSON, *supra* note 147, at 25. See also R. WINKLER, *supra* note 156, at 34.

175. These results are from an in-class experiment conducted in an executive program in 1986. Similar results were obtained when the experiment was replicated in an MBA class (range of 24 to 90 percent, with a median of 50 percent) and a law school class (range of 30 to 90 percent, with a median of 65 percent). The results in the law school class indicate that communication is a problem between attorneys as well as between attorneys and clients. See also M. Victor, *supra* note 158, at 4.

dramatically from the result (39 percent) when decision tree analysis is used? Although this is an area ripe for further research, several possible reasons come to mind. First, the client may be misinterpreting the individual probability statements (such as "it is likely") made by the attorney, a problem discussed earlier in this article.¹⁷⁶ Second, even if the attorney's verbal statements are translated into numbers, clients might be susceptible to the general tendency of people to overestimate the probability of conjunctive events.¹⁷⁷ Finally, again assuming that the verbal statements are translated into numbers, clients might not understand the theorems of probability. For example, in informal experiments, several individuals have assumed, incorrectly, that the overall probability of success is calculated by taking the average of the "win" probabilities for each issue.¹⁷⁸

Whatever the reason, a client's optimistic interpretation of an attorney's analysis might account in part for the popularity of litigation as a mechanism for resolving disputes.¹⁷⁹ Presumably, a client who knows that the attorney is predicting an overall chance for success of 39 percent will be less inclined to commence litigation and more inclined to settle or use alternative dispute resolution than a client who thinks the chances are 65 percent.¹⁸⁰ Economic analysis of the settlement decision tends to focus on differences between the disputants' estimates of their probabilities for success as a major obstacle preventing settlement.¹⁸¹ Decision analysis suggests that perhaps the reasons for failure to settle go deeper—to miscommunication between attorney and client.

A final example of the use of decision tree analysis in making a settlement decision relates to the allocation of scarce resources. We might assume, for instance, that attorneys working on the Alpha case disagree on the chances for success with regard to particular issues. Most of the staff attorneys agree that the probability of success on the similarity issue is 60 percent and on the copyright validity issue is 80 percent. However, a few attorneys are more pessimistic; they feel that the 60 percent chance on the similarity issue should be 50 percent. They also feel that the 80 percent chance on the copyright validity issue should be only 60 percent. The attorneys want to do further research in order to refine the probability assessments for these two issues. The president,

176. See *supra* text accompanying notes 153-55.

177. "The general tendency to overestimate the probability of conjunctive events leads to unwarranted optimism in the evaluation of likelihood that a plan will succeed or that a project will be completed on time." Kahneman & Tversky, *supra* note 161, at 1129.

178. This method of calculation was used by several law students in the in-class experiment. See *supra* note 175.

179. But see Galanter, *supra* note 13, for an examination of the hyperlexis syndrome.

180. See, e.g., *How to Evaluate Cases for ADR Potential*, ALTERNATIVES, Aug. 1984, at 1.

181. R. POSNER, *ECONOMIC ANALYSIS OF LAW* 422, 436 (1977).

however, with an eye on the budget, concludes that there is only time and money enough for further work on one of the issues. Which issue is more important?

The decision tree model allows the president to do a sensitivity analysis to answer this question. In decision analytic terms, the question is this: Will the decision to continue with the case change if the probabilities are revised downward? Or, stated another way, is the decision sensitive to a downward change in probabilities?

These questions are answered by revising the probabilities and then recalculating the expected value. If the chance for success on the copyright validity issue is changed from 80 percent to 60 percent, the new expected value of continuing with the litigation is \$1.597 million, which is still greater than the settlement offer of \$1.5 million. Thus, if the executive plays the averages, the change in probability would not change the decision to continue with the litigation. If the chance for success on the similarity issue is revised from 60 percent to 50 percent, however, the expected value drops to \$1.418 million, which is less than the settlement offer. Consequently, the decision of whether or not to settle is sensitive to the 10 percent change in the similarity probability but not to the 20 percent change in the copyright validity probability.

