HARVARD UNIVERSITY FINANCIAL POLICY

Software Accounting Policy

Policy Statement

This policy defines when costs for purchased and internally-developed software or cloud-hosting arrangements must be capitalized at the University.

If direction differs between this policy and external regulations, sponsor or donor terms, or other internal policy or procedures, the more restrictive instruction will apply.

Reason for Policy

This policy exists to ensure adherence with Generally Accepted Accounting Principles (GAAP) and other regulatory requirements, to promote consistent accounting treatment across the University, and to ensure the operating results of University units are not misstated as a result of capital expenses unrecorded or recorded improperly.

Who Must Comply

All Harvard University schools, tubs, local and central units, and University- wide Initiatives must comply.

Procedures

All software purchases and applications may be subject to restrictions based on Harvard's Enterprise Security Policy and may require other components such as the accessibility standards. Contact your local IT office prior to purchasing software.

I. **Follow Harvard's General Rules for Capitalization**

   A. Purchased Software Applications (Packaged) are software applications in which the coding and appearance may be modified and customized by Harvard. Harvard owns the "code," maintains the software, and is responsible for testing and applying updates to the software application. An example is the Oracle Business Suite which is a purchased software application where Harvard may customize the software.

   1. These software applications follow the same procedures as outlined for equipment purchases found in Sections II and III of the Financial Management of Property, Plant and Equipment Policy (PPE Policy). These include:
      • The item must be acquired for use in operations, and not for investment or sale, AND
      • The item must have a useful life of one year or more, AND
      • The amount must be $5,000 or more per license or user/unit.
      Please note, capitalization of software which is a component of an equipment purchase (i.e., a 3D printer which includes software) would follow the PPE Policy (e.g., the full amount would be capitalized under an equipment object code since it is a component of the equipment; even if the software is <$5,000).

   2. Customized software, consulting and implementation costs may be capitalizable and may include the following. See Appendix A for additional costs and guidance.
      a. Types of costs that may be capitalized:
         • Costs associated with the design and implementation of a new software
         • Consulting costs
      b. Types of costs that **may not** be capitalized:
         • Upgrades that do not contribute to additional functionality
         • Software application annual support or maintenance costs

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- Training or specialized testing
- Data conversion
- Salary and wages as well as benefits <u>cannot</u> be charged to sponsored funds unless they are part of the costs of a service unit or outside vendor.

3. If the software price includes maintenance, support, or training, these costs must be separated and expensed. If these costs cannot be reasonably separated, the software costs must be expensed in their entirety. See Appendix A or Appendix B, Section G of the PPE Policy.

4. The external costs of specified upgrades, enhancements, and new functionality previously not incorporated into the software design must be capitalized if the cost is $5,000 or more and has a useful life of one year or more or adds additional functionality to the software.

B. Internally-Developed Software (also known as Work in Progress or "WIP" Projects) is software developed for internal use and not resale. See Appendix A for a summary of accounting rules relating to capitalizing internally-developed software project costs.

1. Internally-developed software projects that are for internal use must be capitalized if it meets the following criteria:
   a. $500,000 or more in costs incurred (excluding stage 1 costs, training, general and administrative costs, and Research & Development{R&D}); AND
   b. an estimated useful life of one year or more.

2. Schools and units **must expense** internally-developed software projects that have less than $500,000 in costs incurred.

3. Schools and units **must expense** all internally-developed R&D software costs.

4. Upgrades (also known as betterments, enhancements or modifications)
   In some instances, additional costs to internally-developed software may represent an upgrade and may be capitalized as such. Upgrades follow the same guidelines as those for equipment. See the PPE Policy, Appendix B for additional guidance. For costs to be considered an upgrade it must meet the following criteria:
   a. the individual unit cost must be $5,000 or more, AND
   b. it must increase the useful life by one year or more, OR
   c. it must add new or additional functionality to the existing software (additional functionality is defined as an increased range of operations, increase equipment's useful function or service capacity, or improve the quality of the service(s) delivered through equipment's use).
   d. If there are multiple costs linked to an upgrade, create a new WIP (activity code) to add to the original asset. Use object codes 6811 (Non-Sponsored Work in Progress^Equip >=$5,000) or 6812 (Sponsored Work in Progress^Equip >=$5,000) as appropriate.
   e. If the purchase is a one-time purchase, use object code 6815 (Software, Non-Sponsored^Equip>=$5,000) or 6816 (Software, Sponsored^Equip>=$5,000), and charge it to the original asset activity code with a new subactivity. See Mass Additions: Add to Asset guidelines.
   f. When an upgrade cannot be separated or used separately from the original software, a parent-child relationship must be established between the assets in Oracle Fixed Assets.

