Accounting for Software

Development Costs

Applying SOP 98–1

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The author of this report is *neither* a Certified Public Accountant *nor* an Attorney. This report should *not* be construed as providing either financial accounting advice or legal advice. This report represents the views of a senior information technology executive who has significant experience in the application of these accounting guidelines in the real world of business operations. Because applying these concepts depends upon the exact circumstances of your enterprise, this report shows only guidelines which have operated successfully elsewhere, but may not be precisely applicable to your situation. For all accounting or legal advice, please consult a licensed practitioner familiar with your unique situation.
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Introduction

The application of Statement of Position 98–1, Accounting for the Costs of Computer Software Developed or Obtained for Internal Use (SOP 98–1), is problematic at many companies that develop software for internal use. Information Technology (IT) and Finance staff have differences of understanding and application of this accounting standard to the costs expended by the enterprise for internal–use software development. This report presents the major issues to enable the establishment of common ground concerning the standard application of this SOP. Common understanding of the application will allow better budgeting and forecasting of project expenses, better management visibility of project costs, and less reclassification of expenses during post–project audits.

SOP 98–1 describes the allocation of project expenses for internal software development or purchase to either expense or capitalizable categories. In order to understand how to apply SOP 98–1, there are several key questions, namely:

- What accounting standard is applicable to the project?
- During what phases of the project are costs capitalizable?
- What project activities are capitalizable under SOP 98–1?
- What project costs within the appropriate activities are capitalizable under SOP 98–1?
- What are the key issues in determining the allocation of costs to capital or expense?
- What project areas require special treatment?
- What project management systems does the enterprise need to support cost accounting under SOP 98–1?

Payoff

Applying SOP 98–1 correctly can enable an enterprise to clarify and solidify the value added by information technology investments. With the data captured to apply SOP 98–1, the enterprise can enhance software asset management and the project management of software projects. SOP 98–1 provides another opportunity to enhance business–focused software and IT system implementation which:

- Ensures that the right projects are authorized, funded and completed.
- Enables quick and reliable delivery of internal–use software.
- Encourages proactive approach to software asset management.

Rather than manage internal–use software as a series of standalone, single purpose applications, the enterprise can manage its internal software as an asset, an asset focused on business outcomes. Coordinated management of the software asset can add value by eliminating redundant systems and focusing new development on those projects which most affect business goals.
General Applicability

Authoritative Guidance

The staff of the US Securities and Exchange Commission (SEC) and other interested parties requested that the Accounting Standards Executive Committee (AcSEC), part of the American Institute of Certified Public Accountants (AICPA) develop guidance on the accounting of the costs for computer software developed or obtained for internal use. (SOP 98–1 section 3) The standard setting bodies recognized a diversity of practice in how firms accounted for these costs, some expensing and some capitalizing the costs. (SOP 98–1 section 2) The SEC requested that AcSEC “develop authoritative guidance to eliminate the inconsistencies in practice.” (SOP 98–1 section 3)

AcSEC used a fixed–asset model for evaluating the treatment of internal–use software development or acquisition costs. In SOP 98–1 section 74, “AcSEC believes … that entities should not have the option to expense or capitalize costs of computer software developed or obtained for internal use as these costs are incurred.” (emphasis added) SOP 98–1 section 74 also references FASB Concepts Statement Number 2: Qualitative Characteristics of Accounting Information (SFAC 2): “Comparability between enterprises and consistency in the application of methods over time increases the information value of comparisons of relative economic … performance.” In one SEC view about SOP 98–1: “The accounting in the SOP is not elective. Expenditures on software that will be used internally must be capitalized once a project has moved beyond the preliminary project stage. … During the development of SOP 98–1 … an answer was reached after significant comment and debate that requires capitalization when certain conditions have been met. That is the standard that enterprises must apply faithfully, auditors must hold companies to, and the SEC must and will enforce.”

Conservatism

One consideration in applying SOP 98–1 is “conservatism” in cost allocation. Some believe that treating development costs as expenses rather than capital costs provide a more “conservative” approach to expense reporting. However, as AICPA notes: “the crossover between what is conservative and what is aggressive is sometimes difficult to distinguish. In the current financial reporting environment, actions that are conservative to one person may be viewed as aggressive by another.”

SFAC 2 section 92 states “conservatism introduces a bias into financial reporting and tends to conflict with significant qualitative factors such as representational faithfulness, neutrality and comparability (including consistency).” From this, the SEC has stated “conservatism or aggressiveness are inconsistent with the characteristics of quality financial reporting needed for transparent reporting in today’s markets.”

