Software Taxation: A Critical Reevaluation of the Notion of Intangibility

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COMMENTS

Software Taxation: A Critical Reevaluation of the Notion of Intangibility

The computer industry originally marketed hardware and software components in mutually-dependent units through its hardware manufacturers. In 1969 IBM announced that it would no longer “bundle” hardware and software, an action that led to the formation of the independent software manufacturing industry. As the industry began to market software on an indepen-

1. Hardware includes the central processing unit and “peripherals,” i.e., printers, card readers, tape drives, disk storage devices, and telecommunication switching devices.

2. In trade parlance software is generally the set of machine-readable programs that cause hardware to perform predetermined tasks. Programs may be “systems” programs, which control the internal operations of the central processing unit and the peripherals when commanded by “applications” programs or other systems programs. “Applications” programs interact with the user on a higher level; these programs perform functions such as payroll, billing, or scientific work. For a criticism of the emphasis the legal community has placed upon the systems/applications dichotomy, see note 22 infra.

Software does not include program listings that describe the high-level algorithm of the program in a programming “language.” Software also does not include documentation, manuals, or any service.

Technically speaking, software requires physical space for storage and may be represented by electrical pulses in temporary storage or magnetic pulses similar to a sound recording in more permanent storage. Older technological applications represent software by a particular combination of punched holes in paper tape or cards. These representations are read by mechanical processes similar to that of a phonograph needle reading disk depressions. See generally Briefs Amici Curiae, Dann v. Johnston, 425 U.S. 219 (1976).

3. Goetz, Unbundling: Will 80's Repeat the 60's?, COMPUTERWORLD, April 14, 1980, at 33. A computer vendor who “bundled” provided software and services with the hardware “free of charge.” A vendee was forced to rely totally upon the selected hardware vendor’s complementary packages. Goetz, When IBM Unbundled, COMPUTERWORLD, Dec. 31, 1979/Jan. 7, 1980, at 35.

This hardware/software disunification radically changed the marketing practices of software manufacturers. Early programs were written for an end user on a one-to-one basis. T. Dolotta, M. Bernstein, R. Dickson, Jr., N. France, B. Rosenblatt, D. Smith & T. Steel, Jr., DATA PROCESSING IN 1980-1985 (1976). The distinctions between product and service, vendor and vendee were often justifiably blurred. Today the software manufacturer is a marketplace sophisticate whose ultimate economic stratagem is to distribute en masse commercial software—that is, in “off-the-shelf” packages for unknown users—to effectively compete with the declining unit costs of hardware technology. For a discussion of commercial software, see Frank, Commercial Software, COMPUTERWORLD, Dec. 31, 1979/Jan. 7, 1980, at 18.
dent basis, the need arose for judicial arbitration of problems inherent in software ownership and sales.

Because software has been difficult to visualize and conceptualize, it has been difficult to define. Courts and other concerned governmental entities, forced to categorize software as either tangible or intangible for tax and other purposes, have reached inconsistent conclusions.

This Comment suggests that software is technologically tangible and that legal recognition of software tangibility is the most effective way to eliminate the inconsistent treatment software has received in federal and state tax decisions and from the Internal Revenue Service. If adopted, this approach would require the abandonment of precedent developed at a time when the character of software was not properly understood by tax authorities. This approach would, however, equalize the legal benefits and burdens that are now distributed on an unprincipled basis among manufacturers within and without the software industry. The net effect would be to place the software manufacturer in a legal posture similar to that of manufacturers of technologically analogous products.

I. BACKGROUND

State courts with tax jurisdiction and the Internal Revenue Service (Service) have generally characterized software as intangible. At the state and local levels, this characterization exempts software from sales, use, and personal property taxes, which

4. All software goes through various stages of development. A brief examination of these stages may illustrate some of the reasons for definitional problems:
   (1) A systems analyst defines the needs of the user (current manual methods are examined).
   (2) The analyst details a description of the proposed computerized processes.
   (3) The analyst or programmer outlines the proposed processes in a general computer program format (a flowchart may be drawn).
   (4) The programmer translates the general program steps into a high-level language such as FORTRAN or COBOL. When this translation is keypunched or typed, it becomes machine readable "source" code. The code resides on magnetic disk, magnetic tape, or cards.
   (5) The central processing unit translates this code through the use of another piece of software—the compiler—into "object" code which more closely corresponds with the machine's architecture for efficient processing. This object code is also stored and after extensive testing becomes the salable product.


