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TAXATION OF SOFTWARE DEVELOPMENT COSTS: DEBUGGING THE PROPOSED REGULATIONS

*Wade R. Sjogren**

I. INTRODUCTION

Research or experimental expenditures have been deductible under section 174¹ of the Internal Revenue Code (the "Code") since 1954.² The Internal Revenue Service ("IRS") issued final regulations interpreting section 174 in 1957,³ which remain in force (with minor amendments) today. However, neither Congress in 1954, nor the IRS in 1957, addressed the application of section 174 to the costs of developing computer software.

In 1969, the IRS issued Revenue Procedure ("Rev. Proc.") 69-21⁴ to provide guidelines for examining income tax returns that involve the costs of computer software. Rev. Proc. 69-21 conspicuously avoids stating that software development costs are "research or experimental expenditures" within the meaning of section 174, but it does offer software developers more generous deductions than are allowable under section 174. This represents poor tax administration because the IRS should not "allow" a deduction unless it is certain that express statutory authority exists. Despite its shortcomings, Rev. Proc. 69-21 remains in force even today.

In 1983, the IRS shocked the software industry by announcing in proposed regulations that the costs of developing computer software generally were not "research or experimental expenditures" within the

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1. Unless otherwise indicated, all section references are to the Internal Revenue Code of 1986, as amended and in effect as of September 1990.

2. Internal Revenue Code of 1954, Pub. L. No. 83-591, 68A Stat. 66-67 (1954).

3. T.D. 6255, 1957-2 C.B. 180-81.

4. 1969-2 C.B. 303.

meaning of section 174.⁵ In May 1989, the IRS, responding to public outcry over the regulations proposed in 1983, issued a revised set of proposed regulations.⁶ This time, while the IRS conceded that software development costs were research or experimental expenditures within the meaning of section 174, it stated that it was studying the continuing validity of Rev. Proc. 69-21 in light of the enactment of the uniform capitalization rules of section 263A. After threatening to take away the sacred cow of the software industry, the IRS' 1989 proposed regulations would, if they are implemented, create a "compliance nightmare."⁷

The 1989 proposed regulations utilize what has been commonly called a "time-line approach." Under this approach, all expenditures incurred after a project meets its "basic design specifications" are disallowed, unless made for the purpose of curing significant design defects, obtaining significant cost reductions, or achieving a significantly enhanced function or performance level. These essential terms, however, are not defined in the proposed regulations, but are instead applied in examples which serve to illustrate the IRS' misunderstanding of the actual process of software development. Further, use of the time-line approach is unsupported by the legislative history to section 174 and is in conflict with the recent legislative history to the section 41 research credit.

The purpose of this article is to examine the 1989 proposed regulations, to consider criticism of the proposed regulations by the software industry, and to offer an alternative proposal. Part II begins with a background explanation of section 174, a discussion of the related provisions, and a description of the treatment of research expenditures for financial accounting purposes. Part III explains the 1989 proposed regulations and reviews criticism by the software industry. Finally, Part IV offers a proposal regarding the deductibility of software development costs.

II. BACKGROUND

The proposed regulations under section 174 are better understood after a brief discussion regarding the current tax and financial accounting treatment of software development costs.

5. Prop. Treas. Reg. § 1.174-2, 48 Fed. Reg. 2790 (1983) (subsequently revised and amended by 54 Fed. Reg. 21,224 (1989)).

6. Prop. Treas. Reg. § 1.174-2, 54 Fed. Reg. 21,224 (1989).

7. This characterization was made by Marvin Petry (adjunct professor of law at Georgetown University Law Center and member of the law firm of Larson and Taylor, Arlington, Virginia) at a hearing before the IRS on December 5, 1989. *R & D, Witnesses Urge IRS To Drop Time-Line, Significance Requirements In R & D Rules*, DAILY TAX REPORT, Dec. 6, 1989, No. 233 at G-3.

A. THE SECTION 174 DEDUCTION

1. *Regular Income Tax*

Under section 174, a taxpayer is allowed to deduct research or experimental expenditures which are paid or incurred in connection with a trade or business.⁸ A taxpayer may also elect to ratably amortize such expenditures over a period of not less than sixty months, beginning with the month the taxpayer first realizes benefits from the results of the research.⁹ For tax years beginning after December 31, 1989, research or experimental expenditures are deductible only to the extent that they are reasonable under the circumstances.¹⁰

The current regulations define the term "research or experimental expenditures" as "expenditures incurred in connection with the taxpayer's trade or business which represent research and development costs in the experimental or laboratory sense."¹¹ The regulations describe the types of costs that qualify and do not qualify as research or experimental expenditures.¹² The regulations do not address whether

8. Section 174(a)(1) provides that "[a] taxpayer may treat research or experimental expenditures which are paid or incurred by him during the taxable year in connection with his trade or business as expenses which are not chargeable to [a] capital account. The expenditures so treated shall be allowed as a deduction."

9. I.R.C. § 174(b).

10. *Id.* § 174(e). Section 174(e) was enacted by section 7110 (d) of the Omnibus Budget Reconciliation Act of 1989, Pub. L. No. 101-239, 103 Stat. 2106, 2322-26 [hereinafter OBRA 89]. The House Committee Report to OBRA 89 contained the following footnote explanation for this provision:

[T]he bill provides for a rule contrary to the holding in *Driggs v. United States*, 706 F. Supp. 20 (N.D. Tex. 1989). The committee intends that the reasonableness requirement under section 174 be parallel to the reasonable allowance requirement for salaries and other compensation under section 162(a)(1), in that amounts supposedly paid for research may be recharacterized as disguised dividends, gifts, loans, or other similar payments. The committee does not intend that the reasonableness requirement under section 174 be used to question whether or not research activities themselves are of a reasonable type or nature.

H.R. REP. NO. 247, 101st Cong., 2d Sess. 1203 n.12 (1989).

11. Treas. Reg. § 1.174-2(a)(1) (as amended in 1987). The terms "research or experimental expenditures" and "research and development" ("R & D") are used interchangeably in both the regulations and common parlance. The reason for this has been explained as follows:

The phrase "research or experimental" is a term of art for tax purposes; it is not clear that the term differs in any important respect from the term "research and development" as used for financial accounting purposes. As a matter of practice, most corporate taxpayers use their financial accounting system determination of R & D costs as the starting point in determining their research or experimental expenditures for tax purposes. Moreover, on audit the IRS generally requires that taxpayers provide a more complete justification of the classification of costs as research or experimental expenditures for tax purposes where the costs are not so classified for financial purposes.

Research and Development Expenditures, Tax Mgmt. (BNA) No. 42, at A-2 (1987).

12. Treasury Regulation Section 1.174-2(a)(1) (as amended in 1987), states in part:

software development costs are research or experimental expenditures governed by section 174. They expressly exclude expenditures for research in connection with literary, historical or similar projects, and refer to the capitalization rules of section 263A. Accordingly, the existing regulations are ambiguous regarding whether software development costs are deductible under section 174 or should be capitalized under section 263A. Further, the regulations do not require that research be performed at any particular point along the time-line of product development in order to qualify.

Section 174 was enacted in 1954 to "eliminate uncertainty and to encourage taxpayers to carry on research and experimentation."¹³ Uncertainty existed because the prior law did not authorize any specific treatment for research or experimental expenditures.¹⁴ Under prior law, research or experimental expenditures could be currently deducted only if the requirements of (what is now) section 162 were satisfied. Section 162 provides that a taxpayer is allowed to deduct all the ordinary and necessary expenses paid or incurred in carrying on a trade or business.¹⁵ "In order for expenses to be deductible under section 162,

The term ["research or experimental expenditures"] . . . includes generally all such costs incident to the development of an experimental or pilot model, a plant process, a product, a formula, an invention, or similar property, and the improvement of already existing property of the type mentioned. The term does not include expenditures such as those for the ordinary testing or inspection of materials or products for quality control or those for efficiency surveys, management studies, consumer surveys, advertising, or promotions. However, the term includes the costs of obtaining a patent, such as attorneys' fees expended in making and perfecting a patent application. On the other hand, the term does not include the costs of acquiring another's patent, model, production or process, nor does it include expenditures paid or incurred for research in connection with literary, historical, or similar projects. See section 263A and the regulations thereunder for cost capitalization rules which apply to expenditures paid or incurred for research in connection with literary, historical, or similar projects involving the production of property, including the production of films, sound recordings, video tapes, books, or similar properties.

Treas. Reg. § 1.174-2(a)(1) (as amended in 1987).

13. H.R. REP. NO. 1337, 83d Cong., 2d Sess. 28 (1954); S. REP. NO. 1622, 83d Cong., 2d Sess. 33 (1954).

14. The House and Senate Committee Reports state:

No specific treatment is authorized by present law for research and experimental expenditures. To the extent that they are ordinary and necessary they are deductible; to the extent that they are capital in nature they are to be capitalized and amortized over [their] useful life. Losses are permitted where amounts have been capitalized in connection with abandoned projects, and recovery through amortization is provided where the useful life of these capital items is determinable, as in the case of a patent. However, where projects are not abandoned and where a useful life cannot be definitely determined, taxpayers have had no means of amortizing research expenditures.

