

Accounting for Software



Robert McGee

Accounting for Software

Robert McGee
CMA, CPA, CIA, CBA

DOW JONES-IRWIN
Homewood, Illinois 60430

© DOW JONES-IRWIN, 1985

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of the publisher.

This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold with the understanding that the publisher is not engaged in rendering legal, accounting, or other professional service. If legal advice or other expert assistance is required, the services of a competent professional person should be sought.

From a Declaration of Principles jointly adopted by a Committee of the American Bar Association and a Committee of Publishers.

ISBN 0-87094-468-1

Library of Congress Catalog Card No. 83-73712

Printed in the United States of America

1 2 3 4 5 6 7 8 9 0 K 2 1 0 9 8 7 6 5

Preface

Prior to June 1969, accounting for software did not present a problem. Software was purchased in conjunction with hardware, and the purchase price did not separately state the portion that was attributable to software, so software was accounted for as part of the hardware. In June 1969, IBM, the largest seller of computer hardware, began to separately state the prices charged for its hardware and software. This change in policy by IBM was soon followed by changes in the way other hardware manufacturers accounted for software sales. As a result of this change in billing practice, companies that purchased software were able to comparison-shop for the first time. It was no longer necessary to purchase hardware and software from the same seller.

The result of this policy change led to the development of a new industry, the software industry. Companies that never manufactured computer hardware began making and selling a wide variety of software products. Entry into this new industry was fairly easy. Initial investment was small. A programmer with an entrepreneurial bent could start developing software part-time in the basement or spare room at home. In fact, many of the more than 4,000 companies presently producing software in the United States started in this manner.

As companies began to purchase software from these firms, it became necessary to decide whether the software should be amortized over the same period as the related hardware, or whether some other period should be used instead. The problem of accounting for software costs became more complex when companies began to develop their own software for internal use. Prior to IBM's "unbundling" in June 1969, it was not necessary for a company to develop its own software, because the software could be obtained at no cost from the hardware manufacturers. As software began to be constructed for internal use it became necessary to decide whether the

costs of constructing this software should be charged to expense as incurred or capitalized and amortized over the expected period of benefit.

This book came about as a result of the many inquiries received on this topic by the National Association of Accountants. Upon investigation, it became clear that the existing literature did not provide the needed guidance, and this book was written to provide that guidance. Several surveys were conducted to determine current practices for both software vendor companies and software users. The accounting policies for both purchased and constructed software were examined.

This book provides guidance to accountants who need to formulate a policy of accounting for software. The issues relating to purchased and constructed software are examined from both the software vendor and user perspectives. This book provides a comprehensive analysis of the major issues related to accounting for software.

Robert McGee

Acknowledgments

As is true of any research project, there are many more people involved in bringing the project to a successful conclusion than just the author. This project is no exception. I am grateful to the National Association of Accountants, which partially funded this project. I also owe a debt to the people who granted me interviews, and to the NAA's Management Accounting Practices Committee and Subcommittee on MAP Statement Promulgation, whose members reviewed my questionnaires and made many valuable suggestions, as did the members of AICPA's task force on software accounting. I am also indebted to the review panel members who volunteered many good suggestions, and to the executives who took time from their busy schedules to complete the questionnaires.

The Seton Hall University research department, headed by Dr. Helena Wisniewski, and Christopher Held, my research associate, deserve recognition for the assistance they provided in assembling the mailing lists and questionnaire responses. Thanks also go to Robert Kueppers of Deloitte Haskins & Sells in New York, who gave me access to their NAARS subscription, and to Louis Bisgay, Alfred M. King and Robert L. Shultis of the National Association of Accountants, who gave me the freedom to conduct the research as I saw fit. A special thanks goes to Miriam Redrick, NAA librarian, who assisted in the literature search, and to the people in NAA's word processing center who typed the manuscript.

Portions of this research were used to partially fulfill the doctoral degree requirements at the University of Warwick, Coventry, England, under the supervision of Professor R. A. Fawthrop. Any errors or weaknesses in this treatise are attributable to the author alone.