5. A sales tax is an impost on the consumption of commodities, assessed upon transactions within the jurisdiction. Although the concept of a sales tax is rather broad, it
turn on product or asset tangibility. At the federal level, on the other hand, the characterization causes software owners to lose investment tax credit benefits and depreciation allowances normally available for tangible assets.

A. State and Local Characterizations

Most state and local revenue departments which have considered the issue have assumed that software is a tangible product or asset. When taxpayers have brought challenges, however, state courts have usually ruled to the contrary. These courts have characterized software as intangible and exempt from sales, use, and ad valorem personal property taxes.

may be said that the element common to sales taxes is computation of the tax upon the gross amount involved in the sale of goods or other transaction upon which the tax is based. 68 Am. Jur. 2d Sales and Use Taxes § 1 (1973).

6. A use or compensating tax imposes a levy upon the use in the state of property purchased outside the state. It is substantially complementary to the sales tax of particular jurisdictions and is designed to discourage the loss of business within the jurisdiction because of the imposition of a local sales tax. Id. § 171.

7. Personal property taxes may extend to both tangibles and intangibles. The various forms of statutory assessments against intangibles are, however, different from other forms of taxation. 84 C.J.S. Taxation § 78 (1954). Because local tax authorities have experienced some trouble in locating and taxing intangibles, a statutory provision or a "tacit policy of exclusion" may totally or partially exempt intangibles from general personal property taxes. See Bryant & Mather, Property Taxation of Computer Software, 18 N.Y.L.F. 59, 67-68 (1972); Note, The Revolt Against the Property Tax on Software: An Unnecessary Conflict Growing Out of Unbundling, 9 Suffolk L. Rev. 118, 125 n.28 (1974).

8. The Arizona statutory requirement of tangibility is typical:

15. "Sale" includes any transfer of title or possession, or both, exchange, barter, lease or rental, conditional or otherwise, in any manner or by any means whatever, of tangible personal property, for a consideration.

17. "Tangible personal property" means personal property which may be seen, weighed, measured, felt, touched or is in any other manner perceptible to the senses.


9. See generally [1979] 2 COMPUTER L. SERV. (BI GELOW) app. 2-3.2c, 2-3.2d (responses to a recent survey of state revenue departments).

The first major state decision to consider the issue, *District of Columbia v. Universal Computer Associates, Inc.*,11 became an often cited precedent. In this 1972 decision the United States Court of Appeals for the District of Columbia Circuit determined that the software portion of a "bundled"12 system constituted an intangible product exempt from the local sales tax. The court reasoned that software's tangible transporting medium13 was "insignificant" to the transaction, the true object being intangible "knowledge" that "rest[ed] in the machine." After delivery, the medium upon which the "knowledge" was carried could be destroyed, stored, or returned.14 Later decisions have relied upon *Universal* as highly persuasive, if not controlling, authority for the proposition that state and local tax agencies have wrongfully attempted to tax an intangible asset or good.16

Other decisions have characterized software as an intangible for a variety of additional reasons. Unable to separate a list of purchased contract items into software and non-software categories, one court labeled them all as software and, because of the tax authority's inclusion of intangible components, characterized the entire bundle as an intangible.17 Because a revenue authority attempted to tax only software transmitted on a tangible medium rather than by telecommunication,18 another court construed this to be an admission by the tax authority that the true object of the transaction was an intangible.19 If alternative modes of transmission are available to the vendor, the courts have assumed that the object of the transaction is intrinsically

12. For a definition of "bundling," see note 3 supra.
13. The medium in this case was punched cards. 465 F.2d at 617. Software media also include punched paper tape, magnetic tape, magnetic disk or electronic memory ("core") itself.
14. Id. at 618.
17. Computer programs and data may be communicated over microwave or telephone lines. For a technical discussion, see D. McGlynn, DISTRIBUTED PROCESSING AND DATA COMMUNICATIONS (1978).
intangible. Finally, where courts have been unable to fully resolve the basic issue of subject matter tangibility, they have typically rendered pro-taxpayer decisions on the ground of ambiguity.

This characterization of software as intangible has met, however, with isolated but vigorous exception and dissent. In Greyhound Computer Corp. v. State Department of Assessments & Taxation, the Court of Appeals of Maryland, the state's highest court, separated from the tax authority's broad categorization of software those elements constituting actual machine software—systems programs. These programs were firmly characterized as tangible for property tax purposes. In State v. Central Computer Services, Inc., Alabama Justice Maddox contended in dissent that the majority's characterization of software as intangible had failed to properly deal with a related film industry decision. He further implied that the majority's reasoning was based on an obsolete approach not applicable to "computer age" technology.