C. Purchased Software Licenses Agreements
   A software license agreement typically involves a use license for a period of time. The software vendor typically owns the copyright to the software and the University receives a copyright license (i.e., a software license) in order to legally install and use a software application over a specified period of time. The vendor "owns" the coding and releases upgrades or updates to the software. The Microsoft Suite is an example of a software license agreement. In cases where individual software license agreements (i.e., per unit) is $5,000 or more and the license agreement is for 1 year or longer, the license is capitalized

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using object code 6815 (Software, Non-Sponsored^Equip>=$5,000) or 6816 (Software, Sponsored^Equip>=$5,000).

D. Subscriptions and Data Sets
Subscriptions to on-line services and systems which offer the use of information and data collected from another party (i.e., datasets) must be expensed. Examples of systems which allow download of raw data include DataQuick, CoreLogic, and Dunn and Bradstreet.

E. Cloud-Based Computing Arrangements (CCA) and Software as a Service (SaaS)
CCA and SaaS are instances where the applications are accessible from various client devises. Harvard does not manage or control the underlying cloud infrastructure including network, servers, operating systems, and storage or application capabilities. Costs incurred under a hosting arrangement (e.g. SaaS or CCA) may only be capitalized when the hosting arrangement includes a software license.

Typically, CCA or SaaS arrangements do not include a software license. However, if the CCA or SaaS arrangement includes a software license, the fee attributable to the software license may be capitalized using the same threshold as that of internally-developed software (i.e., the license must be $500,000 or more). Other costs that are typically capitalized for internally-developed software are not currently capitalizable pending a FASB decision expected in 2019.

1. To determine if the arrangement includes a software license **both** conditions below must be met:
   a. Harvard has the contractual right to take possession of the software at any time during the hosting period <u>without</u> significant penalty (25% or more of the original cost) or having a substantial reduction in program functionality, AND
   b. It is feasible for Harvard to either run the software on its own hardware or contract with another party unrelated to the vendor to host the software.

   If the above criteria are not met, the hosting arrangement does not include the purchase of a license agreement and the hosting arrangement must be accounted for as a service contract with the fees expensed as the services are rendered. Contractual penalties should be assessed to determine whether they are for taking possession of the software.
   c. Use object codes 6815 – Software, Non-Sponsored^Equip or 6816 – Software, Sponsored^Equip if the CCA or SaaS license meets the above criteria.
   d. For capitalized software, all upfront fees (i.e., deposits or prepayment) must be recorded using a WIP object code (6811 – Non-Sponsored Work in Progress^Equip >= $5,000 or 6812 – Sponsored Work in Progress^Equip >=$5,000). Once the software has been received and is ready for its' intended use, the software needs to be Placed in Service (PIS) using the Notification of Completion of Capital Equipment Fabrication or Debt-Financed Purchase Form. Contact the Fixed Assets Team for guidance.

   For more detailed information, please refer to the FASB's Accounting Standard Update 2016-19, which provides the technical accounting guidance for fees paid under a hosting arrangement or cloud-based computing arrangement.

Summary Table of Software to Capitalize or Expense		
Cost Type	**Service Contract**	**License Agreement**
Purchased Software Applications (Packaged) ≥ $5,000	N/A	Capitalize
Purchased Software Licenses Agreements ≥ $5,000	N/A	Capitalize
Subscriptions and Data Sets	Expense	N/A

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Summary Table of Software to Capitalize or Expense		
Cost Type	**Service Contract**	**License Agreement**
Cloud-Based Computing Arrangement & Software as Service	Expense	May capitalize the portion related to a software license if the software license is ≥$500,000
Requirements Gathering and Selection	Expense	Expense
Installation, Build and Test	Expense	Capitalize
Training	Expense	Expense
Maintenance	Expense (generally included in annual subscription costs)	Expense

II. **Follow Specific Rules for Capitalization and Record Capitalized Projects Properly**

A. Expensed Software
Software costs that must be expensed should be charged to the appropriate object code as the expense is incurred or monthly, but at a minimum, quarterly if an internal transfer. Below is a list of the object codes to charge.