H.R. REP. NO. 1337, 83rd Cong., 2d Sess. 28 (1954); S. REP. NO. 1622, 83rd Cong., 2d Sess. 33 (1954).

15. I.R.C. § 162(a).

the expenses must relate to a trade or business functioning at the time the expenses are incurred."¹⁶ In contrast, the courts have interpreted section 174 as requiring only that a taxpayer be engaged in a trade or business *at some time*.¹⁷ Accordingly, section 174 offers current deductions for research or experimentation at an earlier point in time than would be allowable under section 162. Thus, section 174 is of particular benefit to start-up enterprises that have not yet reached the trade or business stage.¹⁸

2. *Alternative Minimum Tax*

Although Congress enacted section 174 to stimulate research, it has also chosen to limit its benefit to taxpayers with too many tax preference items. Research or experimental expenditures deducted under section 174 are taken into account in computing the Alternative Minimum Tax ("AMT"). Under the AMT, a tax equal to the excess of the "tentative minimum tax" over the regular income tax is imposed.¹⁹ The tentative minimum tax is 20 percent (24 percent in the case of a taxpayer other than a corporation) times the excess of "alternative minimum taxable income" ("AMTI") over the pertinent exemption

16. *Hardy v. Commissioner*, 93 T.C. 684, 687 (1989).

17. In *Snow v. Commissioner*, 416 U.S. 500 (1974), the Supreme Court established that a taxpayer need not currently be producing or selling a product in order to obtain a deduction under section 174. The Supreme Court stated that "Congress wrote into section 174(a)(1) 'in connection with', and section 162(a) is more narrowly written than is section 174, allowing 'a deduction' of 'ordinary and necessary expenses paid or incurred . . . in carrying on any trade or business.'" 416 U.S. at 503. This "interpretation of section 174(a)(1) fairly invited the creation of R & D tax shelters, and the bar quickly took up the invitation." *Spellman v. Commissioner*, 845 F.2d 148, 152 (7th Cir. 1988), *aff'g* 52 T.C.M. (CCH) 298 (1986). Ten years after *Snow*, however, the tax court observed in *Green v. Commissioner*, that:

[f]or section 174 to apply, the taxpayer must still be engaged in a trade or business *at some time*, and we must still determine, through an examination of the facts of each case, whether the taxpayer's activities in connection with a product are sufficiently substantial and regular to constitute a trade or business.

83 T.C. 667, 686-87 (1984). This requirement announced in *Green* signaled the end of R & D limited partnerships where there was no realistic possibility they would ever be engaged in a trade or business. See *Diamond v. Commissioner*, 92 T.C. 423, 439 (1989).

18. Representative Reed, former Chairman of the House Ways and Means Committee, made the following statement before the House regarding section 174:

Very often, under present law small businesses which are developing new products and do not have established research departments are not allowed to deduct these expenses despite the fact that their large and well-established competitors can obtain the deduction. . . . This provision will greatly stimulate the search for new products and new inventions upon which the future economic and military strength of our Nation depends. It will be particularly valuable to small and growing businesses.

100 CONG. REC. 3425 (1954).

19. I.R.C. § 55(a).

amount.²⁰ AMTI is defined by the Internal Revenue Code as the taxable income of the taxpayer after adding back items of tax preference and making certain adjustments.²¹

More specifically, section 56 provides an adjustment for research or experimental expenditures allowed under section 174. When a taxpayer (other than a corporation) determines its AMTI, research or experimental expenditures must be capitalized and amortized ratably over the 10-year period beginning with the taxable year in which the expenditures were made.²² Research or experimental expenditures need not be capitalized if a taxpayer materially participates in the activity.²³ A taxpayer may also deduct any loss sustained during a taxable year.²⁴

The AMT represents a system of income taxation that operates parallel to the regular income tax. It is an attempt to ensure that taxpayers not escape tax entirely through the use of tax preferences. To the extent a taxpayer's deductions are reduced under section 174 for regular income tax purposes, the taxpayer's deductions are also reduced for purposes of the AMT.

B. REVENUE PROCEDURE 69-21

In the absence of congressional guidance regarding the deductibility of software development costs under section 174, the IRS issued Rev. Proc. 69-21²⁵ to provide guidelines for examining income tax returns that involve the costs of computer software. The Revenue Procedure first defines what is and what is not "computer software."²⁶ Then the

20. *Id.* § 55(b)(1)(a), as amended by section 11102(a) of the Omnibus Budget Reconciliation Act of 1990, Pub. L. No. 101-508, 104 Stat. 1388 [hereinafter OBRA 90]. From this amount is subtracted the "alternative minimum tax foreign tax credit" for the taxable year. *Id.* §§ 55(b)(1)(B), 59(a). The exemption amounts are: (1) \$40,000 in the case of a joint return or a surviving spouse; (2) \$30,000 in the case of an individual who is not married and is not a surviving spouse; and (3) \$20,000 in the case of a married individual who files a separate return, or an estate or trust. *Id.* § 55(d).

21. *Id.* § 55(b)(2).

22. *Id.* § 56(b)(2)(A)(ii).

23. *Id.* § 56(b)(2)(D). The term "material participation" is given the same meaning as it is given in section 469(h). Section 469(h)(1) provides: "[a] taxpayer shall be treated as materially participating in an activity only if the taxpayer is involved in the operations of the activity on a basis which is—(A) regular, (B) continuous, and (C) substantial." *Id.* § 469(h)(1).

24. I.R.C. § 56(b)(2)(B).

25. 1969-2 C.B. 303.

26. Rev. Proc. 69-21 states:

For the purpose of this Revenue Procedure, "computer software" includes all programs or routines used to cause a computer to perform a desired task or set of tasks, and the documentation required to describe and maintain those programs. Computer programs of all classes, for example, operating systems, executive systems, monitors, compilers and translators, assembly routines, and utility programs are included. "Computer software" does not include procedures which are

Revenue Procedure states that:

The costs of developing software (whether or not the particular software is patented or copyrighted) in many respects so closely resemble the kind of research and experimental expenditures that fall within the purview of section 174 of the Internal Revenue Code of 1954 as to warrant accounting treatment similar to that accorded such costs under that section.²⁷

Thus, the Revenue Procedure avoids acknowledging that software development costs are research or experimental expenditures within the meaning of section 174.

According to Rev. Proc. 69-21, the IRS will not disturb a taxpayer's accounting treatment where all costs properly attributable to the development of software are either (1) consistently deducted in full as current expenses in accordance with rules "similar to" those under section 174(a); or (2) capitalized and ratably amortized in accordance with rules "similar to" those under section 174(b), over a period of five years from the date of completion of development *or* over a shorter period where such costs are attributable to the development of software that the taxpayer clearly establishes has a useful life of less than five years.²⁸ Thus, unlike section 174(b), Rev. Proc. 69-21 permits capitalized software development costs to be amortized over a period of less than five years. In this regard, Rev. Proc. 69-21 provides more liberal deductions than those under section 174.

C. THE UNIFORM CAPITALIZATION RULES

The existing regulations under section 174 fail to address whether software development costs are capitalizable under section 263A. Section 263A requires that direct costs and a share of indirect costs of property produced or acquired for resale by a taxpayer must be capitalized.²⁹ Section 263A applies to (1) real property or tangible personal property produced by a taxpayer; and (2) tangible and intangible personal property acquired for resale by a taxpayer.³⁰ Engineering and design ex-

external to computer operations, such as instructions to transcription operators and external control procedures.

Id.

27. *Id.*

28. *Id.* For further discussion regarding the deductibility of software development costs under Rev. Proc. 69-21, see Wensman, *Federal Tax Treatment of Software Development Expenses: Is the I.R.S. Position Outdated?*, 9 RUTGERS COMPUTER & TECH. L.J. 77 (1982); Note, *The Tax Treatment of the Research and Development Costs of Computer Software*, 38 SYRACUSE L. REV. 775 (1987); Note, *Taxation of Software Development Costs*, 8 COMPUTER/L.J. 73 (1987).

29. I.R.C. § 263A(a)-(b); Temp. Treas. Reg. § 1.263A-1T(a)(1) (1987).

30. Temp. Treas. Reg. § 1.263A-1T (a)(1)(1987).

penditures are indirect costs which must be capitalized.³¹ The regulations define the term "tangible personal property" as including "films, sound recordings, video tapes, books and other similar property containing words, ideas, concepts, images or sounds."³² The existing regulations do not consider whether computer software is tangible personal property, such as films, sound recordings, etc., which is governed by section 263A.³³ Nevertheless, research or experimental expenditures that are allowable as a deduction under section 174 are specifically excepted by statute from the requirements of section 263A.³⁴ Accordingly, to the extent software development costs are deductible under section 174, the costs are not subject to section 263A.