19. See cases cited note 79 infra.
20. See cases cited note 95 infra.
22. Id. at 678-79, 320 A.2d at 55. The technical distinction between "systems programs" and "applications programs" is disappearing. Although hardware cannot operate without a systems program, systems programs often lose strict machine dependency; they may be designed to emulate another machine's characteristics by running the emulated machine's operating systems. For a technical example, see Bhandenkar & Rothman, The Vax-11, DEC's 32-Bit Version of the PDP-11, DATAMATION, Feb. 1979, at 159. The industry sees little practical distinction in its marketing practices. IBM's unbundling move also significantly affected the independent systems software manufacturing industry. The supposed closer ties to the hardware were of no significance to the marketing practices of compatible systems software. See generally Engle, Overview of Systems and Utility Packages, COMPUTERWORLD, Sept. 17, 1980, at 65.

In the past, some have attached significance to systems software, considering it to be inextricably connected with the hardware and therefore entitled to treatment as a tangible, whereas applications software may not be so entitled. See generally Note, The Revolt Against the Property Tax on Software, supra note 7. The California statutory scheme taxes only systems programs and exempts the rest. CAL. REV. & TAX CODE §§ 995, 995.1, 995.2 (West Supp. 1980).

23. 271 Md. at 680, 320 A.2d at 56. The court, however, cited Universal, 465 F.2d at 615, and County of Sacramento, 32 Cal. App. 3d at 654, 108 Cal. Rptr. at 434, both of which had characterized software as an intangible. The court made no attempt to distinguish these former decisions. 271 Md. at 680, 320 A.2d at 56.
24. 349 So. 2d 1160 (Ala. 1977).
B. Federal Characterizations

In response to confusion among its agents, the Service promulgated Revenue Procedure 69-21, in which unbundled software is specifically characterized as an intangible asset. Bundled software, however, receives distinctly different treatment. Without actually labeling bundled software a tangible asset, Procedure 69-21 effectively permits it to be treated as tangible by allowing the taxpayer to include software acquisition costs with those of the associated hardware. Because the Service considers unbundled software intangible, it is therefore ineligible for an investment tax credit under section 38 of the Internal Revenue Code. Therefore, in order to receive the benefits of the investment tax credit, a vendee must purchase software from one of the decreasing number of vendors who still bundle. Moreover, under Revenue Procedure 69-21, the software owner is precluded from selecting the advantageous depreciation methods and schedules normally extended to owners of tangible products. To recover costs the software buyer must limit his depreciation to that defined in Revenue Procedure 69-21. The cash flow implications of this procedure can be staggering.

II. THE PROBLEM: INCONSISTENCY

The characterization of software as intangible for tax purposes is inconsistent with the general legal and technical definitions of product tangibility. Specifically, it is inconsistent with state and federal tax court characterizations of analogous products, state court characterizations in software contract disputes, and pervasive trade usage.

29. Id. § 4.
30. Id.

Where such costs are included, without being separately stated, in the cost of the hardware (computer) and such costs are treated as a part of the cost of the hardware that is capitalized and depreciated [the service will not disturb the taxpayer's treatment of such costs]. . . .

Id.

31. "Section 38 property" does not include intangibles. I.R.C. § 48(a)(1).
32. See Bigelow, supra note 27, at 6-8.
33. Id. at 2-6.
A. Analogous Products

1. Machine-Coded Data

Machine-coded data is physically equivalent to computer software. Both "products" may be represented binarily by either electronic, magnetic, or physical pulses in core, on magnetic disk or tape, or on paper card or tape. Both may be transmitted via telecommunications equipment. Both may be read by the same hardware mechanism. Just as one machine's software may be another machine's data, one machine's data may be another machine's software. The products, then, are technically indistinguishable.

Despite these similarities, the state and federal courts have often characterized machine-coded data as a tangible product or asset. In so doing, the Fifth Circuit, in *Texas Instruments, Inc. v. United States*, allowed the taxpayer to apply investment tax credit benefits to data acquisition costs. The court rejected the Service's contention that the tangible medium was merely incidental to the intangible information contained thereon: "The government's arguments, plausible as they may sound, simply refuse to recognize that the value of the . . . data is entirely dependent upon the existence of the tapes. . . ." 36

State courts are split in their characterizations of machine coded data. The Ohio Supreme Court has characterized machine coded data.

34. For example, one machine may use a previously constructed software program to build a second similar program for a different machine which would require different software characteristics (the second machine may require different input-output configurations or different addressing conventions). The first machine would "read" the original program in much the same way as it would read a "text" data file, searching for specific textual combinations and reacting in a predetermined manner while building the second program. The first machine's output, then, is mere output data that results from the machine's operation. However, to the second machine, this is not mere output data. The "data" may now act as a software program, performing the same functions as the original program designed for another machine.