Expensed Software Object Codes			
Description	**How to Use**	**Old Object Codes**	**Object Codes to Use FY19 or Policy Revision Date Forward**
Internal & Data Processing, Data Conversion, Word Processing	• Expenses for internal/on premise data center hosting services (debit to department using the service). • For FEDERAL SPONSORED FUNDS (100000-199999) only services provided by an internal Harvard vendor should be charged here. • Data conversion and processing/analysis.	8071	8071
Cloud Hosting Services (e.g., Fieldglass/HCOM)	• Expense for internally-billed cloud customers (debit to department using the service, normally HUIT). • Use to pay external vendors for monthly services.	8070,8071,8090, 8092,8096,8160, 8250	8074
Cloud Hosting Services, Cost of Goods Sold Used by HUIT	• Expenses related to support cloud hosting services offered to other departments. HUIT is the primary user of this object code and tracks Amazon Web Services, Microsoft Azure, etc.	8091	8075
Cloud Hosting Services, INTERTUB^Data Processing + Conversion, Word Processing Svcs	• Revenue for internally-billed Cloud Customers (credit to HUIT or other department offering a service).	8252	8076

B. Capitalizable Software Applications or Licenses
Software applications or licenses which may be capitalized must use one of the object codes listed below. Any upfront fees (e.g., deposits) must be recorded as a WIP (object code 6811 or 6812). It should subsequently be placed in service, with a PIS request form to FAR, at the point when the capitalizable

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software application is available for use. Leased software must follow the processes documented in Accounting for Leases Policy. The software should be depreciated over the period of the agreement. Contact the Fixed Assets Team for guidance.

Capitalizable Software Applications or Licenses Object Codes		
Description	**How to Use**	**Object Code**
Software, Non-Sponsored^Equip >= $5,000	Purchases of computer software with an individual unit price of ≥$5,000, Cloud-Based Computing Arrangements (CCA) and Software as a Service (SaaS) which include a licensing agreement of ≥$500,000, AND with a contractual term or useful life of more than one year. This code is used for purchases from non-sponsored funds only This would also be used for a one-time upgrade to previously capitalized software.	6815
Software, Sponsored^Equip >= $5,000	Purchases of computer software with an individual unit price of ≥$5,000, Cloud-Based Computing Arrangements (CCA) and Software as a Service (SaaS) which include a licensing agreement of ≥$500,000, AND with a contractual term or useful life of more than one year. This code is used for purchases from sponsored funds only.	6816

C. Capitalization and Documentation of Internally-Developed Software or Work in Progress (WIP) Projects
1. Determine if project meets the capitalization threshold of $500,000 or more. Tubs must estimate costs for each stage of the project. In addition, tubs must track and document all costs as directed in the "Track and document appropriately" section below.
2. Record capitalized project costs properly.
   a. Once a WIP project is initiated project coding and/or a Tag Number must be requested to be assigned to that specific WIP project. See Work-in-Progress overview.
   b. When possible, charge costs directly to the appropriate object code for WIP (i.e. 6811-Non-Sponsored Work in Progress^Equip >= $5,000, 6812-Sponsored Work in Progress^Equip >=$5,000 or 1140-Equip, Debt-financed, WIP).
   c. For nonsponsored funds, expenses related to salary and wages as well as benefits, must be reclassified to WIP by crediting object codes 6230 – Recovery of Salaries + Wages, GENERAL and 6370 – Recovery of Employee Benefits, GENERAL and debiting object code 6811. Salary and wages as well as benefits cannot be charged to sponsored funds unless they are part of the costs of a Harvard service center or outside vendor.
   d. The Oracle Assets AP Adjustment Form should be used when transferring costs incurred on a non WIP object code to WIP object code.
   e. Reassess costs each quarter. During a project's development, tubs must assess costs and the software's useful life quarterly to confirm whether or not the project must be capitalized. If changes in costs or useful life cause the project to meet the capitalization criteria, the tub must begin tracking and documenting all costs incurred, as directed in the "Track and document appropriately" section below.
3. Track and document appropriately.
   For each project to be capitalized tubs must track and document time, salary and other costs incurred in each of the development stages.
   a. Acceptable tracking methods: tubs must use a GAAP-compliant method to record and maintain the information; see Appendix D for recommended models. Generally, at a minimum, tub tracking must contain a detail of the types of work performed (including hours) by development

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stage and their related costs. An employee's time can be allocated into different projects and phases by estimating the percentage of the time to be spent in each job or stage. However, if a tub uses a method to estimate the percentage of time, the tub must maintain supporting detail describing the type of work the employee has done. If an employee spends less than 10% of his or her time on the project, the time is considered immaterial, and there is no need to track or capitalize it.