D. THE SECTION 41 RESEARCH CREDIT

In addition to the deduction under section 174, a nonrefundable credit for increasing research activities is provided in section 41.³⁵ The costs of developing computer software generally qualify for the section 41 credit.³⁶ The credit is equal to (1) 20 percent of the excess of "qualified research expenses" for the taxable year, over a base amount; plus (2) 20 percent of basic research payments.³⁷ However, for taxable years beginning after December 31, 1989, a taxpayer must reduce any deduction under section 174 by the amount of the section 41 credit.³⁸ Furthermore, the credit is scheduled to terminate December 31, 1990, and does not apply to any amount paid or incurred after that date.³⁹

The starting point in determining "qualified research expenses" within the meaning of section 41 is to determine whether the expenditures qualify as research or experimental expenditures under section 174.⁴⁰ In addition, section 41 requires that the expenditures must be incurred "in carrying on" a trade or business, which is the same require-

31. *Id.* § 1.263A-1T(b)(2)(iii)(S).

32. *Id.* § 1.263A-1T(a)(5)(iii).

33. However, the tax court has recently held that software, *unlike* motion pictures, tapes, and master sound recordings, is intangible property for purposes of the investment tax credit. *Ronnen v. Commissioner*, 90 T.C. 74, 96-100 (1988).

34. I.R.C. § 263A(c)(2). See Temp. Treas. Reg. § 1.263A-1T(b)(2)(v)(D)(1987).

35. A comprehensive discussion of the section 41 credit is beyond the focus of this paper. For further guidance, see M. PETRY, *TAXATION OF INTELLECTUAL PROPERTY*, §§ 9.01-9.10 (1988); and Natbony, *The Tax Incentives for Research and Development: An Analysis and a Proposal*, 76 GEO. L.J. 347, 382-98 (1987).

36. H.R. REP. NO. 201, 97th Cong., 1st Sess. 114-15 (1981).

37. I.R.C. § 41(a).

38. *Id.* § 280C(c). However, a taxpayer may elect to reduce its section 41 credit by the product of (1) 50 percent of the credit; and (2) the maximum corporate tax rate under section 11(b)(1). See *id.* § 280C(c)(3).

39. *Id.* § 41(h), as amended by section 11402(a) of OBRA 90.

40. See *id.* § 41(d)(1)(A).

ment applied under section 162.⁴¹ As indicated previously, section 162's requirement for the deductibility of expenditures is a stricter requirement than that of section 174. Thus, expenses paid or incurred "in connection with" a trade or business within the meaning of section 174 are not necessarily paid or incurred "in carrying on" a trade or business for purposes of section 41.⁴²

A number of additional requirements must also be satisfied before an expenditure will be a qualified research expenditure under section 41. These requirements include that (1) the research be undertaken for the purpose of discovering information which is technological in nature, and the application of which is intended to be useful in the development of a new or improved business component of the taxpayer; and (2) substantially all of the activities which constitute elements of a process of experimentation must relate to a new or improved function, performance, reliability, or quality.⁴³ Research is undertaken for the purpose of discovering information that is technological in nature if the process of experimentation utilized in the research fundamentally relies on principles of computer science.⁴⁴ However, research does not rely on principles of computer science merely because a computer is employed.⁴⁵

Moreover, section 41 of the Code states that research for computer software that is developed primarily for internal use by the taxpayer is not "qualified research" for purposes of the section 41 credit, unless the software is used in (1) qualified research undertaken by the taxpayer; or (2) a production process that meets the requirements for the credit.⁴⁶

41. *Id.* § 41(b)(1); Treas. Reg. § 1.41-2 (a)(1) (as amended in 1987).

42. Treas. Reg. § 1.41-2(a)(1) (as amended in 1987). See *supra* notes 15-18 and accompanying text.

43. I.R.C. § 41(d)(1), (d)(3)(A).

44. H.R. REP. NO. 841, 99th Cong., 2d Sess. at II-71 (1986), *reprinted in* 1986-3 C.B. (vol. 4) 1, 71.

45. *Id.* at II-71 n.3.

46. I.R.C. § 41(d)(4)(E). Section 41 (d)(4)(E) provides that the term "qualified research" does not include:

(E) Computer Software.—Except to the extent provided in regulations, any research with respect to computer software which is developed by (or for the benefit of) the taxpayer primarily for internal use by the taxpayer, other than for use in—

- (i) an activity which constitutes qualified research (determined with regard to this subparagraph), or
- (ii) a production process with respect to which the requirements of [section 41(d)(1)] are met.

Id. The Conference Report to the Tax Reform Act of 1986, Pub. L. No. 99-514, 100 Stat. 2085 [hereinafter TRA 86] provides an example of a production process that qualifies for the credit: "where the taxpayer is developing robotics and software for the robotics for use in operating a manufacturing process, and the taxpayer's research costs of developing the robotics are eligible for the credit." H.R. REP. NO. 841, 99th Cong., 2d Sess. at II-73 (1986), *reprinted in* 1986-3 C.B. (vol. 4) 1, 73.

Any other research activities with respect to internal-use software are ineligible for the credit, except to the extent provided in the regulations.⁴⁷ The legislative history to this provision indicates that Congress intended that any regulations make the costs of new or improved internal-use software eligible for the credit only if the taxpayer can additionally establish that (1) the software is innovative; (2) the software development involves significant economic risk; and (3) the software is not commercially available for use by the taxpayer.⁴⁸

E. FINANCIAL ACCOUNTING

For financial accounting purposes,⁴⁹ costs incurred internally in creating a computer software product are charged to expense when incurred as research and development until "technological feasibility" has been established for the product.⁵⁰ In general, technological feasibility is established upon completion of a detail program design or, in its absence, completion of a working model.⁵¹ Capitalized costs are amortized on a product-by-product basis, using the greater of the amount computed using (1) the ratio that current gross revenues for the product bear to the total of current and anticipated future gross revenues for the product; or (2) the straight-line method over the remaining estimated economic life of the product including the period being reported

47. The Conference Report to TRA 86 states:

[T]he costs of developing software are not eligible for the credit where the software is used internally, for example, in general and administrative functions (such as payroll, bookkeeping, or personnel management) or in providing noncomputer services (such as accounting, consulting, or banking services), except to the extent provided by Treasury regulations.

H.R. REP. NO. 841, 99th Cong., 2d Sess. at II-73 (1986), reprinted in 1986-3 C.B. (vol. 4) 1, 73.

48. *Id.*

49. The tax and financial accounting treatment of items often differ. The Supreme Court has attributed this to differing goals:

The primary goal of financial accounting is to provide useful information to management, shareholders, creditors, and others properly interested; the major responsibility of the accountant is to protect these parties from being misled. The primary goal of the income tax system, in contrast, is the equitable collection of revenue; the major responsibility of the Internal Revenue Service is to protect the public fisc.

Thor Power Tool Co. v. Commissioner, 439 U.S. 522, 542 (1979). Nevertheless, there are occasions where the interdisciplinary analysis of the tax and financial accounting treatment of an item is helpful. See Note, *The World According to "GAAP": Tax Accounting for Accrued Expenses*, 20 RUTGERS L.J. 227 (1988). Accordingly, the financial accounting treatment of software development costs is considered herein as simply a different perspective in evaluating the federal tax treatment of such costs.

50. ACCOUNTING FOR THE COSTS OF COMPUTER SOFTWARE TO BE SOLD, LEASED, OR OTHERWISE MARKETED, Statement of Financial Accounting Standards No. 86 (Fin. Accounting Standards Bd. 1985).

51. *Id.*

on.⁵² Amortization starts when the product is available for general release to customers.⁵³

III. THE 1989 PROPOSED REGULATIONS

A. EXPLAINED

Because of uncertainty about the deductibility of the costs of developing software, on January 21, 1983, the IRS issued proposed regulations interpreting section 174.⁵⁴ The 1983 proposed regulations provided that the costs of developing computer software were not research or experimental expenditures within the meaning of section 174, unless the computer software was new or significantly improved.⁵⁵ The 1983 proposed regulations also provided that research or experimental expenditures did not include costs paid or incurred for the development of software where the operational feasibility was not in serious doubt.⁵⁶

Because the 1983 proposed regulations treated computer software differently from other products, the IRS received a large amount of criticism. Possibly in response to the criticism, on May 9, 1983, the IRS announced that the method of accounting for computer software development costs established in Rev. Proc. 69-21⁵⁷ would not be superseded by the amendments contained in the 1983 proposed regulations.⁵⁸ On January 26, 1987, the IRS announced that final regulations under section 174 would clarify that software development costs qualify as research or experimental expenditures under the same standards that apply to the costs of developing other products or processes.⁵⁹

On May 17, 1989, the IRS issued proposed regulations which revised and superseded those issued in 1983.⁶⁰ These new proposed regulations primarily relate to the definition of "research or experimental expenditures" and the application of section 174 to software development

52. *Id.*

53. *Id.* For discussion regarding the relationship between the treatment of the costs of developing software for financial accounting and tax purposes, see Note, *The Tax Treatment of Research and Development Expenditures: A Comparison Between Financial Accounting Standards and Section 174 of the Internal Revenue Code*, 10 RUTGERS COMPUTER & TECH. L.J. 149 (1983).