35. In fact, the outcome of a machine-coded data case may influence the actions of a revenue department in assessing software. In *Janesville Data Center, Inc. v. Wisconsin Dept of Revenue*, 84 Wis. 2d 341, 267 N.W.2d 656 (1978), the court held this type of product to be intangible and non-taxable, leading to a memorandum from the Wisconsin Department of Revenue suggesting broader impact in the data processing industry. [1979] 2 COMPUTER L. SERV. (BIGelow) app. 2-2.2d, at Wis. p. 20.

36. 551 F.2d 599 (5th Cir. 1977).

37. Id. at 611. Geophysical Service, Inc., a subsidiary of Texas Instruments, collected impulses resulting from seismic soundings. These impulses were refined and edited by computer and transcribed on the disputed tapes. The digital data in the tapes was used to produce a non-digital, analog picture of the soundings. *Id.* at 608.
coded data as tangible for tax purposes.38 The Wisconsin and Texas supreme courts, however, have characterized data as intangible and exempt from state taxation, rendering pro-taxpayer decisions on the ground of ambiguity.39

2. Film and Videotape Products

Film and videotape products are physically similar to the computer software product. All three may be wholly or partially represented by magnetic pulses on magnetic tape or disk. All require hardware to extract information contained on the medium.40 All have value far above the cost of the transferring medium; all may be transmitted by telecommunications equipment; and finally, all may be physically imitated by "actors" or "programmers" duplicating the work.41

The Service originally treated motion picture film and videotape products, like software, as intangible. The Ninth Circuit, however, has rejected the Service's position and has characterized motion picture and videotape film products as tangible property for investment credit purposes.42 The first major decision, Walt Disney Productions v. United States,43 overturned Treasury Regulation 1.48-1(f), which had characterized the film product as an intangible asset. In the regulation the Service reasoned that because the production of film involved such intangibles as manuscript costs, screenplay costs, and wardrobe design costs, the final product should be evaluated for tax purposes as an intangible.44 The Walt Disney court criticized the Service's argument, commenting that an automobile production machine should therefore be largely intangible because many of its costs may be traced to invention, engineering, and labor

41. Id.
42. See Bing Crosby Prods. v. United States, 588 F.2d 1293, 1297-99 (9th Cir. 1979); Walt Disney Prods. v. United States, 549 F.2d 576, 580 (9th Cir. 1976); Walt Disney Prods. v. United States, 480 F.2d 66, 68 (9th Cir. 1973), cert. denied, 415 U.S. 934 (1974).
43. 480 F.2d 66 (9th Cir. 1973), cert. denied, 415 U.S. 934 (1974).
44. Id. at 67, 68.
expenditures.\textsuperscript{45} The state courts have also concluded that film products are tangible property. Although most of a film product's value lies in its intangible copyright\textsuperscript{46} or intangible production services,\textsuperscript{47} the courts have reasoned that the vendee desires a finished product.\textsuperscript{48} Therefore, the courts have declared that the film product, despite its intangible elements, is tangible and subject to sales or personal property taxes.\textsuperscript{49}

B. Software Contract Disputes

Those courts that have handled software contract disputes have either expressly or impliedly brought software sales within the purview of the Uniform Commercial Code (UCC).\textsuperscript{50} Although these courts were not required to classify software products as tangible in order to bring them within the UCC, they were obliged to apply to software products the "goods" label as defined within the UCC. The UCC defines goods to mean "all things . . . movable at the time of identification to the contract for sale."\textsuperscript{51} Furthermore, "[g]oods must be both existing and

\textsuperscript{45} Id. at 68.


\textsuperscript{48} Id. at 747.


In University Microfilms v. Scio Township, 76 Mich. App. 616, 257 N.W.2d 265 (1977), the taxpayer sought to escape state taxation of his film product. The court chose not to apply a taxpayer's argument that film was similar to software and therefore intangible. \textit{Id.} at 618, 257 N.W.2d at 267.

There has been recent, although limited, exception to this film tangibility rule. Although the court in Simplicity Pattern Co. v. State Bd. of Equalization, 101 Cal. App. 3d 184, 161 Cal. Rptr. 558 (1980), characterized film as an intangible product, it based its reasoning on a statute exempting master sound tapes and records. The court construed this statute, although not controlling in the case, to be a "clear indication of legislative thinking." \textit{Id.} at 188, 161 Cal. Rptr. at 561.