Materiality

SOP 98–1 does not need to be applied to immaterial items. SOP 98–1 section 92 allows an enterprise to determine the materiality of internal–use computer software costs according to its individual circumstances in application of SEC Staff Accounting Bulletin 99: Materiality.
Project Issues

SOP 98–1 is applicable to software development or purchases for “internal use” software. In order to determine whether SOP 98–1 applies to a project, management should determine the answers to a series of questions about the project. Figure 1: Project Applicability Flowchart on the following page outlines these questions. Notes to the flowchart are in the following paragraphs.

**Developed for others?**

SOP 98–1 does not apply for software developed (usually under contract) for another entity for that entity’s use. Accounting for these costs for a software product developed for an external customer uses the normal accounting standards for contracted project work. However, if the external customer is using the developed software for its own internal use, SOP 98–1 may be applicable for that external customer’s accounting for their costs to pay for the contracted development.

**For sale to others?**

This means that the software is being developed with the intent to market the software to external firm(s). SOP 98–1 presumes that the software is being developed for sale if there is a history of such software sales or if there is a substantive marketing plan in existence or being developed for the software.

Accounting for the costs of “external use” software is covered in FAS 86, Accounting for the Costs of Computer Software to Be Sold, Leased, or Otherwise Marketed (FAS 86).

Note that “external use” implies that the external customer is acquiring the software or the right to use the software for the external customer’s purposes. However, the software being developed by an enterprise is not “external use” if the developing enterprise uses the software to provide a service but the customer does not acquire the software or a future right to use it. (SOP 98–1 section 48) An example of this type of internal use software would be vendor “portal” (vendor extranet) software used by the enterprise’s vendors over the Internet to check invoice and payment status. The software is internal use even though its primary users are external to the enterprise.

If “internal use” software is later marketed to other entities, external to the developing enterprise, SOP 98–1 sections 39 and 89 require that the enterprise use the cost recovery method of accounting for the software development costs. A hypothetical example of this scenario would be image storage system software developed by an enterprise to save invoice images within its accounting system. If this software was developed for internal use, SOP 98–1 would apply to its development costs. However, if the system would be applicable to other sites with similar financial systems and processes and the enterprise later decided to market it to other entities, then cost recovery accounting would be used to allocate the software development costs.

If the decision to market the software is made during development of the software, then SOP 98–1 section 40 requires that the enterprise follow FAS 86 for the development costs.
Figure 1: Project Applicability Flowchart

- Developed for others? Yes → Use normal contract accounting standards
  No

- For sale to others? Yes → Use FAS 86
  No

- Administrative System? Yes → Use FAS 2, FIN 6
  No

- Research and Development? Yes → Purchased with alternate use?
  No

- Initial Web Site Development? Yes → See separate document: “Accounting for Web Site Development Costs”
  No

- Upgrade project? Yes → External Costs?
  No

- Includes business process reengineering? Yes → Use EITF 97-13 first to determine applicability
  No → Use SOP 98-1 to allocate costs
  Yes

- Specified upgrade? Yes → Expense over contract period
  No

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**Administrative System?**

SOP 98–1 section 18b, footnote 2, SOP 98–1 section 52 and FIN 6 section 4 state that software used in the selling and administrative activities of an enterprise are *excluded* from research and development costs. Examples of selling and administrative systems are general ledger systems, vendor portals, etc. Systems used to produce product, such as systems used to print books, are not selling and administrative systems.

FIN 6 section 4 gives as “examples of the excluded costs of software are those incurred for development by an airline of a computerized reservation system or for development of a general management information system.” An analog would be systems which allow advertisers to reserve space in a newspaper or for television/radio broadcasts.

**Research and Development?**

This is one of the most difficult evaluations to make. In general, research and development costs are expensed under FAS 2: Accounting for Research and Development costs (FAS 2) and FIN 6: Applicability of FASB Statement 2 to Computer Software, an Interpretation of FASB Statement No. 2 (FIN 6). Most enterprises have limited research and development requiring software development or purchase. Most business software activity is in applying software components rather than the initial translation of knowledge into product design.

As general definitions from FAS 2 section 8, *research* is planned search or critical investigation aimed at discovery of new knowledge. *Development* is the translation of research findings into a plan or design for a new product or process. The Glossary has more complete definitions.

The issue arises differentiating between “development” and “design of the chosen path” for a software system. (See the later section: Research, Development and Designing the Chosen Path.) “Development” deals more with the initial application of knowledge, often to determine technological feasibility. Development is usually dealing with issues of “will it work” or “can the system be designed to operate successfully?” Design of the chosen path assumes that management is certain that the system requirements are not beyond the ability to execute the system, even though some detailed design remains. This is a gray area of distinction between “development” and “design of the chosen path.”

Software developed internally for research and development activities are research and development costs, to be expensed when incurred. (FIN 6 section 8) That is, if a software system is initially developed for a research and development activity, its development costs are expensed.