54. Prop. Treas. Reg. § 1.174-2, 48 Fed. Reg. 2790 (1983) (subsequently revised and amended by 54 Fed. Reg. 21,224 (1989)).

55. *Id.* For further discussion regarding the regulations proposed in 1983, see Wasserman, *Section 174 and Computer Software Development*, 61 TAXES 506 (1983).

56. *Id.*

57. See *supra* notes 25-28 and accompanying text.

58. I.R.S. Announcement 83-83, 1983-19 I.R.B. 66 (based upon I.R.S. News Release IR-83-71 (Apr. 19, 1983)).

59. I.R.S. Notice 87-12, 1987-1 C.B. 432.

60. 54 Fed. Reg. 21,224 (1989).

costs.⁶¹ The proposed amendments are to be effective for taxable years beginning after the date the amendments become final regulations by publication of a Treasury decision in the Federal Register.⁶² Any change in the tax treatment of computer software will be applied prospectively.⁶³

Under the 1989 proposed regulations, the costs of developing computer software are governed by the same rules that apply to other products or properties under section 174.⁶⁴ Like the existing regulations under section 174, the proposed regulations define what is "research or experimental" by stating the types of expenditures that qualify⁶⁵ and do not qualify.⁶⁶ However, the proposed regulations differ significantly

61. *Id.*

62. *Id.*

63. *Id.* at 21,225.

64. Prop. Treas. Reg § 1.174-2(a)(5), 54 Fed. Reg. 21,224, 21,227 (1989).

65. Proposed Treasury Regulation Section 1.174-2(a)(1) states in part:

The term "research or experimental or experimental expenditures," as used in section 174, means expenditures incurred in connection with the taxpayer's trade or business which represent research or development in the experimental or laboratory sense. The term includes generally all such experimental or laboratory costs incident to the development or improvement of an experimental or pilot model, a plant process, a product, a formula, an invention, or a similar property. It includes research aimed at the discovery of new knowledge and research or experimentation searching for new applications of either research or experimentation findings or other knowledge.

54 Fed. Reg. 21,224 (1989). Compare this definition from the proposed regulations with the definition contained in the existing regulations, cited *supra* note 12.

66. Proposed Treasury Regulation Section 1.174-2(a)(3) states:

The term "research or experimental expenditure" does not include any cost incurred in connection with the following activities unless the expenditures relating to such activities separately qualify under section 174—

- (i) Efficiency surveys or management studies;
- (ii) Consumer surveys, market development, or market testing (including market research, advertising, or promotions);
- (iii) The routine or ordinary testing or inspection of materials or products for quality control;
- (iv) Activities relating to management functions or techniques developed primarily for internal use of the taxpayer in its trade or business and not generally intended for sale to customers;
- (v) Activities not directed at the functional aspects of a product including expenses related to style, taste, cosmetic, or seasonal design factors;
- (vi) Activities relating to the implementation of commercial production;
- (vii) The construction of duplicate prototypes used for market testing purposes or held for sale;
- (viii) The adaptation of an existing capability to a particular requirement or customer's need;
- (ix) Routine data collections;
- (x) The acquisition of another person's patent, model, or production process; or
- (xi) Literary, historical, or similar projects.

54 Fed. Reg. 21,224 (1989).

from the existing regulations by also imposing what has been commonly called a "time-line" requirement:

Expenditures incurred after the point that the product or property (or component of the product or property) meets its basic design specifications related to function and performance level generally will not qualify as research or experimental expenditures under section 174 unless the expenditures relate to modifications to the basic design specifications for the purpose of curing significant defects in design, obtaining significant cost reductions or achieving a significantly enhanced function or performance level.⁶⁷

The proposed regulations do not define the term "basic design specifications" or provide what will be considered "significant." Instead, the proposed regulations contain eight examples which were intended by the IRS to illustrate the application of these principles. Specifically, these examples are offered to illustrate the application of the time-line principles and the exclusions contained in the proposed regulations to software development costs.⁶⁸

The preamble to the proposed regulations states that the IRS is currently studying the continuing validity of Rev. Proc. 69-21 in light of the enactment of section 263A.⁶⁹ Due to the software industry's prolonged reliance on Rev. Proc. 69-21, this statement had an unsettling effect.

Taxpayers were invited to comment on the proposed regulations.⁷⁰

B. CRITICISM BY THE SOFTWARE INDUSTRY

1. *The Time-Line Approach*

Representatives of the software industry submitted written comments challenging the treatment of software development costs in the 1989 proposed regulations.⁷¹ On December 5, 1989, the IRS held a hearing regarding the amendments contained in the proposed regulations.⁷² In the written comments and at the hearing, representatives of the software industry expressed their universal opposition to the "time-line" approach embodied in the proposed regulations for a number of reasons.⁷³

67. Prop. Treas. Reg. § 1.174-2(a)(1), 54 Fed. Reg. 21,224, at 21,225-26 (1989).

68. See Prop. Treas. Reg. § 1.174-2(a)(6), 54 Fed. Reg. 21,224, 21,227-28 (1989).

69. 54 Fed. Reg. 21,224, 21,225 (1989).

70. *Id.*

71. See Appendix *infra* for citations to comments from software industry representatives.

72. See Matthews, *Witnesses Reject IRS' Time-Line Approach in R&E Expense Regs*, 45 TAX NOTES 1280 (1989).

73. The author has extrapolated what he believes are the significant reasons stated in the comments submitted by representatives of the software industry. Arguments dis-

First, the software industry argues that the time-line approach ignores the realities of the software development process.⁷⁴ The phases of software development include the (1) creation of a conceptual design; (2) implementation of the design by coding and testing; (3) determining whether the product can be produced and sold; (4) testing of a prototype by an outside consulting firm; (5) releasing the product; and (6) product maintenance.⁷⁵ At any point in the development process, however, a project may be de-railed and sent back to any number of earlier phases. Further, a project may be in more than one phase at a given time, resulting in a parallel process of development.⁷⁶ Accordingly, the process "is more accurately described as evolutionary, rather than linear."⁷⁷ It has also been referred to as a "rugby" style of product development.⁷⁸

Instead of the time-line approach, the software industry advocates the use of a "functional" approach. Under a functional approach, the deductibility of an expenditure depends on the nature of the activity generating the expense, and not on the time the expenditure occurs along the time-line of product development.⁷⁹ This approach is employed in the present regulations under section 174 and with respect to computer software in Rev. Proc. 69-21.

Second, the software industry questions the legislative authority for use of the time-line approach. The time-line approach was integrated into the section 41 credit by TRA 86.⁸⁰ Section 41(d)(4)(A) provides that the term "qualified research" does not include research conducted after the beginning of commercial production.⁸¹ The legislative history

cussed as being made by the software industry may or may not have been made by each of the representatives of the software industry who commented on the proposed regulations.

74. In fact, it was reported that the December 5th hearing on the proposed regulations "turned into a class on the computer software development process. Representatives of the computer software industry struggled with the task of educating the hearing panel of Treasury and IRS attorneys regarding the research or experimentation process." Matthews, *supra* note 72, at 1280.

75. See Letter from James R. Shanahan, Jr., Price Waterhouse, Washington, D.C., to the IRS (Oct. 10, 1989) (Doc. 89-8020), *reprinted in* TAX NOTES TODAY, Oct. 20, 1989, at 213-36 (comments on behalf of a coalition of software development companies) [hereinafter Shanahan].

76. See Letter from Eric D. Ryan, Director of Taxes, Apple Computer, Inc., Cupertino, California, to the IRS (July 17, 1989)(Doc. 89-5928), *reprinted in* TAX NOTES TODAY, July 27, 1989, at 154-31 [hereinafter Ryan].

77. See Shanahan, *supra* note 75.

78. Ryan, *supra* note 76.

79. Ryan, *supra* note 76.

80. Tax Reform Act of 1986, Pub. L. No. 99-514, § 231, 100 Stat. 2085, 2173-80 (codified at scattered sections of 26 U.S.C.).

81. The Conference Report to TRA 86 states in regard to the research credit time-line exclusion: "no expenditures relating to a business component are eligible for the

to TRA 86 specifically states, however, that no inference was intended by Congress with respect to the scope of the definition of research or experimental expenditures under section 174 by virtue of the amendments made to the section 41 credit.⁸² Accordingly, the software industry contends that the time-line approach has no grounding in section 174 or its legislative history.⁸³

Third, the software industry contends that even if the time-line approach is appropriate under section 174, the proposed regulations achieve anomalous results.⁸⁴ The starting point in computing "qualified research" for purposes of the section 41 credit is to determine the amount of "research or experimental expenditures" under section 174.⁸⁵ Under the proposed regulations, expenditures incurred after a project meets its "basic design specifications" are generally disallowed.⁸⁶ After the amount of research or experimental expenditures is determined, the additional requirements of section 41(d) must be met for the expenditures to constitute "qualified research" for purposes of the credit.

credit after the component has been developed to the point where it either meets the basic functional and economic requirements of the taxpayer for such component or is ready for commercial sale or use." H.R. REP. NO. 841, 99th Cong., 2d Sess. at II-74 (1986), 1986-3 C.B. (vol. 4) 1, 74. In addition, the Conference Report states in a footnote that the cost of making "significant improvements in an existing product" may also qualify for the credit. *Id.* at II-74 n.4.