\textsuperscript{51} U.C.C. § 2-105(1).
identified before any interest in them can pass."\textsuperscript{52} It is inconsistent to label an item as both intangible and a "good."\textsuperscript{53}

Software may also be considered tangible for purposes of replevin. In \textit{F. & M. Schaefer Corp. v. Electronic Data Systems Corp.} (EDS),\textsuperscript{54} EDS delivered software to Schaefer. When Schaefer breached the payment terms, EDS filed a motion for replevin. The United States Court for the Southern District of New York held that EDS had made out a prima facie case for replevin.\textsuperscript{55} Schaefer's contention that programs were intangible and not subject to replevin was unpersuasive.\textsuperscript{56} The court had little difficulty in calling the disputed software "quite tangible."\textsuperscript{57}

\textit{C. Industrial Usage and Technological Definitions}

The software industry has characterized itself as a manufacturer of tangible products rather than as a mere purveyor of intangible knowledge or services. In patent cases before the Supreme Court,\textsuperscript{58} for example, software manufacturers have urged through briefs of amici curiae that the Court view software as an apparatus or machine.\textsuperscript{59} These software manufacturers have strictly limited software to the completely debugged and tested machine program,\textsuperscript{60} rather than extending the definition to include the broad categorization of such items as programs, listings, consulting services, and debugging services, which the early

\textsuperscript{52} Id. \$ 2-105(2).
\textsuperscript{54} 430 F. Supp. 988 (S.D.N.Y. 1977), aff'd mem., 614 F.2d 1286 (2d Cir. 1979).
\textsuperscript{55} Id. at 992.
\textsuperscript{56} Id. at 991.
\textsuperscript{57} Id. at 992.
\textsuperscript{60} E.g., Brief Amicus Curiae for Universal Software, Inc. at 10.
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software courts had difficulty labeling as tangible software. They have further declared that software alters the machine "semipermanently" causing the hardware to perform as a "new machine."  

Trade publications refer to software as a product, its makers as manufacturers, and its designers as engineers.  

Large software houses subject their products to a rigorous quality assurance analysis, evaluating function, size, performance, reliability, flexibility, maintainability, and portability.

Although the definitions vary between legal advocates of patenting and those seeking tax exemptions, industry experts do not consider software to be formless, incorporeal "knowledge" resting within the hardware. They see it as a machine component, more analogous to electronic circuitry than to the printed program listing on an eye-readable document.

III. STATE AND DISTRICT OF COLUMBIA SOFTWARE TAX DECISION ERRORS

The erroneous characterization of software in state tax decisions stems from a general application of reasoning that is technologically inaccurate, from a misapplication of sound pre-

61. Brief Amicus Curiae for Software Associates, Inc. at 6, 11. "The technical reality is that program software causes new circuits to be formed in the general purpose machine, thereby changing it to a special purpose machine or an enhanced/extended general purpose machine." Id. at 6 (emphasis in original).


64. Goetz, supra note 62, at 3; Myers, What is Software?, DATAMATION, Mar. 1979, at 74.

65. In a federal tax decision, the Tax Court of the United States in Computer Sciences Corp. v. Commissioner, 63 T.C. 327 (1974), characterized software as an intangible asset for section 341 (collapsible corporations) purposes. Section 341 of the Internal Revenue Code requires for its application "the manufacture, construction, or production of property." The taxpayer argued that software was, in fact, not "property" at all, but "knowledge" and "goodwill," and therefore not within the ambit of "property" in section 341. 63 T.C. at 343. The taxpayer's corporation was held not to be collapsible. Id. at 354. The court, however, conceded the taxpayer's argument that software was "intangible" but maintained that it was section 341 "property." Id. at 344. This conclusion was necessary for the court to address the issue upon which the case actually turned: the required intent to sell the corporation had not been formed before the required production of "property" had been completed. Id. at 354. The characterization of software as "property" was critical; its characterization as an intangible was not critical and was little more than an assumption.
cedent, and from a policy of deference to the taxpayer where the
tax law is ambiguous.

A. Insufficient Information and Technological Inaccuracies

Insufficient technical information and technological inaccuracies have served as the bases for poor precedent. Although many of the issues of tangibility confronting software litigants have surfaced in the machine-coded data and film industry tax disputes, the software tax courts have chosen to characterize software as an intangible asset and product. Several distinct reasons exist for this characterization.