4. Certification required for time estimates: if a tub uses a method to estimate the percentage of time an employee spends on a project, project managers in that tub must certify at least annually that the time estimates are reasonable. Project managers may certify more frequently throughout the year as project milestones are met.

5. Documentation: tubs must follow record retention requirements found under the General Records Schedule. Records include contractual agreements, procurement and equipment maintenance records. The documentation must show that the costs are related to the specific project and the specific stage and that the costs were properly approved. This evidence can be kept on an Excel spreadsheet or similar method.

6. Contact FAR to place WIP in service. At the end of a project, tubs must provide Financial Accounting and Reporting (FAR) with Notification of Completion of Capital Equipment Fabrication or Debt-Financed Purchase Form (also known as the Placed in Service (PIS) Notification).

   Software is placed in service and depreciation begins when the software is ready for its intended use, which occurs after all substantial testing is complete and the item has been placed in service.

III. Choose an Appropriate Useful Life in Oracle Assets

Generally, internally-developed software is treated as a software asset and generally depreciated on a straight-line basis over four years. Cloud-based software or software as a solution should be assigned a useful life limited to the term of the underlying hosting agreement. Renewal options may be considered if it is likely that the agreement will be renewed without substantial additional costs or modifications. Schools or units may consider additional factors when estimating the useful life of the software; including the effects of obsolescence, new technology, and rapid changes occurring in the development of similar software products.

IV. Inventory Tracking

Capitalized software is not required to be inventoried or tagged but Schools and units are responsible for accounting for and impairing software in the Oracle Assets System. Schools and units may choose to track software at their discretion.

V. Account for Disposition, Retirement and Impairment.

Capitalized software must be disposed of and recorded appropriately in the Oracle Assets System if it is no longer in service or if any value has been permanently impaired. Refer to the PPE Policy, Appendix D.

VI. Software Sales

A. If a tub decides to market its internally-developed software when completed, the net proceeds received from the sale must first be applied against the carrying amount of the asset. No profit may be recognized until the aggregate net proceeds from sale and amortization have reduced the carrying amount of the software to zero. Subsequent proceeds may be recognized as revenue is earned. Contact FAR for further guidance.

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B.   Accounting for software developed solely for external sale is not addressed in these procedures. Contact FAR in these circumstances for further guidance. Unrelated Business Income Tax and Sales Tax may apply in these cases.

Responsibilities and Contacts

Financial deans or equivalent tub financial officers are responsible for ensuring that local units abide by this policy and the accompanying procedures. The tubs have ultimate responsibility for ensuring that costs for software are recorded properly and for ensure that they have processes in place to satisfy the internal controls for Property, Plant and Equipment.

School/tub finance offices, with assistance when needed from FAR, are responsible for determining if software costs must be capitalized or expensed, for reviewing project expenses annually, and for tracking and documenting time spent on internally-developed software projects.

Financial Accounting and Reporting (FAR), within the Office of the Controller, is responsible for maintaining this policy and assisting units with questions regarding the policy. FAR is also responsible for assisting tubs with recording entries to capitalize project costs and addressing other related technical accounting matters.
Contacts: far_fixed_assets@harvard.edu or the Fixed Asset Manager or Associate Director of Accounting Operations (617) 495-3766 or Director of FAR (617) 495-8032.

Definitions

Additional Functionality: an increased range of operations, increase equipment's useful function or service capacity, or improve the quality of the service(s) delivered through equipment's use.

Asset: something with an original cost of $5,000 or more which has a useful life longer than one year and that Harvard benefits from, or has the use of, for that period.

Betterments: See Upgrades.