**Purchased with alternate use?**

The treatment of software used in research and development activities differs if the software is purchased or leased. FIN 6 section 5 states costs incurred to purchase or lease computer software developed by others are not research and development costs under FAS 2 unless the software is for use in research and development activities … unless the software has alternative future uses (in research and development or otherwise).
An example would be the use of a purchased statistical analysis system to analyze results of tests in a research and development activity. Because this system is used in other areas, its costs are not considered research and development. In the extreme, if mere use of purchased software in a research and development activity were sufficient to make the purchase or lease costs research and development costs to be expensed, then using Microsoft Word to write research reports would then require the treatment of Microsoft Office licenses as research and development costs.

**Web site development?**

The accounting standards groups treat software for web sites somewhat differently than other internal use software. EITF 00–2: Accounting for Web Site Development Costs (EITF 00–2) covers the accounting for these costs. In general, costs of development for software and graphics for web sites are covered under SOP 98–1. (See EITF 00–2 sections 5 and 6) However, the treatment of costs for web site content and web site operation are discussed in EITF 00–2. Some items, such as initial graphics, are covered by SOP 98–1. Other items are not. Discussion of web site cost allocation is contained in a separate report, “Accounting for Web Site Development Costs.”

Nevertheless, EITF 00–2 does require that some web site development costs are accounted for under SOP 98–1. Thus, the guidance in this report will be applicable to those particular web site development or upgrade costs as directed by EITF 00–2. That is, Web site projects must consider both documents.

**Upgrade project?**

The discussion in this report so far has considered only initial development of software for internal use. However, SOP 98–1 also covers the modification of internal use software. SOP 98–1 section 24 defines upgrades and enhancements as “modifications to existing internal–use software that result in additional functionality—that is, modifications to enable the software to perform tasks that it was previously incapable of performing.” Note that increased functionality for the software is the key determinant of an upgrade or enhancement. Software changes that are “cosmetic” or merely fix errors are not increased functionality. Note also that the increased functionality is an increase to the software’s functionality. All software functions can be performed without the software, albeit much more slowly. The increased functionality of the software can replace existing process or software functionality and still be considered an upgrade.

**External Costs? and Specified upgrade?**

SOP 98–1 treats upgrade and modification costs differently depending on whether the costs are internal to the enterprise or paid to external vendors. The SOP 98–1 drafters believed that entities have insufficient visibility into vendor cost allocations for support contracts which include maintenance and upgrades or modifications. Thus, SOP 98–1 is applicable for external costs for upgrade or modification projects only if the contract identifies a specific upgrade. If the support contract has only general language, such as “all upgrades released during the period,” then the costs should be expensed over the life of the contract. See SOP 98–1 section 26.
Includes business process reengineering?

Some software development projects involve business transformation as a major component. Many business and information technology transformation projects involve the development or modification of software systems. While SOP 98–1 applies to development and modification of internal–use software, there needs to be a clear distinction between process change and software change. Projects that involve both business process and software change must consider EITF 97-13: Accounting for Costs Incurred in Connection with a Consulting Contract or an Internal Project That Combines Business Process Reengineering and Information Technology Transformation (EITF 97-13). When business and technology transformation is part of the project, the enterprise must determine whether to reengineer the business processes to connect into the software or modify the software to connect into the existing business processes.

EITF 97-13 requires that the “cost of business process reengineering activities, whether done internally or by third parties, is to be expensed as incurred. This consensus also applies when the business process reengineering activities are part of a project to acquire, develop, or implement internal–use software. This consensus does not change the accounting for internal-use software development costs.” Thus, SOP 98–1 is applicable only to the internal–use software development or change, not the process reengineering facets of the project. Process reengineering activities that EITF 97-13 requires to be expensed include preparing the request for proposal (if any) for the project, assessment of the current state of the business processes, process redesign or reengineering, and restructuring the work force. However, SOP 98–1 is applicable to those parts of the project which develop or modify internal–use software.
Phase and Activity Issues

SOP 98–1 divides the software development process into 3 stages, as follows:

- Preliminary Project Stage
- Application Development Stage
- Post–implementation / Operation Stage

**Preliminary Project Phase**

This phase is the planning and preparation phase for the project. Major activities include:

- Conceptual formulation of alternatives
- Evaluation of alternatives
- Determination of existence of needed technology
- Final selection of alternatives including the request for proposal (RFP)
- Internal costs and external costs such as consulting services

Activities generally include:

- determining the functional and system requirements,
- inviting vendors to perform demonstrations of how their software will fulfill needs,
- exploring alternative means of achieving specific performance requirements,
- determining that the technology needed to achieve performance requirements exists,
- and selecting a vendor.

Note that this phase is exploratory. The enterprise is evaluating what needs to be done and the general direction for the proposed system. It is in this phase that activities are research and development where the enterprise determines if existing technology can perform the required operations in a manner that is acceptable to the system users.