1. Insufficient Technical Input

Courts have had difficulty rendering judgments in light of insufficient technical information. Tax authorities at times have been unable to articulate accurate definitions of software. Some tax authorities have insisted upon bringing obvious intangibles within a definition of software. In addition to computer programs, they have included design and analysis, planning, preparation of feasibility studies, debugging and testing, educational training and instructions, educational publications, tests, measurements, adjustments, repairs, and conversion analysis. If not limited solely to machine-executable, marketable programs, this cumbersome categorization becomes most “troublesome” to the courts and they become “reluctan[t]” to allow the state’s broad taxation.

2. The “Intrinsic Intangibility” Assumption

The courts have generally assumed that software is intrinsically incorporeal and that it is mere intangible “knowledge” which “rests in the machine.”66 This technologically inaccurate

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portrayal of software arises from the *Universal* opinion and has been quoted or paraphrased with approval in other decisions. These courts have premised this assumption on a simple but improper basis. Because the tape, disk, card, or other transferring medium may be stored, returned, or destroyed after being used by the vendee machine, the *Universal* court reasoned that the visible manifestation of software—the medium—is inconsequential to the transaction. Therefore, the court assumed, the object of the transaction must be intangible "knowledge" because the medium is inconsequential. The *Universal* court, however, failed to establish the connection between this assumption of product intangibility and the observation of medium inconsequentiality. Other notable decisions have not questioned or qualified this reasoning and have not attempted to establish the critical connection.

The technician would find this reasoning particularly difficult to comprehend, knowing that software actually has physical properties of mass and volume. Software, defined as the machine-readable end-product of program design, must possess physical properties to enable the host hardware unit to act in a predetermined manner. Although industry experts question the

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72. Id.


75. Brief Amicus Curiae for Universal Software, Inc. at 10, Dann v. Johnston, 425 U.S. 219 (1976), states:

Amicus CBEMA's basic misapprehension of the commercial realities of program machine design and implementation would lead one to confuse a flowcharted and coded financial banking procedure with an effective procedure in the form of a completely debugged and tested program. Only the latter, i.e. the running program, is a commodity which is merchantable . . . . Absent this merchantable program machine, whether in the form of punched cards, magnetic tape or disks, the general purpose digital computer is not capable of solving any problem.
analogy, labeling it simplistic,76 software may be compared to a paper roll in a player piano.77 When the mechanical devices in a player piano encounter a physical aberration in the paper "music," a message is sent to alter the piano’s existing state. Similarly, when the computer hardware experiences a magnetic, electronic, or physical aberration in the tape, core,78 or paper medium, a message is sent to alter the computer’s physical state. If the tape copy of the software has been destroyed but the vendee continues to use the software, the vendee has certainly dedicated a specific amount of volume and mass on tape, disk, card, or in core to store a copy of that software. This storage precludes the storage of any other data or software in the allotted space. Similarly, the owner of a player piano may store his "music" on another roll and thereafter destroy the first. Destruction of the purchased roll does not, however, render the "music" intangible.

3. The "Alternative Transmission Mode" Rationale

The "alternative transmission mode" rationale, first applied by the Universal court, resulted from a combination of judicial and tax authority errors. This rationale, related to the intrinsic intangibility assumption previously discussed, merely reflects a conclusion that because a variety of software transfer methods exist, the essence of the transaction must be some intangible or the mere embodiment of services.79 These methods include not only visible media transfer by disk, tape, or card, but also direct

76. Id. at 5-6; Brief Amicus Curiae for Software Associates, Inc. at 11.
77. This analogy has been used often. A recent treatment may be found in First Security Bank of Idaho v. Commissioner, 592 F.2d 1050, 1053 (9th Cir. 1979) (Duniway, J., dissenting). A bank acquired a computer program and attempted to recover costs by deducting them as a business expense under I.R.C. § 162(a). The Commissioner disallowed the deductions, arguing that the acquisition costs were for franchise rights and therefore should have been capitalized accordingly. The court held in favor of the bank. In dissent, Judge Duniway used the player piano analogy, not to define a tangible/intangible distinction, but to define an expensing/capitalization distinction. The analogy, although well phrased for the tangible/intangible distinction, may not have been as apt in the context in which it was used.
78. A program performs work only when a copy has been loaded into the central processing unit hardware. Internal hardware circuitry then reacts in predetermined ways.
programmer input and telecommunication transfer. Because software may also be transferred in the latter two ways, the courts and the tax authorities have imprudently moved towards intangibility, reasoning that the lack of a tangible medium in all possible transfers demonstrates that the object of the transaction must be intangible.