82. Specifically, the Conference Report stated "[n]o inference is intended from the rules in the conference agreement defining research for purposes of the incremental credit as to the scope of the term 'research or experimental' for purposes of the section 174 expensing deduction." *Id.* at II-76. Additionally, the Senate Finance Committee Report to the Economic Recovery Tax Act of 1981, Pub. L. No. 97-44, 95 Stat. 172, [hereinafter ERTA 81] which added the section 41 credit, provides:

It is anticipated that the Treasury and the Internal Revenue Service, pursuant to authority to issue interpretive regulations and rulings (Code sec. 7805), will provide additional guidance, not inconsistent with existing regulations, defining qualifying research for purposes of new section 44F [now 41] and section 174.

S. REP. NO. 144, 97th Cong., 1st Sess. 81 (1981).

83. If the proposed regulations are finalized, they will be issued under the general grant of authority to the Secretary to prescribe regulations in section 7805(a). Regulations issued under section 7805(a) are referred to as "interpretive" regulations. Relatively less deference is owed to an interpretive regulation than to a "legislative" regulation issued under a specific grant of authority to define a statutory term or prescribe a method of executing a statutory provision. *United States v. Vogel Fertilizer Co.*, 455 U.S. 16, 24 (1982). An interpretive regulation is valid only if it harmonizes with the plain language of the statute, its origins, and its purpose. *Id.*

The time-line approach does not conflict with the language of section 174. However, an examination of the recent legislative history to the research credit under ERTA 81 and TRA 86 makes clear that the principles contained in section 41 (including the time-line approach) should not apply to section 174. Accordingly, a compelling argument can be made that proposed regulations, if finalized, could be invalid.

84. *See, e.g.*, Shanahan, *supra* note 75.

85. I.R.C. § 41(d).

86. *See supra* text accompanying notes 54-70.

As stated above, one of those requirements is that research conducted after the beginning of commercial production is not allowed.⁸⁷ In the time-line of product development, the point at which commercial production begins is *after* the point at which basic design specifications are met. Accordingly, the proposed regulations are more stringent than section 41, even though the statutory framework of section 41 clearly envisions deductions under 174 as the starting point in computing "qualified research."

Fourth, the proposed regulations leave certain essential terms undefined. The proposed regulations state that expenditures incurred after a project meets its "basic design specifications" are disallowed, unless made for the purpose of curing "significant" design defects, obtaining "significant" costs reductions, or achieving a "significantly" enhanced function or performance level.⁸⁸ Not defining these terms makes the proposed regulations less administrable from the standpoint of both software developers *and* the IRS.⁸⁹ Furthermore, the lack of clearly defined terms will create an additional breeding ground for controversy between taxpayers and the IRS.

Fifth, the software industry points out that the proposed regulations make use of examples apparently as a substitute for substantively defining essential terms. Good draftsmanship dictates that terms be defined in the abstract before the terms are applied to particular facts in examples. In addition to representing poor draftsmanship, the software industry contends that the examples only serve to add further confusion.

A case in point is Example (4) of the proposed regulations which states that expenditures incurred to change from a "Writer 1.0" word processing program to a "Writer 1.1" program do not qualify, because the basic design specifications relating to performance and function were not modified.⁹⁰ David J. Rynne, chief financial officer for Tandem

87. See *supra* note 81 and accompanying text.

88. Prop. Treas. Reg. § 1.174-2(a)(1), 54 Fed. Reg. 21,224, 21,226 (1989).

89. Taxpayers generally have the burden of proving by a preponderance of the evidence that they are entitled to claimed deductions. *Welch v. Helvering*, 290 U.S. 111 (1933); Rule 142(a), Tax Court Rules of Practice and Procedure, P-H ¶ 74,536.1420 (1990). Since the requirements of the proposed regulations are ambiguous, software developers will encounter grave difficulty in satisfying the IRS that its requirements have been met. Further, examining agents will have little guidance in the field to determine whether the requirements of the proposed regulations have been satisfied. The result is an unadministrable regulation from both the standpoint of the taxpayer and the IRS.

90. Proposed Treasury Regulation Section 1.174-2(a)(6), Example (4) provides:

E, a company in the business of developing software for sale to the public, currently markets a word processing program. The program entitled "Writer 1.0" has been marketed to the public for one year. Based on comments received from customers of the program, E decided to make changes to the program. Generally, these improvements involve adding some additional commands to the pro-

Computers, Inc., asserts that Example (4) is fundamentally flawed.⁹¹ He argues that the example is factually inconsistent in stating that although a code was added to the program, there was actually no modification to the basic design specifications.⁹² Rynne contends that "the process of adding additional commands to a software program is, by definition, a change in the basic functional design specifications."⁹³ He also rejects the statement that the results of software modification must be "significant."⁹⁴ "As one who lived through the recent earthquake," Rynne quipped, "I know that a change from version 1.0 to 1.1 of a software product can be just as significant as a one point change on the Richter scale."⁹⁵

2. *Excluded Activities*

In addition to objections to the time-line approach, the software industry has also taken exception to the list of excluded activities contained in the proposed regulations.⁹⁶ The exclusions apply unless the expenditures relating to the activities separately qualify under section 174.⁹⁷ These exclusions were apparently drawn entirely from the present regulations under section 174 and from amendments made to the section 41 credit by TRA 86.⁹⁸ As with the time-line approach, the software industry questions the legislative authority for those exclusions that rely on amendments made to the section 41 credit by TRA

gram. On completion of the changes, all new copies of the program delivered to customers contain the changes and are entitled "Writer 1.1." Previous customers of "Writer 1.0" are offered the opportunity to obtain copies of "Writer 1.1" for a nominal charge. Since the changes made to the existing software did not modify the basic design specifications relating to performance levels and functions of the software, the costs are incurred in connection with the modifications in the program do not qualify as research or experimental expenditures within the meaning of section 174.

54 Fed. Reg. 21,224, 21,227 (1989).

91. See Matthews, *supra* note 72, at 1281.

92. *Id.*

93. *Id.*

94. *Id.*

95. *Id.*

96. See *supra* note 66.

97. Prop. Treas. Reg. § 1.174-2(a)(3), 54 Fed. Reg. 21,224, 21,226 (1989).

98. The apparent source of the exclusions contained in the proposed regulations is shown in the following chart:

86.⁹⁹

One of the more hotly disputed exclusions is of "[a]ctivities relating to management functions or techniques developed primarily for internal use of the taxpayer in its trade or business and not generally intended for sale to customers."¹⁰⁰ The exclusion appears to be based upon two activities excluded from the definition of "qualified research" for purposes of the section 41 credit for (1) "any activity relating to management function or technique;"¹⁰¹ and (2) computer software de-

	Proposed Reg. Section 1.174-2(a)(3)	Source of Exclusion	
		Current Reg. Section 1.174-2(a)(1)	Section 41
(i)	Efficiency surveys or management studies.	X	X (sec. 41(d)(4)(D)(i))
(ii)	Consumer surveys, market development, or market testing (including market research, advertising, or promotions).	X	X (sec. 41(d)(4)(D)(iii))
(iii)	The routine or ordinary testing or inspection of materials or products for quality control.	X	X (sec. 41(d)(4)(D)(iv), (v))
(iv)	Activities relating to management functions or techniques developed primarily for internal use of the taxpayer in its trade or business and not generally intended for sale to customers.	X	X (sec. 41(d)(4)(D)(ii), (E))
(v)	Activities not directed at the functional aspects of a product including expenses related to style, taste, cosmetic, or seasonal design factors.		X (sec. 41(d)(3)(B))
(vi)	Activities relating to the implementation of commercial production.		X (sec. 41(d)(4)(A))
(vii)	The construction of duplicate prototypes used for market testing purposes or held for sale.		X (sec. 41(d)(4)(C))
(viii)	The adaptation of an existing capability to a particular requirement or customer's need.		X (sec. 41(d)(4)(B))
(ix)	Routine data collections.	X	X (sec. 41(d)(4)(D)(iv))
(x)	The acquisition of another person's patent, model, or production process.	X	
(xi)	Literary, historical, or similar projects.	X	X (sec. 41(d)(4)(G))

99. See *supra* notes 80-83 and accompanying text.

100. Prop. Treas. Reg. § 1.174-2(a)(3)(iv), 54 Fed. Reg. 21,224, 21,226 (1989).

101. I.R.C. § 41(d)(4)(D)(ii). The Conference Report to TRA 86 states "[m]anagement functions and techniques include such items as preparation of financial data and analysis,

veloped primarily for internal use, unless the software is used in qualified research undertaken by the taxpayer or a production process that meets the requirements for the credit.¹⁰²

Neither section 174, the current regulations thereunder, or Rev. Proc. 69-21, distinguish software developed for internal use from software developed for sale to the public. The regulations should clarify that the purpose for developing the software (*i.e.*, internal use)¹⁰³ and the subject matter of the research (*i.e.*, management functions or techniques) are both irrelevant for determining whether the deduction qualifies under section 174.¹⁰⁴ Using a functional approach, the proposed regulations should instead examine the nature of the activity conducted to determine if it is research or experimentation.