One note of interest is that what SOP 98–1 names “performance” requirements are often named “functional” requirements by an enterprise. SOP 98–1 section 19b defines performance requirements as what the enterprise needs the software to do. These are usually defined in documents named “functional requirements.”

**Start of Period When Capitalization Is Allowed**

SOP 98–1 section 20 states that all costs in the Preliminary Project Phase should be expensed as incurred. SOP 98–1 section 27 gives a clear requirement that capitalization of costs can *begin only after both* of the following conditions are met (i.e. two key milestones):

- The preliminary project stage is complete.
• Management, with the relevant authority, implicitly or explicitly authorizes and commits to funding a computer software project and it is probable that the project will be completed and the software will be used to perform the function intended. Examples of authorization include the execution of a contract with a third party to develop the software, approval of expenditures related to internal development, or a commitment to obtain the software from a third party.

At an enterprise where expenditure approval precedes all or part of the preliminary project stage, these milestones are usually reached in reverse order. The order is immaterial.

**Key Milestone 1: Management Commitment**

Explicit management commitment is evidenced by actions such as expenditure approval, executing a purchase contract with a software vendor, executing a development or integration services contract with a systems or software vendor, approval of the expense portion of a project budget, approval of internal staff hours applied to the development project, etc.

SOP 98–1 does not define “implicit” management commitment. Therefore, it would be prudent for the project management milestone for completion of the Preliminary Project Stage (see next section) to reaffirm management’s intention to fund the project and complete the development.

**Key Milestone 2: Complete Preliminary Project Stage**

It is imperative that there is a clear, explicit ending to the Preliminary Project Stage. The project initiation and planning processes must end with a management milestone that delineates a clear and unambiguous transfer from project conceptualization to project implementation. This transfer is where management provides the resources to complete the project and also where costs shift from being entirely expensed to being capitalized if they meet the other criteria. To avoid confusion, the project plan should contain a definite project management milestone for completion of the Preliminary Project Phase. This milestone should also reaffirm management’s commitment to fund the successful completion of the project.

**Relationship to Project Management Methodology**

The enterprise’s project management methodology should clearly delineate the correspondence of its project phases and tasks to the phases and tasks of SOP 98–1. The work breakdown structure should identify for each task whether that task’s effort is potentially capitalizable or not under SOP 98–1.

**Application Development Phase**

Within this SOP 98–1 phase, the software is actually produced (or purchased). Typical activities include:

• Design of chosen path, including software configuration and software interfaces
• Coding
• Installation to hardware
• Testing, including parallel processing phase
Most costs in this phase can be capitalized. However, the costs need to be directly applicable to the production (development) of the software. Project management and administration costs, whether incurred by an enterprise’s employees or consultants, should be expensed. Project managers who perform software development as well as project management / administration functions need to differentiate their time spent on these different task areas so that their personnel costs may be split appropriately between capital and expense.

**Data Conversion Issues**

SOP 98–1 makes specific reference to data conversion. Data conversion is the process of moving data from an existing system (manual or automated) into the new system. Data conversion may involve cleansing or purging of the old data, reconciliation and balancing of the old and new data, creation of new data and movement of the data to the new storage. SOP 98–1 section 22 requires that data conversion costs be expensed with one exception. If an enterprise purchases or develops software to access the old data and/or convert the data, SOP 98–1 section 21 states that those costs should be capitalized. However, if the developed or purchased software is useful only for data conversion for the current project (which is more likely for custom developed software), then that limited life may warrant expensing the costs. For example, if an enterprise develops data conversion software specific to only a single development project which lasts under 12 months (e.g. moving historical payroll data to a new payroll system), that limited lifetime would warrant expensing those costs even if they were otherwise capitalizable.

**Key Milestone: Completion of Application Development Phase**

This phase is completed when the software is completed and ready for its intended use. Software is ready for use when all substantial testing is completed. Testing includes alpha testing, beta testing, parallel processing and verification of correct operation at each installation. It is important that this milestone be explicitly recognized. After this milestone is reached, capitalization stops.

**Post–Implementation / Operation Stage**

This SOP 98–1 stage includes training and application maintenance. Training costs are expensed as incurred, because the “useful life” of trained employees is not well specified. However, the costs to develop or obtain training software for internal use may be capitalized under SOP 98–1. Maintenance of the application involves fixing errors and enabling the software to continue to operate in a changing environment. Maintenance costs should be expensed. If there is a portion of support that increases software functionality, that portion should be measured separately, if material, as this portion may be considered an upgrade.
Cost Allocation Issues

SOP 98–1 directs the accounting of internal–use software development for allocation into either expense or capitalized categories. Figure 2, Cost Allocation Flowchart on the following page outlines a process for determining the applicable category.