R. M.

Contents

1.	Financial Accounting for Software	1
	Background: <i>The Beginning of the Problem—How to Account for Software. What Is Software? The Tangibility Issue. Financial Accounting Rules. Deficiencies in Current Pronouncements: FASB Statement No. 2. FASB Interpretation No. 6. Technical Bulletin No. 79-2. Related Pronouncements: The Record and Music Industry. Motion Picture Films. Research and Development Arrangements. Software Costs: Should They Be Capitalized or Expensed? The Controversy. The Catalyst. Author's Views.</i>	
2.	Software Vendor Revenue and Cost Recognition Policies for Software	18
	Introduction.	
3.	Survey of Software Vendors	53
	Introduction.	
4.	Software-User Accounting Policies and Practices	64
	Introduction.	
5.	Survey of Software Users	78
	Introduction.	
6.	The Effects of Software Accounting Policy on Bank Lending Decisions	88
	Background. The Present Study. Summary and Conclusions.	

7. Taxation of Software	105
Background. What Is Software? Tangible versus Intangible. The Film Cases. Cases Involving the Sale of Information: <i>Stock Exchange Data. Credit Information. Mailing Lists. Artwork.</i> Cases Involving the Uniform Commercial Code. Cases Involving Data Processing Service Bureaus. Cases Involving the Sale of Software. 1983—A Turning Point or an Aberration?	
Notes to Chapters	133
Appendix A. Methodology	149
Appendix B. Internal Revenue Service Pronouncements on Software	153
Appendix C. Sales and Use Tax Status of Software by State	158
Bibliography	161
Index	167

CHAPTER 1

Financial Accounting for Software

Background

In the decade following World War II, companies began to use computers to solve business problems and process data to an ever-increasing extent. At this early stage in the development of the computer industry, the companies that manufactured computer hardware also produced the software that was used with the machines. These manufacturers generally sold the systems software as part of the hardware without breaking down the purchase price into its hardware and software components. The companies that used the hardware hired employees to construct whatever “custom” software that might be needed. Very few companies constructed systems or applications software for sale apart from sales that were “bundled” with hardware.

As the use of computers became more prevalent in the 1960s, the demand for custom programming increased and led to the development of a new industry that would supply these software users with the programs they needed. However, it was still not a common practice to purchase application programs, because these were supplied free of charge by the hardware manufacturer.

In June 1969, the policy of bundling hardware and software costs changed when the International Business Machines Corporation (IBM) decided to “unbundle”—that is, to state the cost of the software and hardware separately.¹ This policy resulted in the creation of a new industry, the software industry, whose members began to produce software for sale to users of hardware. Companies that formerly wrote their own software now had an option—they could purchase it. This option became very attractive,

as the cost of developing a program might run into six or seven figures, whereas a comparable program could be purchased for \$50,000 or less. This cost relationship led to a rapid increase in the number of firms that manufacture software for sale, as a program that might cost \$1 million to construct could be sold to a multitude of customers for \$50,000 each. A software firm would be able to break even after only 20 sales. Any additional sales would be almost pure profit, as the cost of delivering a program is basically equal to the cost of the medium used (tape, disk, and so forth) plus selling expenses.

The Beginning of the Problem – How to Account for Software

In the same year IBM decided to unbundle, the Internal Revenue Service (IRS) issued a pronouncement addressing the software issue.² This Revenue Procedure provided tax accounting guidelines in connection with costs incurred to develop, purchase, or lease computer software. Basically, this procedure stated that the costs associated with the development of software could either be expensed as incurred or capitalized and amortized over five years or less. Thus, software development costs were to be accorded the same treatment as research and development costs for federal tax purposes.³

Purchased software could be capitalized along with the hardware if bundled. Software having a separately stated price could be amortized if treated as an intangible asset. Leased software is accorded the same treatment as rentals under regulation 1.162-11.

Two years after that pronouncement was issued, the IRS issued a second pronouncement dealing with software.⁴ That ruling held that for depreciation and investment tax-credit purposes, the cost of a new computer includes software costs not separately stated and capitalized in accordance with the taxpayer's consistent practice. Another pronouncement, issued that same year, held that the capitalization of software costs with respect to a new computer where such costs had previously been expensed is a change in method of accounting requiring the commissioner's consent.⁵

What Is Software?

Prior to June 1969, when IBM unbundled and created the software industry, there was no need to define software for accounting purposes, because it was accounted for as part of the hardware. The few programs that were developed internally constituted such a small percentage of total expenditures for most companies that a formal software accounting policy was not needed.