Cloud-Computing Arrangement/Software as a Service: A CCA or SaaS license governs the software service that a software vendor provides to the University as the user. Thus, the software is never downloaded to the user's computer because the software remains on the vendor's computers (e.g., servers) and is accessed by the user through the Internet. In other words, the SaaS agreement governs the access to be provided to the user by the vendor such that the user can utilize the software service via the Internet during the term of the agreement. The SaaS agreement typically includes several clauses governing the user's right "to receive the service" during the subscription period, who owns what data, and various security considerations. The application is run on a cloud infrastructure and is accessible from various client devices. Harvard does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage or application capabilities with the possible exception of user-specific application configuration settings).

Configured Software: A configuration is where native tools in the system are used to change its' behavior or features. A configuration may be modifying a landing page to have the Harvard logo, or flexibility in requiring certain fields of a system be completed.

Customized Software: Software specially developed. A customization requires custom coding or some form of implementation and requires regular updates and testing of the changes.

Hosting Arrangement: An agreement between a web host and its customer that specify the mutual rights and obligations of the web host to store and allow access for the customer to its software.

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Improvements: See Upgrades.

Internal Use Software: includes software programs, components of systems (i.e., platforms), application, operating system, infrastructure, utilities, and upgrades, and has the following characteristics: (a) the software is acquired, internally developed, or modified solely to meet the University's internal needs and (b) during the software's development or modification, no plan exists to market the software externally (e.g. purchased or developed for Harvard's own use).

License: The unit of measure of which a software contract will bill for access. It can be both by user, and by software. In order for a license fee to capitalized, the fee per license must be ≥$5,000.

Named User: A license that allows access to the software by a specific number of named users. In some cases, these licenses can be transferred from one user to another. When you create the license, you should allocate the license to specific users. Only installations associated with allocated users are counted. For example, if the license is allocated to users Sam and Jan, the maximum installation count is two. Any other installations of the licensed application are treated as unassigned installations. For example, if May has also installed the licensed application but has not been allocated to the license, her installation will not be shown against installations of this license.

Purchased Software Applications (Packaged): Software applications are software packages in which the coding and appearance may be modified and customized by Harvard. Harvard owns the "code," maintains the software, and is responsible for testing and applying updates to the software application.

Research and Development (R&D): scientific inquiry that aims to discover new knowledge and/or translate research findings or other knowledge into a new or improved product or process. If there is inquiry is experimental in nature and will not be used to generate useful results in support of Harvard research, the software is considered R&D.

Service Center: Sometimes called Service Units are departments within Harvard that charge for goods or services that directly support the research or academic mission of the University and recover costs through charges to internal and external users. All Academic Service Centers are expected to recover no more than the aggregate costs of their operations through charges to users. All Academic Service Centers must be able to demonstrate compliance with federal requirements, and cannot use fee structures that discriminate against federal and other funding sources.

Significant Penalty: Harvard would incur meaningful costs of 25% or more of the original cost upon delivery of the software or would not be able to use the software without a substantial reduction in utility or value.

Software Application: A program or group of programs designed for end users. The programs are divided into system software and application software.

S**oftware as a Service (SaaS):** See Cloud-computing Arrangement.

Software License Agreement: A software license governs the redistribution or the use of the software itself. The software vendors typically own the copyright to the software and the University (e.g., user) is required to receive a copyright license (i.e., a software license) in order to legally install a software application and use the software. In other words, the software license provides the user the right to copy and to use the software application on the user's computer. One type of software licensing agreement is the end-user licensing agreement.

Subscriptions and Data Sets: On-line services and systems which offer the use of information and data collected from another party (i.e., datasets).

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Unit/User: In a software context, a unit or user is the measure of the number individuals with access to a software package. It can have a direct correlation to a license fee but it is not mandatory. Example software could have 1 license and that license can have 250 users. Which means 250 people can access the software under that license, but we only pay for one license.

Upgrades: (also known as betterments, enhancements or modifications) additions to an item of capital equipment that adds new functionality or extends the useful life by one year or more. Replacement parts or repairs are not considered upgrades.