**Generally Expensed**

- Preliminary Project and Post–Implementation / Operation Stages.
- Purchased or leased computer software used in research and development activities where the software does not have alternative future uses.
- Costs of design, construction and operation of a pilot that is not of a scale economically feasible for production. (However, see the next section, Research, Development and Pilot Issues.)
- Cost of data conversion activities except for costs incurred to develop or obtain software that allows conversion of data.
- Training, except costs to obtain training equipment and systems.
- General and administrative expenses.
- Costs for managing and controlling the project (e.g. budget, schedule, scope).
- Application maintenance.
- Business Process Reengineering costs other than software development.

**Generally Capitalized**

- Internal and external costs incurred to develop internal–use computer software during the Application Development Stage, including:
  - External direct costs of materials and services consumed in developing or obtaining software.
  - Payroll and payroll related costs for employees who are directly associated with and who devote time to the project to the extent of the time spent directly on the project on development tasks.
- Interest costs incurred while developing the software. See FAS 34: Capitalization of Interest Cost.

External costs include software purchases or licenses, fees paid to third parties to develop or modify the software and travel expenses incurred by employees in their duties directly associated with developing the software.
Figure 2: Cost Allocation Flowchart
Research, Development and Pilot Plant Issues

A critical business issue is identifying the difference between Research, Development, Pilot Plants and Beta testing. SOP 98–1 section 18 specifies the costs of internal–use software development that are included in research and development and should be accounted for in accordance with FAS 2. However, footnote 2 in SOP 98–1 section 18 and FIN 6 section 4 specifically exclude “selling and administrative activities” from research and development. FAS 2 section 31 states that the nature of the activity for which the software is being developed should be considered to determine whether the software costs are considered research and development. Therefore, a pilot for a selling or administrative system would not be research and development.

As described in FAS 2 section 8b, operation of a pilot plant is part of development, which the section defines 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.” FAS 2 section 8a defines research as the “discovery of new knowledge.” Thus, a pilot plant, in the sense of FAS 2 section 8b, is the initial application of new knowledge, used in a new way. Because FIN 6 section 4 excludes selling and administrative systems, the pilot plants can be considered product or service production operations whose purpose is to prove that it is technologically feasible to apply the research or other knowledge in production.

Pilot Plant Definitions

SOP 98–1, FAS 2 and FIN 6 do not define “pilot plant.” The term “pilot plant” is always used in the context of research and development. FAS 2 section 9h refers to a “pilot plant that is not of a scale economically feasible for commercial production.”

The State of Maine, Department of Environmental Protection, defines “pilot plant” for the purposes of the Maine Toxic Use and Hazardous Waste Reduction Law as: Pilot plant or pilot production unit means a small scale model or a temporary change in the production process undertaken to test or develop a new technology.

Because of tax implications, the issue of pilot plants is very important in the European Union and Canada. The Canada Customs and Revenue Agency defines pilot plants as follows: A pilot plant is a non-commercial scale plant in which processing steps are systematically investigated under conditions simulating a full production unit. The purpose of a pilot plant is to obtain engineering and other data needed to evaluate hypotheses, write product or process formulae, establish finished product technical specifications, or design special equipment and structures required by a new or improved fabrication process.

Beta Test Definitions

“Beta test” is a term not used in SOP 98–1. However, it is a standard term in the software development process. One common definition is: After software is generally in a fairly finished form, developers and typical users exercise the software with real production data to uncover remaining problem areas. Exercising software in a wider variety of situations uncovers most remaining defects.
Accounting for Software Development Costs
Applying SOP 98–1 to Internal–Use Software Projects

The US Department of Commerce, US Census Bureau, uses Form RD–1, Survey of Industrial Research and Development, to collect information about the nature and support of corporate research and development activities. The survey scope covers publicly traded and privately-owned, non–farm business firms in all sectors of the United States economy. The form’s General Instructions define research, development and associated terms to provide consistency of statistics. The instructions list in item 3A.2b – Development (p. 5): “Exclude (from development costs) … beta versions of software being developed that does not have potential commercial application.” Beta testing is explicitly excluded from research and development costs.

Pilot Plant or Beta Test Site?

Businesses often use phased implementation for large projects. The operations chosen for the initial software installation are usually smaller sites, so that errors affect smaller databases and are easier to troubleshoot and correct. But these initial installations are usually implemented after the system design has been chosen. These initial sites are used to find errors and determine the optimal operating parameters. Thus these “pilot plants” are better characterized as “beta test sites” because they are less concerned with applying new technology or designing new processes and more concerned with removing errors in systems that will soon be ready for implementation.

Beta testing is a common software development practice. The software is generally in a fairly finished form. The developers wish to exercise the software with real production data and typical users to uncover remaining problem areas. Beta testing also helps determine the optimal operating parameters (e.g. data block sizes, communications bandwidth). Usually, selected customers (current or future) are invited to become beta testers in exchange for some consideration such as earlier use of the product, lower acquisition costs for the product, etc. Exercising software in a wider variety of situations uncovers most remaining defects.