The ability to use sensitivity analysis to discriminate among issues has never been more important. Lawyers are trained in law school and law practice to "leave no stone unturned."¹⁸³ Today, however, with liberalized discovery rules¹⁸⁴ and the availability of at least sixty-eight computerized data bases relating to law,¹⁸⁴ attorneys and clients must be able to determine which issues are more important than others if legal costs are to be contained. In other words, they must "calculate when certain stones should be left in place, uninspected."¹⁸⁵ Sensitivity analysis provides the methodology that enables this calculation to be made.

2. Litigation Management

When a case cannot be settled immediately, an executive can use a decision tree to make certain budgeting decisions relating to litigation. Two examples— budgeting for expert witness fees and discovery costs—will be given.

Alpha's counsel wants to hire several eminent computer scientists to testify during the trial regarding the similarity of the Alpha and Beta programs. Counsel has determined that with their testimony Alpha's chances for success

182. J. HENRY & J. LIEBERMAN, *supra* note 8, at 13. See also Raker, *supra* note 145.

183. J. HENRY & J. LIEBERMAN, *supra* note 8, at 10.

184. Yates, *Nearly Everything You Want to Know About Data Bases*, 71 A.B.A. J. 90 (1985).

185. J. HENRY & J. LIEBERMAN, *supra* note 8, at 17.

on the similarity issue will improve from 60 percent to 70 percent. The president now wants to determine the maximum amount that the company is willing to spend for expert witness fees.

Although in practice budgeting decisions of this nature are almost pure conjecture for the client,¹⁸⁶ the decision tree can be used to reduce the guesswork. The president has already calculated the expected value of the litigation without the expert testimony, \$1.761 million. The president now must determine the new expected value when the "win" probability for the similarity issue is raised from 50 percent to 60 percent, which is \$2.105 million. The difference between the two values, \$344,000, is the maximum amount that should be budgeted for the experts' testimony. That is, if the attorney's analysis is correct, expert testimony will improve the case by no more than the amount of \$344,000.

The analysis of discovery costs is more difficult. Before trial, counsel wants to hire several outside experts to evaluate and compare the Alpha and Beta programs in order to determine whether they are similar. The attorney also wants to take the depositions of several Beta employees for the same purpose. What is the maximum amount that should be budgeted for paying the experts and taking the depositions?

A decision analyst would state the question as follows: If the discovery process yields "perfect" information—that is, if the discovery tells Alpha exactly how the court will decide the similarity issue—what is the maximum value that Alpha should pay for the information?¹⁸⁷ In answering this question, two assumptions are made. First, unlike the testimony of expert witnesses, the discovery process will not alter Alpha's chance for success, which will remain at 60 percent. Discovery, instead, will simply disclose whether this particular case is one of the cases that falls within the 60 percent "win" category. Second, it is assumed that Beta can also use discovery to obtain the same information that Alpha acquires through its discovery procedures.

Given these assumptions and perfect information, the president of Alpha calculates a new expected value. If the perfect information (the perfect prediction of the court's decision on the similarity issue) reveals that the programs are not similar, Alpha would drop its case and, thus, avoid the loss of \$300,000 in expenses. If the package is similar, Alpha would proceed with the case. The expected value at the chance fork for similarity is recalculated as follows to reflect these decisions: $(.6 \times \$3.135 \text{ million}) + (.4 \times 0) = \1.881 million . This new expected value is \$120,000 larger than the original expected value (\$1.761 million) or, to phrase it in decision analytic terms, the expected value of perfect information is \$120,000. Because perfect information would improve the expected value by this amount and the information obtained

186. In-class experiments with executives, business students and law students reveal that estimates range from zero to nearly the full amount of the potential damage recovery (in Alpha's case, \$5 million).

187. See R. BROWN, A. KAHR & C. PETERSON, *supra* note 147, at 19-22.

through discovery is typically less than perfect, the most that Alpha should pay for discovery costs is \$120,000.