Work in Progress (WIP): an asset still under construction, not yet placed in service or not yet producing intended results

Related Resources

Accounting for Leases
Enterprise Security Policy
Expense Recognition
FASB's Accounting Standard Update 2016-19
Financial Management of Property, Plant and Equipment (PPE Policy)
General Record Retention Schedule
Internal Controls - Property, Plant and Equipment
Internal Transfers
Mass Additions: Add to Asset guidelines
Notification of Completion of Capital Equipment or Software Fabrication or Debt-Financed Purchase Form
Procurement Policy
Sponsored Capital Equipment Policy
Unrelated Business Income Tax (UBIT)
Work in Progress Overview – Training Portal

Revision History

01/01/2019 – Incorporated additional guidance around software licenses, software as a service (SaaS), cloud-computing arrangements (CCA), and datasets into original policy titled "Accounting for Internally-Developed Software." Updated to include new object codes and changes around optional and required capitalization threshold requirements.

07/01/2014 – Original policy titled Accounting for Internally-Developed Software

Appendices

Appendix A: Summary of Accounting Rules for Internally-Developed Software Costs
Appendix B: Capitalization versus Expense Examples
Appendix C: Examples of Accounting for Certain Types of Transactions
Appendix D: Recommended Tracking Methods

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Appendix A
Summary of Accounting Rules for Internally-Developed Software Costs

I. **Understand the three stages associated with the capitalization of software.**

The following are the stages and most common types of costs:

Stage 1: Preliminary Project – MUST BE EXPENSED
• Conceptual formulation and evaluation of alternatives • Determining software performance requirements/specifications • Final selection of alternative
Stage 2: Application Development – GENERALLY CAPITALIZED
• Design of chosen path, including software configuration and software interface • Coding • Installation to hardware • Salary & Wages and benefit-related costs if project is not on sponsored funds. • Testing, including parallel processing phase
Stage 3: Post-Implementation/Operation – MUST BE EXPENSED
• Training • Software application maintenance • Upgrades that do not contribute to additional functionality Stage three begins when substantial testing is complete and the software is ready for its intended purpose and placed in service. Costs incurred after substantial testing is complete and the software is ready for its intended purpose but before a "go- live" date should be expensed. In addition, after a project goes live, there is typically a "stabilization period," during which costs should also be expensed, unless the costs result in additional functionality. Additional costs incurred before or after these three stages for business process reengineering and information technology transformation are generally expensed.
Note on the Timing of Costs
The types of costs discussed under each of the three development stages may occur throughout the project. For example, coding and testing often occur simultaneously, and some training may occur during the application development stage. Regardless, for costs incurred after the preliminary project stage, apply the policy to the nature of the costs incurred, not their timing. Appendix C includes additional cost examples and their accounting treatment.

II. **Capitalization vs. expense guidance**

A. Costs to expense
All costs incurred in the first stage (Preliminary Project) and third stage (Post-Implementation/Operation) must be expensed. The tubs must also expense the costs related to data conversion from old to new systems, except for costs incurred to develop or obtain software that permits access to and conversion of old data. Conversion costs that must be expensed include: purging or cleansing of existing data, reconciling old data with the new data in the new system and creating new/additional data. In addition, general and administrative overhead and training costs in all stages must be expensed. General and administrative costs include: project management salaries, space rental costs and depreciation of equipment.

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B. Costs to capitalize

Costs associated with the second stage, Application Development, are generally capitalized with exceptions of sponsor funded payroll and payroll-related costs for internally-developed software.

Generally, application development stage costs which may be capitalized include: external direct costs (i.e., from third-party vendors) of materials and services.

Payroll and payroll-related costs for employees who are working on the second stage of the internally-developed software project is allowable on non-sponsored funds, but not sponsored funds. Only costs integral to developing the software may be charged to the WIP object codes for sponsored funds. Integral costs include any material or supply that becomes a permanent part of the software development, any internal service center charges, and any external shop fees. Harvard labor costs which are outside of a service center cannot be capitalized and charged to the WIP object codes.

Conversion costs incurred to develop or obtain software that allows for access of old data or conversion of old data to the new system must be capitalized. Costs related to actual data conversation from old to new systems may **not** be capitalized.

The capitalization of costs begins when the Preliminary Project phase is complete and the University's management has implicitly or explicitly committed to funding the software project. At this point, it must be probable that the project will be completed and the software will be used to perform the function intended.

Capitalization ceases when substantial testing is complete and the software is ready for its intended purpose, or when the software is placed in service, meaning the software is accessible and ready for live transactions.