However, as software expenditures continued to increase and become more material, companies began establishing specific policies for software

accounting. It was then that the definition of software became important. Unfortunately, there is no single readily accepted definition of software. The broadest definition would be that software includes everything that is not hardware.⁶ The definition of software promulgated by the National Bureau of Standards⁷ and adopted by the U.S. Bureau of Standards⁸ is: "Computer programs, procedures, rules, and possibly associated documentation concerned with the operation of a data processing system."

The IRS defines computer software as:

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 as well as application programs are included. 'Computer software' does not include procedures which are external to computer operations, such as instructions to transcription operators and external control procedures.⁹

Several courts and state legislatures have also defined software. Some have even made distinctions between systems software and applications software. The Supreme Court of Tennessee has defined a systems (operational) program as one that is fundamental to the functioning of the hardware, or software that controls the hardware and makes it run.¹⁰

Bryant and Mather state that systems software consists of:

1. Compilers, which are used to translate symbolic code into machine language, and which are also capable of replacing a series of instructions with subroutines.
2. Sorts, which assemble and file items of data in a certain sequence or order.
3. Utility routines, which perform functions such as transferring data from one magnetic tape to another.¹¹

The Tangibility Issue

Another problem that grew out of unbundling is the issue of tangibility. The IRS treats software as intangible and, therefore, not eligible for the investment tax credit unless bundled with hardware,¹² but at least one court has ruled that software is tangible and qualifies for the investment tax credit.¹³ For state sales,¹⁴ use,¹⁵ and property¹⁶ tax purposes, the majority of courts have held that software is intangible and therefore, not subject to the tax. However, two recent cases have held otherwise.¹⁷ For Uniform Commercial Code (UCC)¹⁸ and replevin¹⁹ purposes, software is tangible, but nor for collapsible corporation purposes.²⁰ The sale of a prewritten program is currently taxable in 33 states and exempt in 13, with a few states not yet taking a position one way or the other.

Financial Accounting Rules

The present financial accounting rules pertaining to computer software are far from clear. The Financial Accounting Standards Board (FASB) has issued several pronouncements that deal with software to a limited extent. One pronouncement requires that research and development costs must be expensed as incurred, unless an alternative future use exists.²¹ Another pronouncement states that not all software costs are to be considered research and development costs.²² A third pronouncement asserts that software costs not qualifying as research and development expenditures are not necessarily inventoriable or deferrable.²³ None of the FASB pronouncements give clear guidance regarding when computer software qualifies for capitalization treatment, and whether the software costs should be included in the balance sheet as tangible or intangible assets, although *FASB Interpretation No. 6*, par. 8, footnote 2, seems to indicate that software should be classified as intangible.²⁴

The Accounting Principles Board (APB), the predecessor of FASB, issued a pronouncement requiring intangibles acquired from others to be recorded as assets and amortized using the straight-line method, unless some other method was more appropriate.²⁵ The opinion went on to state that the cost of developing intangibles that are not specifically identifiable should be expensed as incurred. The issue of how to account for identifiable internally developed intangibles is not addressed, and it is questionable whether computer software should be classified as intangible in any event, since the courts seem unable to agree on the tangibility of software.

Deficiencies in Current Pronouncements

FASB Statement No. 2

FASB's statement on research and development provides as much ambiguity as it does guidance.²⁶ Paragraph 8 (a) defines research as:

planned search or critical investigation aimed at discovery of new knowledge with the hope that such knowledge will be useful in developing a new product or service or a new process or technique or in bringing about a significant improvement to an existing product or process.

Research is an activity that occurs early in the software construction process, and although *FASB Statement No. 2* requires that research expenditures be charged to expense as incurred, there is little guidance regarding which activities should be classified as research.

Paragraph 8 (b) defines development as

the translation of research findings or other knowledge into a plan or design for a new product or process or for a significant improvement to an existing

product or process whether intended for sale or use. It includes the conceptual formulation, design, and testing of product alternatives, construction of prototypes, and operation of pilot plants. It does not include routine or periodic alterations to existing products, production lines, manufacturing processes, and other ongoing operations even though those alterations may represent improvements, and it does not include market research or market testing activities.

This definition of development can be applied to software accounting in two different ways. It could be interpreted to mean that the development phase does not end until software construction is essentially complete because successful completion is uncertain until the development process is nearly complete. For the development phase to end, it is necessary to have a working prototype. Lastly, the fact that design modifications are needed throughout the construction phase is evidence that development occurs through that phase.