3. Attitude Toward Risk

A detailed discussion of the impact of a client's attitude toward risk is beyond the scope of this paper. Two points regarding risk, however, deserve mention. First, through the use of a decision tree, a client's attitude toward risk can be incorporated into litigation decisions. This is accomplished by constructing a utility function for the client, replacing the dollar amounts in the decision tree with values from the function, and folding back the tree to calculate expected utilities.¹⁸⁸ A utility function developed for a client as plaintiff may differ considerably from the function for the same client named as a defendant. The reason for this discrepancy is that a person making choices among gains (the plaintiff) tends to be risk averse, while a person making choices among losses (the defendant) tends to be risk seeking.¹⁸⁹

A second important point regarding risk is the realization that it is the client's risk profile that is to be taken into consideration, not that of the attorney. Beginning with the classic study by Swalm,¹⁹⁰ it has been recognized that a manager's utility function tends to be more closely related to the individual's attitude toward risk than the company's risk profile. Likewise, it has been assumed that an attorney's attitude toward risk differs considerably from that of a client.¹⁹¹ Although this issue calls for further research,¹⁹² it is clear for the time being that, if legal costs are to be contained, clients must educate attorneys about corporate goals, values, beliefs, and attitudes toward risk. In sum, "the lawyer must understand your 'corporate culture.'"¹⁹³

188. *Id.* at 47-48.

189. Kahneman & Tversky, *supra* note 165, at 162, 164. "Framing" plays a role in developing the utility function for a litigation decision. *Id.* at 166. This same "framing" might depend on community values. For example, in a conference to determine whether to appeal an adverse decision, a "Sydney client will ask, 'How much will we get if we win?' The Melbourne client will ask 'How much will it cost me if we lose?'" R. EGGLESTON, *supra* note 152, at 4. See also G. WILLIAMS, *supra* note 96, at 131.

190. Swalm, *Utility Theory—Insights into Risk Taking*, HARV. BUS. REV., NOV.-DEC. 1966, at 123. See also V. BRUDNEY & M. CHIRELSTEIN, CORPORATE FINANCE 1174-76 (1979).

191. H. RAIFFA, *supra* note 144, at 75.

192. Studies completed to date indicate that economic arrangements with attorneys can influence the generation of cases. See S. GOLDBERG, E. GREEN & F. SANDER, *supra* note 2, at 153. J. Brett & S. Goldberg have developed an especially useful simulation illustrating this point. The simulation, Rapid Printing Co. v. Scott Computers, Inc., is distributed by the Disputes Processing Research Program at the University of Wisconsin.

193. See HOW TO KEEP YOUR COMPANY OUT OF COURT, *supra* note 83, at 32; Raker, *supra* note 145, at 24-25.

C. *Decision Tree Analysis in Practice*

Decision tree analysis today is becoming an accepted tool for use in solving everyday management problems.¹⁹⁴ There is also anecdotal evidence to the effect that the use of decision tree analysis to make litigation decisions is becoming more popular. For example, at least four of the "Big Eight" accounting firms use decision tree analysis in providing litigation support services.¹⁹⁵ And a 1982 survey of law department practices indicates that 26 of the 91 companies surveyed use decision theory techniques in evaluating major cases.¹⁹⁶

In order to obtain more detailed information regarding the use of decision analysis in practice, the 108 members of the American Corporate Counsel Association Litigation Committee were surveyed by the author in 1984. Responses were received from 67 members; of these a little over twenty percent (14) indicated that they use decision analysis. Most of the users (10) developed the analysis solely within the law department, without assistance from other departments or consultants. Major advantages cited, listed in order of frequency, were:

1. Usefulness of decision trees in structuring problems;
2. Aiding communication with client;
3. Calculation of the overall probability of success;
4. Calculation of settlement values (by "folding back" the decision tree);
5. Discussion of issues using numerical probabilities; and
6. Identification of key issues (that is, sensitivity analysis).

Of the respondents who use decision analysis, most (11) consider it to be one factor used in decision making, rather than the sole basis for making decisions. Some respondents also use it for purposes other than litigation, including analysis of mergers and acquisitions, preventive law decisions (for example, advising the company how to handle toxic wastes for which the company is not legally responsible), and advising the board of directors on business judgments.