3. *Withdrawal of Revenue Procedure 69-21*

Finally, the software industry is concerned about the statement contained in the preamble to the proposed regulations that the IRS is currently studying the continuing validity of Rev. Proc. 69-21 in light of the enactment of section 263A.

The IRS' present official view is that software development costs are deductible under Rev. Proc. 69-21 and not under section 174 itself.¹⁰⁵ The proposed regulations, however, accept that software development costs may be deducted as research or experimental expenditures under section 174.¹⁰⁶ Section 263A(c)(2) provides that expenditures that are allowable as a deduction under section 174 are excepted from the requirements of section 263A. Thus, if Rev. Proc. 69-21 were revoked and the proposed regulations adopted, software development costs which are deductible under section 174 would be excepted from the capitalization requirements of section 263A.

The industry's real concern is whether section 263A governs software development costs that are not deductible under the proposed regulations, for example, because they were incurred after basic design specifications had been met.

development of employee training programs and management organization plans, and management-based changes in production processes (such as rearranging work stations on an assembly line)." H.R. REP. NO. 841, 99th Cong., 2d Sess. at II-75 (1986), 1986-3 C.B. (vol. 4) 1, 75.

102. I.R.C. § 41(d)(4)(E). See *supra* note 46 and accompanying text.

103. See Letter from Jeffrey L. Payton, Counsel, The Travelers Corporation, Hartford, Connecticut, to the IRS (July 17, 1989) (Doc. 89-5930), reprinted in TAX NOTES TODAY, July 27, 1989, at 154-33 (comments on behalf of the Travelers Corporation).

104. See Letter from Paul W. Oosterhuis and Roseann M. Cutrone, Skadden, Arps, Slate, Meagher & Flom, Washington, D.C., to the IRS (Dec. 1, 1989)(Doc. 89-9183), reprinted in TAX NOTES TODAY, Dec. 6, 1989, at 244-16.

105. See *supra* text accompanying notes 25-28.

106. See *supra* text accompanying note 64.

Section 263A only applies to costs incurred in the production of tangible (and not intangible) personal property.¹⁰⁷ Thus, the statement by the IRS in the preamble to the proposed regulations seems to imply that the IRS may take the position that software is tangible personal property. As authority for this position, the IRS might refer to its regulations under section 263A which define "tangible personal property" as including "films, sound recordings, video tapes, books and other similar property containing words, ideas, concepts, images or sounds."¹⁰⁸

However, authority also exists for classifying software as intangible property and for ignoring the tangible/intangible distinction entirely. In *Ronnen v. Commissioner*,¹⁰⁹ the tax court held that for purposes of the investment tax credit, the subject software was intangible property, unlike motion pictures, tapes, and master sound recordings. The court acknowledged, however, that for purposes of characterizing computer software, several scholars advocate classification approaches different from the traditional tangible or intangible legal analysis.¹¹⁰ To further complicate matters, differences of opinion exist as to whether software is tangible or intangible for purposes of state and local taxation.¹¹¹

The reason for all the confusion over the classification of computer software is that it is *sui generis*. Computer software is not a separate form of intellectual property, but rather can be protected by some combination of copyright, patent, trade secret, trademark and trade name laws.¹¹² Because computer software is unique, it requires its own special treatment for income tax purposes.¹¹³

107. See I.R.C. § 263A(a)(2), (b)(1).

108. Temp. Treas. Reg § 1.263A-1T(a)(5)(iii)(1987).

109. 90 T.C. 74, 96-100 (1988).

110. *Id.* at 100 n.8 (citing Davidson, *Common Law, Uncommon Software*, 47 U. PITT. L. REV. 1037, 1064 (1986) (stating that software is neither tangible or intangible, but something else) and Note, *Computer Software and Tax Policy*, 84 COLUM. L. REV. 2015-24 (1984) (proposing a two-tier property classification divided into productive property and consumption property for purposes of characterizing a given software transaction)).

111. See M. PETRY, *supra* note 35, at § 10.07. Petry states that:

If any single trend can be noted, it is the trend to apply the property tax to "canned" computer software which is prewritten for distribution to the general public, while exempting the costs of custom designing computer software to meet the needs of a specific customer.

Id. at 10-37. See also Shontz, *Computer Software: Time to Pay a Fair Share*, 68 TAXES 162 (1990) (advocating treating software as tangible property subject to state and local sales and ad valorem taxes).

112. See M. PETRY, *supra* note 35; Ojanen, *Intellectual Property Considerations for Computer Software*, 17 BARRISTER 49 (1990).

113. Other comments offered by taxpayers include that:

(1) If Rev. Proc. 69-21 is to be withdrawn, it should not be withdrawn until after appropriate changes are made to the proposed regulations and the proposed regulations become finalized. See, e.g., Shanahan, *supra* note 75.

(2) The simplicity of Rev. Proc. 69-21 facilitated audits by revenue agents who were

IV. A PROPOSAL

A. CONGRESSIONAL ACTION IS NECESSARY

The time has come for Congress to finally address the deductibility of software development costs under section 174.

Section 174 was enacted in 1954, and no amendments have been made since then regarding the definition of the term "research or experimental expenditures." In 1957, the IRS issued final regulations interpreting section 174, which remain in effect today.¹¹⁴ Since neither the Internal Revenue Code nor the regulations address the costs of developing computer software, the IRS issued Rev. Proc. 69-21 as a stop gap measure in 1969 to provide guidance to software developers.¹¹⁵ However, Rev. Proc. 69-21 was a poor response by the IRS because it "allows" deductions for software development costs without acknowledging that these costs are deductible under the authority of section 174.

When the section 41 research credit was enacted in 1981, Congress indicated that it expected the IRS to issue regulations under sections 41 and 174 that "were not inconsistent with current regulations."¹¹⁶ The IRS proposed regulations in 1983, which were heavily criticized and later withdrawn.¹¹⁷ In 1986, Congress added restrictions to the definition of the term "qualified research" for purposes of the section 41 credit.¹¹⁸ Congress clearly indicated, however, that the restrictions added to the credit were not intended to effect the scope of the term "re-

not familiar with the basics of computer science. See Letter from John L. Pickitt, President, Computer & Business Equipment Manufacturers Association (CBEMA), Washington, D.C., to the IRS (July 14, 1989)(Doc. 89-5927), reprinted in TAX NOTES TODAY, July 27, 1989, at 154-32. As discussed above, the proposed regulations suffer from a lack of administrability and would breed controversy between software developers and revenue agents.

(3) To the extent that Rev. Proc. 69-21 can be read as according more generous treatment to computer software research than to other forms of research, the prospective withdrawal of the revenue procedure may be appropriate. See Letter from Andrew W. Singer, Covington & Burling, Washington, D.C., to the IRS (Apr. 12, 1989) (Doc. 89-3284) reprinted in TAX NOTES TODAY, May 1, 1989, at 93-21 (comments on behalf of I.B.M. Corp.).

(4) Rev. Proc. 69-21 should only be withdrawn if expenditures attributable to commercially marketable software programs are deductible under section 162. See Letter from Roger S. Siboni, R. L. DeLap, and Ian R. McCook, KPMG Peat Marwick, San Francisco, California, to the IRS (Nov. 15, 1989) (Doc 89-9058), reprinted in TAX NOTES TODAY, Dec. 1, 1989, at 241-14 (comments on behalf of KPMG Peat Marwick).

114. See *supra* text accompanying note 3.

115. See *supra* text accompanying notes 25-28.

116. See *supra* note 82.

117. See *supra* text accompanying notes 54-59.

118. See *supra* text accompanying note 81.

search or experimental" for purposes of section 174.¹¹⁹

One of the restrictions contained in section 41 is that research conducted after the beginning of commercial production does not qualify for the credit.¹²⁰ Underlying this restriction is the theory that the qualification for the credit depends upon where along the time-line of product development a research expenditure is incurred. The time-line theory is not discussed anywhere in the legislative history to section 174. Nevertheless, the IRS imported the time-line approach into the regulations it proposed under section 174 in 1989. However, instead of using "commercial production" as the point of disallowance on the time-line, the proposed regulations utilize the point at which the "basic design specifications" of the project have been met.