A Fortune 500 company project that involved connecting its vendors to the company accounts payable information system serves as an example of the use of beta testing. After initial functional testing was completed, the system was opened to a select group of a few vendors. This limited number of vendors was too small to be economically feasible to develop the entire system. Yet, allowing these beta test vendors to exercise the software uncovered some problems in the system and its instructional documentation. After correction of these issues, the software was made available to the entire base of company vendors.

Beta testing is part of the Application Development Stage and those costs are potentially capitalizable. The capitalization period does not end until testing is complete.

The management team needs to evaluate “pilots” and “beta tests” to determine if the purpose of the activity is either:

- to prove that a some new knowledge can produce a product (technological feasibility), (i.e. research and development) or
- to ensure that a designed system meets the users’ needs (beta testing).

Pilot plants are used in the Preliminary Project Stage to determine the best alternative. Beta tests in the Application Development Stage refine the chosen design.
Research, Development and Designing the Chosen Path

Another area for management determination is whether a software development activity is research and development or designing the chosen path. Part of the difficulty is that research is part of the Preliminary Project Phase, often occurring in the latter half of the stage, and Designing the Chosen Path is one of the first activities in the Application Development Stage. The distinction appears to be whether the goal of the activity is either to determine if the software will function as intended or to refine a chosen design and determine optimal parameters. Part of this activity occurs in the Preliminary Project Stage as part of evaluating and selecting technology and alternative designs. Part of this activity occurs in the Application Development Stage as the designers refine the system design. Software development is an iterative process. The same activities may occur in different stages of the project, with different goals. In the Preliminary Project Stage, the goal is to evaluate and select the best general system design alternative. In the Application Development Stage, the chosen design is refined, perhaps many times, to obtain the best system.

Management needs to determine whether these activities are research and development or design refinements. This issue points out the importance of management providing a clear, explicit end to the Preliminary Project Stage and a clear, explicit commitment to execute the project.

Differences: Purchased or Internal Development

SOP 98–1 has several differences in cost treatment depending upon whether the internal–use software is purchased, developed internally or a mix of these two options. The main differences in treatment relate to research, development and other indirect costs.

Purchased or Internally Developed Software in Research and Development

When software is used in a research and development project, there is a difference in treatment depending upon whether the software is developed internally or purchased (leasing is included in the concept of “purchase”). (Remember that selling and administrative systems are never considered research and development projects.) FAS 2 sections 11a and 11c specify that the (external) acquisition costs of software used in research and development projects shall be capitalized if that software has alternative future uses, in research and development projects or otherwise. This specification is confirmed in FIN 6 section 5. However, FAS 2 sections 11b and 12 specify that personnel costs for staff engaged in research and development activities be expensed.

The Accounting Standards Executive Committee (AcSEC) recognizes that this creates a treatment difference between externally and internally developed software. SOP 98–1 section 78 acknowledges and accepts that difference. AcSEC notes that similar differences exist elsewhere, such as in the treatment of patent acquisition or development costs.

Indirect Cost Treatment

A similar difference occurs with the indirect costs of software development (e.g. facilities, project management.) These costs are sometimes considered overhead or general and administrative costs. For externally acquired software, these costs are incurred by the vendor and are included in the purchase or lease price. These indirect costs included in the purchase or lease
price may be capitalizable under SOP 98–1 to some extent. However, these costs are not capitalizable for internal software development as stated in SOP 98–1 sections 31 and 80.

**Capitalization Time Period**

SOP 98–1 states a specific time period within an internal–use computer software development project during which costs are eligible to be capitalized.

SOP 98–1 section 27 gives a clear requirement that capitalization of costs can begin only after both of the following conditions are met:

- The Preliminary Project Stage is complete.
- Management, with the relevant authority, implicitly or explicitly authorizes and commits to funding a computer software project and it is probable that the project will be completed and the software will be used to perform the function intended. Examples of authorization include the execution of a contract with a third party to develop the software, approval of expenditures related to internal development, or a commitment to obtain the software from a third party.

SOP 98–1 section 29 specifies that capitalization should cease no later than the point at which a computer software project is substantially complete and ready for its intended use. For purposes of SOP 98–1, computer software is ready for its intended use after all substantial testing is completed.

**When is testing completed?**

SOP 98–1 recognizes that software development projects do not always proceed in a linear fashion. SOP 98–1 section 17 which illustrates the three stages and related processes of computer software development recognizes that the processes may not follow the listed order and some processes are often performed simultaneously. SOP 98–1 section 17 however, states that “regardless, for costs incurred subsequent to completion of the preliminary project stage, the SOP should be applied based on the nature of the costs incurred, not the timing of their incurrence.” Two processes of the Application Development Stage are “Installation to hardware” and “Testing, including parallel processing phase.” If the software is being installed at several sites, there will be testing at each site to confirm the functionality of the software at that site. SOP 98–1 section 10 provides that “the guidance in this SOP should be applied to individual components or modules.” Because the software is not ready for its intended use at a particular site until testing has been completed at that site, capitalization can continue for the site testing. FAS 34 section 18 referenced by SOP 98–1 section 76 explicitly describes how “some assets are completed in parts, and each part is capable of being used independently while work is continuing on other parts.”