Although none of the respondents indicated that computer programs are used in the analysis, it is likely that such use will accelerate sharply in the near future as the computer gains increasing recognition as a tool for legal analysis and decision making.¹⁹⁷ Several microcomputer packages have been developed in recent years that provide facilities for constructing and using de-

194. *See supra* note 134.

195. ARTHUR YOUNG, LITIGATION CONSULTING AND SUPPORT SERVICES 2 (1982); COOPERS & LYBRAND, LITIGATION SERVICES 12-14 (undated); letter from Andrew J. Capelli, National Practice Director, Peat, Marwick, Mitchell & Co. (Feb. 18, 1986); telephone interview with Jeffrey Kenrich, Price Waterhouse (March 3, 1986).

196. D. James, Survey of Law Department and Board of Directors Practices—1982 19 (Feb. 4, 1983) (unpublished manuscript).

197. *See* Gonser, Soma & Wilhelm, *supra* note 156, at 13.

cision trees.¹⁹⁸ One of these products, Arborist, is available with a 96-page booklet that describes both the package and the use of decision tree analysis in making litigation decisions.¹⁹⁹ Although the software is user friendly and is being used by large law firms²⁰⁰ the major benefit in using Arborist is its performance of calculations in major, complex litigation.

IV. CONCLUSION

This paper represents a first attempt to provide an overview of linkages between legal and business approaches to dispute resolution. A specific technique discussed in greater detail in the paper, decision tree analysis, illustrates the potential benefits that can arise from increased interaction between those engaged in legal and business research.

The paper also suggests an agenda of promising dispute resolution research opportunities, including the relationship between law and power,²⁰¹ comparative law research on differences between the inquisitorial and adversarial systems,²⁰² and dispute management.²⁰³ The use of decision tree analysis alone raises a number of dispute resolution research topics, such as the qualitative process used in constructing a decision tree,²⁰⁴ assessment of an attorney's probabilities,²⁰⁵ framing of the issues,²⁰⁶ and incorporation of the client's attitude toward risk into the decision-making process.²⁰⁷ Research on decision tree analysis might indicate that it can be used in determining whether a case has ADR potential²⁰⁸ and in selecting an appropriate alternative process. The use of decision tree analysis in areas other than dispute prevention—for example, in financial reporting,²⁰⁹ in assessing business judgments, and in merger and acquisition decisions—also deserves further research. Finally, the incorporation of ethics into the analysis is a research topic that touches all other areas

198. Henrion, *Software for Decision Analysis: A Review of Riskcalc, Arborist and Supertree*, 12 OR/MS TODAY 24 (1985); Nti, *Review of SMLTREE: The All Purpose Decision Tree Builder*, 14 OR/MS TODAY 28 (1987).

199. *Arborist Helps Attorneys Plan Lawsuits*, INTERACTIONS, Sept. 1985, at 2-3.

200. Blodgett, *Decision Trees*, 72 A.B.A. J. 33 (1986).

201. *See supra* text accompanying notes 39-56.

202. *See supra* text accompanying notes 118-20.

203. *See supra* text accompanying notes 126-33.

204. *See supra* text accompanying notes 150-51.

205. *See supra* text accompanying notes 152-61.

206. *See supra* notes 165, 189.

207. *See supra* text accompanying notes 188-93.

208. Prof. Eric D. Green suggests that a case has ADR potential when "the two parties' combined estimates of probability approaches or exceeds 150 percent." *How to Evaluate Cases*, *supra* note 180, at 3.

209. "Management needs to have an understanding of the litigation so they can talk to lenders, financial analysts, accountants, and stockholders." Warshauer, *supra* note 133, at 7

of research.²¹⁰

Institutional support for dispute resolution has increased in recent years.²¹¹ By pursuing various research opportunities and utilizing institutional support, researchers in business schools and law schools have an opportunity to advance dispute resolution teaching and research and, in so doing, to provide a model illustrating to the corporate world how the law function can interrelate with other areas²¹² in a manner that meets institutional needs and accomplishes common goals.

210. See P. HILL, *supra* note 142, at 27-55.

211. See *supra* text accompanying notes 8-12.

212. See *supra* text accompanying notes 134-41.