Since Congress has offered no guidance under section 174 since 1954, and Congress has stated that the principles embodied in section 41 do not apply to section 174, the IRS has no basis upon which to promulgate "new" interpretive regulations under section 174. There is nothing new to interpret. Creating a new restriction such as the time-line approach by regulation under section 174 actually represents the promulgation of new tax policy by the IRS. This, however, is an inappropriate function for the IRS as the IRS itself has stated that "[t]he function of the Internal Revenue Service is to administer the Internal Revenue Code. Tax policy for raising revenue is determined by Congress."¹²¹

B. WHAT SHOULD CONGRESS DO?

Congress should coordinate the deduction and credit provisions for research activities by integrating the time-line approach of section 41(d)(4)(A) into section 174. That is, expenditures paid or incurred for any research conducted after the point at which commercial production (including licensing and other forms of commercial exploitation) begins would not be eligible for current deduction under section 174. After that point, expenditures should be examined to determine whether they are capitalizable under section 263A or are currently deductible under section 162. If capitalized, the costs should be amortized over the useful life of the software product under the "income forecast method." No expenditures would be deductible, however, unless the activity giving rise to the expenditure is research or experimentation.¹²²

119. See *supra* note 82.

120. I.R.C. § 41(d)(4)(A).

121. Statement of Principles of Internal Revenue Tax Administration, 1989-1 C.B. ii. Without a doubt, the proposed regulations would operate as a revenue raiser for the government. This is because neither Rev. Proc. 69-21 nor the current regulations under section 174 disallow expenditures related to research conducted after a particular point in time.

122. This is essentially the "functional approach" advocated by members of the

Disallowing research expenditures under section 174 at the point at which commercial production begins is good tax policy for at least two reasons.

First, the tax incentives contained in the section 41 credit and the section 174 deduction should rightfully cease when commercial production begins. A software developer (or for that matter, any researcher) presumably expects to sell a software product at a profit at the time commercial production begins. At this point in time, a software developer should no longer be entitled to tax incentives for research in the form of quicker deductions and tax credits. That is, a software developer should be treated like any other producer when commercial production begins.¹²³

Second, a provision which allows deductions for research or experimental expenditures through the point at which commercial production begins is more administrable than use of the point at which basic design specifications have been met.¹²⁴ It is also more administrable than the "technological feasibility" standard used for financial accounting purposes. The point at which commercial production begins is easier to define and is marked by verifiable events. In contrast, the term "basic design specifications" is undefined in the proposed regulations and is

software industry. See *supra* text accompanying notes 71-79. However, unlike the software industry's proposal, this proposal also utilizes the time-line approach by disallowing expenditures attributable to research conducted after commercial production begins.

123. This represents a proper balance of the competing interests of providing tax incentives to software developers while maintaining horizontal equity. The definitions of, and relationships between, tax incentives and vertical and horizontal equity has been described as follows:

Implicit in a system of income taxation is the goal of vertical equity. Vertical equity requires that those with greater ability to pay tax pay a higher tax. Equally necessary to an economically workable system of income taxation are the goals of horizontal equity and economic efficiency. Horizontal equity requires that similarly situated taxpayers pay an equal tax. If horizontal equity is defeated, vertical equity will also be defeated. Economic efficiency requires that the tax system not favor one equally economically efficient transaction over another. If similarly situated taxpayers pay different taxes, the transaction yielding the lower tax becomes artificially favored, thereby defeating free market economic efficiency. Of course, all three goals are considerably modified by tax incentive provisions of the [Internal Revenue] Code, which intentionally distort free market efficiency as well as vertical and horizontal equity in order to encourage certain activities.

Note, *Protecting the Public Fisc: Fighting Accrual Abuse with Section 446 Discretion*, 83 COLUM. L. REV. 378, 379 (1983) (footnotes omitted).

124. Use of the "basic design specifications" standard in the proposed regulations and the "technological feasibility" standard which is the standard used for financial reporting purposes have some appeal. See *supra* text accompanying notes 49-53. That appeal is that at these points the risk that the research will fail is low; accordingly, the incentives of sections 174 and 41 should cease. In the author's opinion, however, this appeal is outweighed by the greater administrability of a "commercial production" standard.

subject to great manipulation.¹²⁵

After commercial production has begun, all subsequent expenditures should either be capitalized as costs attributable to developing the intellectual property rights to the software under section 263A,¹²⁶ or deductible as maintenance expenses under section 162.¹²⁷ Considerable case law has developed wherein courts have distinguished repair or maintenance expenses from capital improvements.¹²⁸ In general, a capital improvement is a cost which materially adds to the value of property or appreciably prolongs its life, and a repair is a cost which merely keeps the property in an ordinarily efficient operating condition.¹²⁹ These accounting principles should be applied similarly in the context

125. Planning opportunities have already been identified. For example, it has been suggested that care should be taken to incorporate as many of the anticipated features of the software as possible into the basic design specifications. White, *Maximizing R&E Expenditures for Computer Software Under the Proposed Regulations*, 7 J. TAX'N INVESTORS 206, 213 (1990). Accordingly, a software developer could increase expenditures that qualify for deduction under the proposed regulations by pushing forward along the product development time-line the point at which basic design specifications would be met.

126. The author does not mean to imply that computer software is, therefore, tangible personal property. As stated above, software is *sui generis*. Accordingly, it should merely be treated as if it were tangible personal property, so as to subject it to section 263A.

127. This approach would serve as an alternative to the part of the proposed regulations that allow deductions for expenditures incurred after basic design specifications are met if made for the purpose of curing "significant" design defects, obtaining "significant" cost reductions, or achieving a "significantly" enhanced function or performance level.

128. The Supreme Court distinguished between capital expenditures and currently deductible expenses long before the enactment of the Federal income tax in 1913, as follows:

Theoretically, the expenses chargeable to earnings include the general expenses of keeping up the organization of the company, and all expenses incurred in operating the works and keeping them in good condition and repair; whilst expenses chargeable to capital include those which are incurred in the original construction of the works, and in the subsequent enlargement and improvement thereof.

Union Pac. R.R. v. United States, 99 U.S. 402, 420 (1878). More recently, see *Wolfsen Land & Cattle Co. v. Commissioner*, 72 T.C. 1 (1979); *Plainfield-Union Water Co. v. Commissioner*, 39 T.C. 333 (1962); *West Virginia Steel Corp. v. Commissioner*, 34 T.C. 851 (1960); *Red Star Yeast & Products Co. v. Commissioner*, 25 T.C. 321 (1955); *Illinois Merchants Trust Co., Executor of Estate of Manierre v. Commissioner*, 4 B.T.A. 103 (1926).

129. Treasury Regulation Section 1.162-4 provides:

The cost of incidental repairs which neither materially add to the value of the property nor appreciably prolong its life, but keep it in an ordinarily efficient operating condition, may be deducted as an expense, provided the cost of acquisition or production or the gain or loss basis to the taxpayer's plant, equipment, or other property, as the case may be, is not increased by the amount of such expenditures. Repairs in the nature of a replacement, to the extent that they arrest deterioration and appreciably prolong the life of the property, shall either be capitalized and depreciated in accordance with section 167 or charged against the depreciation reserve if such an account is kept.

Treas. Reg. § 1.162-4 (1960). Some of the repair and maintenance expenditures could, however, require capitalization as inventory costs under section 263A.

of research to determine whether capitalization or expensing is appropriate.

If costs are capitalized, such costs should be amortized over the useful life of the computer software under the income forecast method.¹³⁰

As stated above, computer software is not a separate form of intellectual property, but can be protected by some combination of copyright, patent, trade secret, trademark, and trade name laws. An intellectual property right is amortizable if it is used in a business or for the production of income and has a useful life that can be estimated with reasonable accuracy.¹³¹ However, each kind of intellectual property has its own specific amortization rules.

A trade secret generally is not amortizable because its useful life cannot be determined.¹³² The same holds true for trademarks and trade names, unless the costs are deductible under section 1253.¹³³ Patents and copyrights are amortizable over their useful life, but may be deducted in full if the patent or copyright becomes valueless.¹³⁴ The

130. This is not wholly a new idea. It has been previously stated that:

[I]n the event there is any movement away from the use of Revenue Procedure 69-21, the trend would probably be to use the income forecast method. . . . [T]he strong preference of the [Internal Revenue] Service toward the income forecast method of cost recovery for intangible properties is expressed in the fairly recent Revenue Ruling 79-285.

M. PETRY, *supra* note 35, § 10.03, at 10-15.

Further, for financial accounting purposes, the greater expense resulting from use of what is similar to the income forecast method or straight-line amortization is utilized. See *supra* notes 49-53 and accompanying text. The use of the methods resulting in the *greater* expense appears to stem from the need for conservatism in financial reporting. Conservatism is not appropriate, however, in determining taxable income. See *Thor Power Tool Co. v. Commissioner*, 439 U.S. 522, 542 (1979).

131. Treasury Regulation Section 1.167(a)-3 provides:

If an intangible asset is known from experience or other factors to be of use in the business or in the production of income for only a limited period, the length of which can be estimated with reasonable accuracy, such an intangible asset may be the subject of a depreciation allowance. Examples are patents and copyrights. An intangible asset, the useful life of which is not limited, is not subject to the allowance for depreciation. No allowance will be permitted merely because, in the unsupported opinion of the taxpayer the intangible asset has a limited useful life.

Treas. Reg. § 1.167(a)-3 (1960).

132. See M. PETRY, *supra* note 35, at § 1.05.

133. *Id.* at § 4.03.