Thus, it appears that for multiple site projects, the application development stage is considered at each site, not just as a whole. The application development stage may continue at some sites in parallel with the post–implementation / operation stage at other sites. For those sites where testing is not yet complete, appropriate costs at those sites may still be capitalized.
Replaced or Impaired Software

SOP 98–1 section 30 provides that when internal–use software replaces other software, an enterprise should reconsider the remaining useful life of the software to be replaced and expense the unamortized costs of the replaced software when the new software is ready for its intended use.

Sometimes, software under development reaches a situation where it is not expected to provide substantive service. Some indications of this situation are: significant cost overruns which create insufficient funding for project completion, intractable software development problems, current technology overtaken by new technology or software, divestiture of business units which will use the software. In this case, SOP 98–1 section 34 provides that the impairment should be recognized and measured in accordance with the provisions of FASB Statement 121: Accounting for the Impairment of Long–Lived Assets and for Long–Lived Assets to Be Disposed Of.
Project Management Infrastructure

In order to comply with SOP 98–1, an enterprise needs sufficient project management infrastructure to record and summarize project cost information in sufficient detail. As a minimum this infrastructure, or methodology, should include:

- Formal project initiation and approval process, especially for internal–use software projects. This approval process must continue through the project lifetime. Within the approval process there need to be clear, explicit approval milestones, including:
  - Management authorization for the project. Examples of authorization include the execution of a contract with a third party to develop the software, approval of expenditures related to internal development, or a commitment to obtain the software from a third party.
  - Management commitment of project funding
  - Completion of the Preliminary Project Phase
  - Completion of all substantial testing.

- Project database that is a current inventory which describes each internal–use software project and its activities. This database should:
  - Identify the project type, i.e. proposed, approved, in progress, completed.
  - Identify the project nature, e.g. new development, upgrade, research and development, maintenance.
  - Identify the current project stage, e.g. Preliminary, Application Development.
  - Identify the employees participating in the project.
  - Identify the vendors and contracts associated with the project.
  - Identify the project tasks and activities in sufficient detail to meet the requirements of SOP 98–1, including start time, completion time, estimated effort and cost, actual effort and cost, etc.

- Project cost forecast and reporting system. This system uses the project database to report on project costs by time period and task and forecast expected project costs. The forecasting capability is important to give financial management sufficient information to budget future expenses in either the operating or capital budgets.

- Standard project templates, including a work breakdown structure (WBS) that identifies the steps and deliverables for all project activities. This standard WBS should code each task to be either expense or capital under SOP 98–1.

- Time tracking system so that all enterprise and external consultant personnel working on internal–use software projects can report time spent on assigned WBS activities. This time tracking system needs to be integrated with the project database system.
Without a time tracking system, management will need to make “reasonable allocations” of all time related expenses to meet the requirements of SOP 98–1.