Because it is possible to "bring" a program to a vendee merely "in the mind" of a programmer, the courts have erroneously concluded that the essence of any software transaction is truly a service. Although this construction of software by direct programmer input is not amenable to sales and use taxes, since there is no sale of a tangible product, a tangible product is nonetheless created at the buyer's situs and should be subject to any property, sales or use taxes should the product be thereafter retained or sold. This judicial error arises because of the courts' failure to properly apply a traditional product/service analysis to a technologically new product.

Possible input via telecommunications transmission also stymied the courts; since no visual media had been employed in the sale, the courts reasoned that no transfer of a tangible product had been effected. The tax authorities have contributed to the problem by refusing to impose sales and use taxes upon the telecommunications-transferred software, while at the same time assessing the complaining taxpayer's visible-media transferred software. This inconsistency may have been construed by the courts to be an admission of the intangibility of the object of the transaction.

A technologically sound argument has been made, however, for the proposition that software transferred by telecommunications does indeed result in the transfer of a tangible product.


One writer, arguing for UCC protection of software transactions, has extended the concept of the sale of tangible goods under the UCC to that of telecommunication transfers of software, citing case authority for analogous electricity sales.83

B. Misapplication of Sound Authority

Software, as has been previously discussed, occasionally has received the characterization of tangibility. *Greyhound* concluded that systems software, at the least, is tangible property. Without specifically stating as much, the Service, with its bundling exception, permits the taxpayer to treat software as a tangible asset. Software courts have nonetheless overlooked or misapplied these characterizations and those of the film industry.

1. Inadequate Disposition of Film Industry Parallels

The courts in the earliest and therefore most critical software tax decisions were obliged to either follow or distinguish film industry authority. Unfortunately, they disposed of that parallel authority summarily. The United States Court of Appeals for the District of Columbia Circuit distinguished *Universal* from the notable *District of Columbia v. Norwood Studios, Inc.* decision,84 which had been rendered by the same court, simply on the ground that the *Norwood Studios* vendor had retained no interest in the film product after the sale, whereas the *Universal* vendor had restricted the use of one of the furnished programs.85

Other courts have concluded that film industry decisions are not applicable to software disputes, reasoning that the transfer medium is critical to the film product but only incidental to the software product.86 Justice Maddox's dissent in *State v. Central Computer Services, Inc.*87 questioned the logic of this rationale. Because software may be transferred by telecommunications or

84. 336 F.2d 746 (D.C. Cir. 1964).
87. 349 So. 2d 1160 (Ala. 1977).
direct programmer input, the majority had concluded that the film industry decisions did not apply. Seeing little difference between the use of the medium by film makers and its use by software manufacturers, Justice Maddox countered by observing that the film product may also be transmitted by telecommunications and reproduced by actors.88

2. Improper Application of Revenue Procedure 69-21

The critical Universal decision misconstrued the Service's partial tangibility rule when it characterized all software as intangible. Section 4 of Revenue Procedure 69-2189 allows the taxpayer to treat software as a tangible asset with the hardware if originally bundled with the hardware. In Universal, the taxpayer had purchased a bundled package from IBM.90 The Universal court, however, inappropriately applied the procedure's evaluation of intangibility for unbundled, separately acquired software purchases to Universal's bundled software purchases.91 The court would not have reached this conclusion had it properly applied the parallel portion of Procedure 69-21 pertaining to bundled purchases of software.

3. Improper Application of Greyhound's Tangibility Rule

The Greyhound court, relying on somewhat vague reasoning, characterized systems software as tangible, and exempted as intangible all other items the state sought to tax—systems engineering services, educational services, and maintenance.92 Subsequent courts, however, have apparently overlooked Greyhound's distinction between tangible and intangible items and have cited Greyhound as authority for an intangible characterization of all software,93 including systems software. This manifest inconsistency may be explained by the complexity of the subject matter coupled with the Greyhound court's vagaries.

88. Id. at 1164, 1165.
89. See notes 27-33 and accompanying text supra.
C. Deferential Rulings for the Taxpayer

Within the realm of tax law, a unique multijurisdictional policy of deferential treatment of the taxpayer on the ground of ambiguity has persisted for years. When relevant authority has been unpersuasive or weak, the courts have generally rendered pro-taxpayer decisions. This has contributed, however, to a firm stare decisis rule of intangibility on the basis of ambiguity for certain software decisions.

IV. A Need for Consistent Tangibility

A. Consistency

Consistency is essential if equitable treatment of industry participants is to be maintained. Current inconsistency unfairly favors the software manufacturer over manufacturers of other products and favors certain software manufacturers over other software manufacturers within the industry.