134. Treasury Regulation section 1.167(a)-6(a) provides:

The cost or other basis of a patent or copyright shall be depreciated over its remaining useful life. Its cost to the patentee includes the various Government fees, cost of drawings, models, attorneys' fees, and similar expenditures. For rules applicable to research and experimental expenditures, see sections 174 and 1016 and the regulations thereunder. If a patent or copyright becomes valueless in any year before its expiration and the unrecovered cost or other basis may be deducted in that year.

Treas. Reg. § 1.167(a)-6(a) (1960).

legal life of a patent is 17 years¹³⁵ and the legal life of a copyright is generally for the life of the author plus 50 years.¹³⁶ The useful life of an intangible asset may be less than its legal life, however, due to obsolescence caused by "technological improvements and reasonably foreseeable economic changes."¹³⁷ Further, the entire basis of an intangible asset may be deducted in a taxable year if the usefulness of the property is immediately terminated.¹³⁸

Use of the income forecast method avoids the near impossibility of fragmenting computer software into its component intellectual properties for amortization purposes. This is so because the income forecast method is based upon the software's economic useful life. The method of computing amortization under the income forecast method is articulated in Rev. Rul. 60-358.¹³⁹ The amortization expense each year equals the adjusted basis of the property times a fraction, the numerator of the fraction being the income from the property for the taxable year and the denominator of the fraction being the total expected income from the property over its useful life.¹⁴⁰ Assuming the expected useful life and total income from the property are reasonably accurate, the income forecast method provides a clear reflection income.¹⁴¹ This is so because there is a better matching of the costs of software with its related income.

The accuracy of the income forecast method is dependent upon the use of accurate estimates of the property's useful life and expected income. A taxpayer that errs in his estimates should be required to recompute his tax liability on the basis of the software's actual useful life and income.¹⁴² To the extent the recomputed tax liability exceeds the previously reported tax liability, the taxpayer would be required to pay interest at the overpayment rate, compounded daily.¹⁴³ Conversely, to the extent that the previously computed tax liability is greater than the recomputed tax liability, the taxpayer would be entitled to receive interest income based upon the same rate.¹⁴⁴ This "look-back method" of

135. 35 U.S.C. § 154 (1988).

136. 17 U.S.C. § 154 (1988).

137. Treas. Reg. § 1.167(a)-9 (as amended in 1960).

138. *Id.* § 1.167(a)-8 (1956).

139. 1960-2 C.B. 68. A form of the income forecast method is also used for financial accounting purposes. See *supra* notes 49-53 and accompanying text.

140. 1960-2 C.B. 68, 68-69.

141. See I.R.C. § 446(b) (requiring that a taxpayer's method of accounting clearly reflect income).

142. This requirement is analogous to the use of the "look-back method" utilized under the percentage of completion method of long-term contract accounting, contained in section 460(b)(2).

143. I.R.C. § 460(b)(2)(c).

144. *Id.*

recomputing the tax liability would protect both taxpayers and the public fisc from the adverse effect of inaccurate estimates.¹⁴⁵

V. CONCLUSION

Research or experimental expenditures have been deductible under section 174 since 1954, but neither Congress nor the IRS has squarely addressed and resolved questions regarding the deductibility of software development costs under section 174. The regulations proposed by the IRS are inconsistent with expressed legislative intent, and represent the promulgation of poor tax policy by the IRS. Congress should take the bull by the horns and resolve the unresolved questions once and for all.

Congress should do so by legislatively providing that expenditures for research conducted after the point at which commercial production begins are not deductible under section 174. After this point, all expenditures must either be capitalized and amortized under the income forecast method or currently deducted under section 162. The point at which commercial production begins is also presumably the point at which a software developer expects to make a profit from exploitation of the software. This is the point where tax incentives in the form of quicker deductions under section 174 and the credit under section 41 should cease. It is also a more administrable point than the one contained in the proposed regulations or utilized by the financial accounting community.

The significance of this unresolved question to the software industry necessitates timely Congressional action.

APPENDIX

The following written comments were submitted to the IRS addressing the treatment of software development costs in the 1989 proposed regulations and were studied in preparing this article:

(1) Letter from Roger S. Siboni, R. L. DeLap, and Ian R. McCook, KPMG Peat Marwick, San Francisco, California, to the IRS (Nov. 15,

145. For financial accounting purposes, capitalized costs are amortized by deducting the greater of the amount using a form of the income forecast method or straight-line amortization over the estimated economic life of the product. See *supra* notes 49-53 and accompanying text. Use of the straight-line method ensures that a minimum amount of amortization is deducted each year. Ensuring that a minimum amount of amortization is deducted each year is not an objective for tax purposes. Rather, the concern for tax purposes is that the income forecast method is susceptible to abuse by taxpayers. Use of the look-back method ensures, however, that taxpayers pay interest on any improper deferrals of tax. The look-back method is thus more appropriate for tax purposes than use of the straight-line method.

1989)(Doc. 89-9058), *reprinted in* TAX NOTES TODAY, Dec. 1, 1989, at 241-14 (comments on behalf of KPMG Peat Marwick).

(2) Letter from James R. Shanahan, Jr., Price Waterhouse, Washington, D.C., to the IRS (Nov. 17, 1989)(Doc. 89-9059), *reprinted in* TAX NOTES TODAY, Dec. 1, 1989, at 241-15.

(3) Letter from James R. Shanahan, Jr., Price Waterhouse, Washington, D.C., to the IRS (Oct. 10, 1989)(Doc. 89-8020), *reprinted in* TAX NOTES TODAY, Oct. 20, 1989, at 213-36 (comments on behalf of a coalition of software development companies).

(4) Letter from Paul W. Oosterhuis and Roseann M. Cutrone, Skadden, Arps, Slate, Meagher & Flom, Washington, D.C., to the IRS (Dec. 1, 1989)(Doc. 89-9183), *reprinted in* TAX NOTES TODAY, Dec. 6, 1989, at 244-16.

(5) Letter from John L. Pickitt, President, Computer & Business Equipment Manufacturers Association (CBEMA), Washington, D.C., to the IRS (July 14, 1989)(Doc. 89-5927), *reprinted in* TAX NOTES TODAY, July 27, 1989, at 154-32.

(6) Letter from Roseann M. Cutrone, Skadden, Arps, Slate, Meagher & Flom, Los Angeles, California, to the IRS (Nov. 17, 1989)(Doc. 89-9063), *reprinted in* TAX NOTES TODAY, Dec. 1, 1989, at 241-19 (comments on behalf of CBEMA).

(7) Letter from Charles J. Medallis, Arthur Anderson & Company, Los Angeles, California, to the IRS (Nov. 15, 1989) (Doc. 89-8959), *reprinted in* TAX NOTES TODAY, Nov. 29, 1989, at 239-17. *See also* Letter from Charles J. Medallis, Arthur Anderson & Company, Los Angeles, California, to the IRS (July 14, 1989)(Doc. 89-5931), *reprinted in* TAX NOTES TODAY, July 27, 1989, at 154-34 (comments on behalf of Arthur Anderson & Company).

(8) Letter from Ward H. White, Vice President, Government and Public Affairs, United States Telephone Association, Washington, D.C., to the IRS (Sept. 11, 1989)(Doc. 89-7213), *reprinted in* TAX NOTES TODAY, Sept. 22, 1989, at 194-34.

(9) Letter from C. W. Shewbridge, III, BellSouth Corp., Atlanta, Georgia, to the IRS (Sept. 12, 1989)(Doc. 89-7214), *reprinted in* TAX NOTES TODAY, Sept. 22, 1989, at 194-35.

(10) Letter from Ronald J. Palenski, Vice President and General Counsel, ADAPSO, The Computer Software and Services Industry Association, Arlington, Virginia, to the IRS (July 17, 1989)(Doc. 89-5722), *reprinted in* TAX NOTES TODAY, July 20, 1989, at 149-39.

(11) Letter from Robert N. Mattson, Assistant Treasurer, International Business Machines Corporation (IBM), Armonk, New York, to the IRS (July 13, 1989)(Doc. 89-5898), *reprinted in* TAX NOTES TODAY, July 26, 1989, at 153-37.

(12) Letter from Andrew W. Singer, Covington & Burling, Washington, D.C., to the IRS (Apr. 12, 1989)(Doc. 89-3284), *reprinted in TAX NOTES TODAY*, May 17, 1989, at 93-21 (comments on behalf of IBM) (Note: These comments were submitted before the release of the proposed regulations under section 174 on May 17, 1989.)

(13) Letter from Eric D. Ryan, Director of Taxes, Apple Computer, Inc., Cupertino, California, to the IRS (July 17, 1989)(Doc. 89-5928), *reprinted in TAX NOTES TODAY*, July 27, 1989, at 154-31.

(14) Letter from Mary Jane Saunders, General Counsel, Software Publishers Association, Washington, D.C., to the IRS (July 17, 1989)(Doc. 89-5929), *reprinted in TAX NOTES TODAY*, July 27, 1989, at 154-32.

(15) Letter from Jeffrey L. Payton, Counsel, The Travelers Corporation, Hartford, Connecticut, to the IRS (July 17, 1989)(Doc. 89-5930), *reprinted in TAX NOTES TODAY*, July 27, 1989, at 154-33.