Another interpretation could be that the development phase has essentially been completed before the construction phase begins, and any design modifications that occur during construction are minor in nature and are not part of the development phase. The formulation, design, and product-testing activities occur prior to the construction phase. In fact, there must be a single-product design before construction can commence, and although testing occurs during the construction phase, the testing at that stage involves the product's operation rather than the testing of alternative products. Furthermore, the software construction process does not culminate in the production of a prototype or the operation of a pilot plant, so these guidelines are irrelevant for purposes of determining when the development phase ends and the production phase begins. The key point for determining when development has ended should be the establishment of technological feasibility instead.

Paragraph 31 states:

Computer software is developed for many and diverse uses. Accordingly, in each case the nature of the activity for which the software is being developed should be considered in relation to the guidelines in paragraphs 8–10 to determine whether software costs should be included or excluded. For example, efforts to develop a new or higher level of computer software capability intended for sale (but not under a contractual arrangement) would be a research and development activity.

The phrase “new or higher level of computer software capability” can be interpreted in several ways. If “new” is interpreted in the technological sense, most software would be excluded, as most software is developed using existing rather than new technology. “New” could also refer to whether the product is new in the company sense, even though developed with existing technology. “New” could also be interpreted to mean new in the market

sense. For example, the first company to develop and market a payroll program incurs development costs, but companies that later on develop a similar product do not incur development costs.

The phrase “efforts to develop” could also be interpreted to include the whole construction process, which would place all construction expenditures in the development phase. Or, it could be interpreted to mean that “efforts to develop” cease prior to the construction phase. These two interpretations lead to opposite results, as construction expenditures would be classified as development costs calling for expense treatment in the first instance, and such expenditures would be nonresearch and development costs in the second instance and might call for capitalization treatment instead.

Paragraph 9 of *FASB Statement No. 2* provides several examples of activities that could be considered research and development expenditures. These are:

- (a) Laboratory research aimed at discovery of new knowledge.
- (b) Searching for applications of new research findings or other knowledge.
- (c) Conceptual formulation and design of possible product or process alternatives.
- (d) Testing in search for or evaluation of product or process alternatives.
- (e) Modification of the formulation or design of a product or process.
- (f) Design, construction, and testing of preproduction prototypes and models.
- (g) Design of tools, jigs, molds, and dies involving new technology.
- (h) Design, construction, and operation of a pilot plant that is not of a scale economically feasible to the enterprise for commercial production.
- (i) Engineering activity required to advance the design of a product to the point that it meets specific functional and economic requirements and is ready for manufacture.

The first four activities generally occur prior to the construction phase. The fifth example, “modification of the formulation or design of a product or process,” can occur throughout the process but occurs only to a minimal degree once the construction process begins. As was previously mentioned, design modifications can be viewed as either occurring as part of the development phase or as part of the construction phase after development is completed.

Examples (f) through (h) are viewed by some as not being applicable to software accounting. The end product is not a prototype but rather is the product itself. Others view the prototype as being the end product itself in the case of software, which would place the entire software construction process within the definition of research and development and, therefore, subject to expense treatment.

The last example relates to engineering activity. One view holds that manufacturing is merely the duplication of the program once the program is ready to market and that all activity occurring prior to this point is research and development. Others view all engineering activity as occurring prior to construction.

Paragraph 10 lists examples of activities that typically would be excluded from research and development. These activities include:

- (a) Engineering follow-through in an early phase of commercial production.
- (b) Quality control during commercial production including routine testing of products.
- (c) Troubleshooting in connection with breakdowns during commercial production.
- (d) Routine, ongoing efforts to refine, enrich, or otherwise improve upon the qualities of an existing product.
- (e) Adaptation of an existing capability to a particular requirement or customer's need as part of a continuing commercial activity.
- (f) Seasonal or other periodic design changes to existing products.
- (g) Routine design of tools, jigs, molds, and dies.
- (h) Activity, including design and construction engineering, related to the construction, relocation, rearrangement, or start-up of facilities or equipment other than (1) pilot plants . . . and (2) facilities or equipment whose sole use is for a particular research and development project. . . .
- (i) Legal work in connection with patent applications or litigation, and the sale or licensing of patents.