- Job costing system to track external costs (e.g. software purchases, consultant computer programmer fees) by project, task and activity.
- Coordination with vendors of products and services for internal–use software projects to allocate contract costs between expense and capital categories based upon the requirements of SOP 98–1.
# Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>AcSEC</td>
<td>Accounting Standards Executive Committee. Part of AICPA.</td>
</tr>
<tr>
<td>AICPA</td>
<td>American Institute of Certified Public Accountants</td>
</tr>
<tr>
<td>beta testing</td>
<td>After software is generally in a fairly finished form, developers and typical users exercise the software with real production data to uncover remaining problem areas. Exercising software in a wider variety of situations uncovers most remaining defects.</td>
</tr>
<tr>
<td>BPR</td>
<td>Business Process Reengineering. To modify a process to meet business objectives.</td>
</tr>
<tr>
<td>CER</td>
<td>Capital Expenditure Request. Part of management’s explicit commitment to fund the successful completion of a project.</td>
</tr>
<tr>
<td>chosen path</td>
<td>Not defined in SOP 98–1. Chosen design alternative for a particular software system, including configuration and interfaces.</td>
</tr>
<tr>
<td>coding</td>
<td>Generating detailed instructions in a computer language to carry out the requirements described in the detail program design. The coding of a computer software system may begin prior to, concurrent with, or subsequent to the completion of the detail program design. (FAS 86 section 52)</td>
</tr>
<tr>
<td>configuration</td>
<td>See software configuration</td>
</tr>
<tr>
<td>design</td>
<td>A logical representation of all functions in sufficient detail to serve as specifications. (FAS 86 section 52)</td>
</tr>
<tr>
<td>detailed design</td>
<td>Logical representation of computer software that takes function, feature, and technical requirements to their most detailed, logical form and is ready for coding. (FAS 86 section 52)</td>
</tr>
<tr>
<td>development</td>
<td>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. (FAS 2 section 8) Technical activities of a nonroutine nature concerned with translating research findings or other scientific knowledge into products or processes. (FAS 2 section 26)</td>
</tr>
<tr>
<td>EITF</td>
<td>Emerging Issues Task Force. Part of FASB.</td>
</tr>
<tr>
<td>enhancement</td>
<td>Modification to enable software to perform tasks that the software was previously incapable of performing. (SOP 98–1 section 24)</td>
</tr>
<tr>
<td>FASB</td>
<td>Financial Accounting Standards Board</td>
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<tr>
<td>interfaces</td>
<td>See software interfaces</td>
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<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>internal–use</td>
<td>Solely to meet an entity’s internal needs and there is no substantive plan to market the software. (SOP 98–1 section 12)</td>
</tr>
<tr>
<td>maintenance</td>
<td>Activities undertaken after the product is available for general release to customers to correct errors or keep the product updated with current information. Those activities include routine changes and additions. (FAS 86 section 52)</td>
</tr>
<tr>
<td>management commitment</td>
<td>Management, with the relevant authority, implicitly or explicitly authorizes and commits to funding a computer software project and it is probable that the project will be completed and the software will be used to perform the function intended. Examples of authorization include the execution of a contract with a third party to develop the software, approval of expenditures related to internal development, or a commitment to obtain the software from a third party. (SOP 98–1 section 27 b)</td>
</tr>
<tr>
<td>performance requirements</td>
<td>What an entity requires the software to do. (SOP 98–1 section 19 b) Sometimes called “functional specifications.”</td>
</tr>
<tr>
<td>pilot plant</td>
<td>A pilot plant is a non-commercial scale plant in which processing steps are systematically investigated under conditions simulating a full production unit. The purpose of a pilot plant is to obtain engineering and other data needed to evaluate hypotheses, write product or process formulae, establish finished product technical specifications, or design special equipment and structures required by a new or improved fabrication process. Also, a small scale model or a temporary change in the production process undertaken to test or develop a new technology.</td>
</tr>
<tr>
<td>preliminary stage</td>
<td>In SOP 98–1, this is the conceptualization phase. The software is designed and planned.</td>
</tr>
<tr>
<td>probable</td>
<td>Can reasonably be expected or believed on the basis of available evidence or logic, but is neither certain nor proved. (SOP 98–1 section 62)</td>
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<tr>
<td>process</td>
<td>Organized group of related tasks that create value.</td>
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<tr>
<td>research</td>
<td>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, service, process or technique or in bringing about a significant improvement to an existing product, etc. (FAS 2 section 8)</td>
</tr>
<tr>
<td>SEC</td>
<td>U.S. Securities and Exchange Commission</td>
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<tr>
<td>software configuration</td>
<td>Determining the organizational structure and relationships of the software components to each other.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
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<tr>
<td>software interfaces</td>
<td>Designing software interfaces includes determining how the software will communicate or interact with other software applications, operating systems, hardware, and users.</td>
</tr>
<tr>
<td>stage</td>
<td>Phase of a software development project. (SOP 98–1 section 17)</td>
</tr>
<tr>
<td>system requirements</td>
<td>What an entity requires a computer system to do to support the software “performance” requirements. (SOP 98–1 section 19)</td>
</tr>
<tr>
<td>testing</td>
<td>Performing the steps necessary to determine whether the coded computer software product meets function, feature, and technical performance requirements set forth in the product design. (FAS 86 section 52)</td>
</tr>
<tr>
<td>upgrade</td>
<td>Modification to enable software to perform tasks that the software was previously incapable of performing. (SOP 98–1 section 24)</td>
</tr>
<tr>
<td>working model</td>
<td>An operative version of computer software that is completed in the same software language as is to be ultimately used, which performs all the major planned functions and is ready for initial customer testing (usually identified as beta testing). (FAS 86 section 52)</td>
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## Document List

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<td>Accounting for Web Site Development Costs</td>
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<td>EITF 97-13</td>
<td>Accounting for Costs Incurred in Connection with a Consulting Contract or an Internal Project That Combines Business Process Reengineering and Information Technology Transformation</td>
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<td>Qualitative Characteristics of Accounting Information</td>
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<tr>
<td>SOP 98–1</td>
<td>Accounting for the Costs of Computer Software Developed or Obtained for Internal Use</td>
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Endnotes

1 December 8, 1999, speech by the SEC Deputy Chief Accountant, Jane Adams, to the 27th Annual National Convention of AICPA on Current SEC Developments