1. Industry-External Inequities

The status quo inconsistency, preferred by some in the industry, is most inequitable between the software manufacturer and the manufacturer of analogous products. Software manufacturers obtain or seek to obtain federal investment tax credits accruing to vendors of tangible products. However, in those states where courts have ruled that software is intangible, software manufacturers have successfully avoided the property, sales, and use taxes borne by manufacturers of analogous products.

2. Industry-Internal Inequities

Because Revenue Procedure 69-21 permits a vendee to lump bundled software costs with those of hardware but requires different treatment for unbundled acquisitions, two specific

96. Myers, supra note 64, at 75.
97. See notes 27-33 and accompanying text supra.
problems arise from the resulting market distortion. First, a vendee of bundled software possesses a definite and perhaps sizeable tax advantage over a vendee of identical unbundled software. Secondly, that tax advantage, economically transmitted to the hardware vendor, induces the hardware vendor to withstand market forces to unbundle, thereby hindering technological development of competitive software systems in the independent software industry.

B. Tangibility

For technological purposes software is tangible. Not only should the tangible/intangible inconsistency within the law be eliminated, the ultimate characterization should fall on the side of tangibility for several reasons.

The preservation of a definition of software as being intangible would perpetuate a legal-technological paradox. Proper recognition of software as being tangible is demanded by a system of laws that seeks to avoid fiction.

Moreover, a characterization of software as tangible would permit state and local revenue agencies to tap a large source of potential revenue. Exponential growth in the industry is inevitable; the software manufacturing industry grew from virtually nothing in the 1960's to an estimated $70.7 billion in 1980, up from $43.1 billion in 1976.

Finally, a continued characterization of software as intangible by the Service imposes a burden upon the software manufacturer not borne by manufacturers and owners of tangible products. This burden stems not from inconsistencies of characterization within the industry but from a characterization of software as intangible by the Service; the burden may be remedied simply by a repeal of Revenue Procedure 69-21.

98. Goetz, When IBM Unbundled, supra note 3, at 35.
99. Parker v. Flook, 437 U.S. 584, 587 n.7 (1978). Emerging innovations can do nothing but hasten the industry's growth. The increased availability of communications links between computer systems will cause transactional costs associated with the creation and sale of software products to plummet as vendors transfer those products to the vendee in fractional seconds. Distributive processing systems, the computing industry's major focus for the 1980's, will give remote users cheap access to massive central mainframe systems, which in turn will place huge demands upon the development of corresponding software capabilities. See generally H. Katz, Distributive Information Systems (1979); D. McGlynn, supra note 17; M. Dertouzos & J. Moses, The Computer Age (1979).
V. Solution

The solution is simple and does not necessitate special legislation; all that is required is a reasonable construction of existing revenue statutes. The proper introduction of trade usage would encourage the courts to construe revenue statutes in a reasonable manner. Such construction is preferable to a construction conditioned by an "a priori bias against the collectibility [of taxes in general]." Because tax laws often extend into technical fields, reference to scientific facts, trade meaning, and commercial usage are all relevant to statutory construction. The courts must often reevaluate technical common law definitions when precise distinctions are impractical or technologically obsolete.

This characterization of software as intangible stems from a variety of mistakes. Poor factual input and reasoning that is technologically inaccurate have served as the bases for poor precedent. Prior authority, which may have been based on sound technological reasoning or results, has been ignored or misapplied by later courts grasping for persuasive authority. Where authority has been weak or the evidence ambiguous, courts have rendered pro-taxpayer decisions.

A consistent treatment of software as tangible in all relevant areas of the law is preferable to the only other alternatives: (1) inconsistent treatment or (2) treatment as an intangible. Consistent treatment would equalize the legal benefits and burdens within and without the software industry. It would place the software manufacturer in a legal posture similar to that of the manufacturers of technologically analogous products. Treatment of software as a tangible would also reflect the nature of the product as it is viewed by its manufacturers and users. New legislation is not needed to insure consistent treatment which would treat software as a tangible. All that is required is the simple and reasonable construction of existing revenue statutes.

VI. Conclusion

State courts with tax jurisdiction and the Internal Revenue Service have generally characterized software as an intangible product and asset. This characterization exempts software from

100. 3 C. SANDS, supra note 93, § 66.02.
101. Id. § 66.03.
102. Id.
state and local sales, use, and personal property taxes, which turn upon the issue of tangibility. The Service’s characterization largely denies federal investment credit benefits for the software owner and precludes tangible capitalization and depreciation for separately acquired software.

This characterization of software as intangible is inconsistent with state and federal tax court characterizations of analogous products, state court characterizations of software in contract disputes, and pervasive trade usage.

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