The first three examples are subject to several interpretations. These activities could be viewed as occurring only after sales have commenced, and that similar activities that occur during construction are part of development. Another view is that these activities constitute construction and post-construction activities, which is a further indication that construction costs should not be considered part of development.

FASB INTERPRETATION NO. 6

Another FASB pronouncement states that:

costs, including those incurred for programming and testing software, are research and development costs when incurred in the search for or the evaluation of product or process alternatives or in the design of a preproduction model.²⁷

The phrase "search for or the evaluation of product or process alternatives" is subject to varying interpretations, as was previously mentioned, depending on whether development is regarded as being virtually complete

at the beginning of construction or at the end. The phrase “preproduction model” is not defined, and its meaning is not clear as applied to software. The preproduction model could be interpreted to mean the same thing as a prototype, and all costs incurred prior to the completion of the prototype could be viewed as research and development costs. Another view is that preproduction models are not made for software, although systems make-ups or product simulators are sometimes made prior to construction.

This pronouncement also states that:

costs for programming and testing are not research and development costs when incurred, for example, in routine or other ongoing efforts to improve an existing product or adapt a product to a particular requirement or customer's need.²⁸

This statement could be interpreted to mean that programming and testing costs are not research and development expenditures only when they are incurred to improve an existing product or adapt a product to a particular requirement or customer's need. Or, it could be interpreted less restrictively to exclude programming and testing costs from classification as research and development for activities other than those given in the example. Furthermore, it could be argued that zeroing in on the costs associated with product improvement or adaptation misses the point entirely, and that the issue to be addressed should be accounting for construction costs. Lastly, one could conclude by a literal reading of the Interpretation that all enhancement costs should be classified as nonresearch and development. However, it could be argued that such a view is not reasonable. The process involved in producing enhancements to an existing product is essentially the same as that for a new product, and some of the costs involved in the construction of a new product are research and development costs.

Technical Bulletin No. 79-2

This pronouncement states that:

all costs incurred in producing a given software product or process are not necessarily research and development costs. However, a determination that software production costs are not research and development costs does not necessarily mean that they would be inventoriable or deferrable to future operations. Those decisions can only be made in light of all of the facts and circumstances surrounding the particular situation.²⁹

From reading this pronouncement one can quickly conclude that very little guidance, if any, is being provided. The issue of which costs should be classified as research and development is not addressed. Although there is a hint that certain costs may be deferrable or inventoriable under certain circumstances, there is no suggestion elaborating on when such circumstances might arise.

Related Pronouncements

The Record and Music Industry

The argument can be made that the cost of producing a record master is similar to the cost of producing a computer program. In both cases:

1. The majority of the product's value is the result of the labor that is expended rather than the material that is used.
2. Logical patterns must be developed (coding or music, either in written or nonwritten form) and transferred onto a physical medium such as a record, tape, or disk (although this is not necessarily the case for a computer program, which may be input directly into the computer).
3. The value of the finished product far exceeds the value of the material upon which the coding or music is recorded.
4. Both records and computer programs developed for sale have estimated economic lives and projected income streams that are difficult, but not impossible, to predict.

The National Commission on New Technological Uses of Copyrighted Works stated that:

Both recorded music and computer programs are sets of information in a form which, when passed over a magnetized head, cause minute currents to flow in such a way that desired physical work is accomplished.³⁰

On the other hand, it can also be argued that records are of a different nature than computer programs that are recorded on disks or tapes.³¹ For example, when information is transferred from a tape into the computer, the tape is no longer of any value to the user. In many cases, the tape is not even retained by the user. It may be discarded or returned. The information on the tape, unlike a phonograph record, is not complete and ready to be used at the time of its purchase. It must be translated into a language that is understood by the computer.

Secondly, a computer tape or disk is not necessary to transmit information. Such information can also be sent over telephone wires or by satellite or may even be programmed directly by the originator of the program.

In late 1981, FASB issued a statement that permits the capitalization of a record master in instances where past performance and current popularity of the artist provides a sound basis for estimating that the cost will be recovered from future sales.

The portion of the cost of a record master borne by the record company shall be reported as an asset if the past performance and current popularity of the artist provides a sound basis for estimating that the cost will be recovered from future sales. Otherwise, that cost shall be charged to expense. The amount recognized as an asset shall be amortized over the estimated life of the recorded