In addition, the University ***strongly encourages*** tubs to use the activity and subactivity segments of the 33-digit coding string to identify the specific development stages and types of costs incurred. For example, the activity and subactivity can be used to identify certain projects and their development stages, respectively. This tracking method is encouraged because it simplifies the cost tracking process and provides systems-based documentation for projects and their costs.

C. Subsequent upgrades and enhancements

Upgrades and enhancements to existing internally-developed software must result in additional functionality (i.e., modifications that enable the software to perform tasks that it was previously unable to perform) or must increase the useful life of the software by at least one year and upgrade individual unit costs must be $5,000 or more as outlined in the policy.

III. Depreciation

Capitalized internally-developed software is treated as a software asset and generally depreciated on a straight-line basis over four years. Depreciation begins when the software is ready for its intended use, which occurs after all substantial testing is completed, and the item has been placed in service. If the use of one module is entirely dependent on the completion of other modules, amortization of that module should begin when the modules upon which it is functionally dependent are ready for their intended use. The University's PPE Policy on Capitalization and Depreciation Procedures contain further guidance.

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IV. Impairment

Capitalized internally-developed software costs should be written off when: 1) the software is still being developed but is no longer probable that it will be completed and placed in service, 2) the completed software is obsolete or no longer in use, or 3) the current economic value of the asset is determined to be less than its net book value.

The University's PPE Policy on Disposal and Impairment Procedures contain further guidance.

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Appendix B - Capitalization versus Expense Examples for Internally-Developed Software

Table 1

Business Process Reengineering and Information Technology Transformation		
Steps	Expense	Capitalize
Preparation of request for proposal (RFP)	X	
Current state assessment (Documentation of the company's current business process, except as it relates to the current software structure. This activity is sometimes called mapping, developing an "as-is" baseline, flowcharting or determining the current business process structure.)	X	
Process reengineering (The effort to reengineer the company's business process to increase efficiency and effectiveness, sometimes called analysis, determining "best-in-class," profit/performance improvement development and developing "should-be" processes.)	X	
Restructuring the work force (The effort to determine what employee makeup is necessary to operate the reengineered business processes.)	X	

Table 2

Preliminary Project Stage 1 Activities		
Steps	Expense	Capitalize
Specification of alternatives	X	
Evaluation of alternatives	X	
Determining performance and system requirements	X	
Determination of existence of needed technology	X	
Final selection of alternatives	X	
Cost examples	Expense	Capitalize
Training costs for stage one	X	
Interest costs incurred during stage one	X	
Fees paid to third parties for costs incurred during stage one	X	
Travel expenses incurred by employees during stage one	X	
Payroll and payroll-related costs for stage one	X	
Cost-benefit analysis	X	
General and administrative costs or overhead costs (for example, project management salaries, space rental costs and depreciation of equipment) for stage one	X	

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Table 3

Application Development Stage 2 Activities		
Steps	Expense	Capitalize
Design of chosen option, including software configuration and interface		X
Software coding		X
Installation		X
Testing		X
Data conversion costs: type a) Costs **incurred to develop or obtain software that allows for** access or conversion of old data by a new system		X
Data conversion costs: type b) Costs related to **actual** data conversion from old to new systems	X	
Cost examples	Expense	Capitalize
Training costs for stage two*	X	
Fees paid to third parties for services provided to develop the software		X
Travel expenses incurred by employees in their duties directly associated with developing software		X
Travel expenses incurred by employees for conferences and training*	X	
Salary and wages and benefit costs outside of a Harvard service center (for example, costs of employee benefits), not including time spent in training or working on data conversion (type b), during stage two	X For sponsored funds	X For non-sponsored funds
Salary and wages and payroll-related costs for training* or data conversion (type b), during stage two	X	
Interest costs incurred during stage two		X
General and administrative costs or overhead costs (for example, project management salaries, space rental costs and depreciation of equipment)* for stage two	X	

*Note: Training (including training-related travel expenses) as well as general and administrative costs must always be expensed, regardless of the software development stage in which they are incurred.

Table 4

Post-Implementation / Operational Stage 3 Activities		
Steps	Expense	Capitalize
Application maintenance	X	
On-going support	X	
Upgrades ≥$5,000 that contribute additional functionality (increased efficiency is not considered additional functionality)		X
Upgrades that do not contribute additional functionality	X	
Cost examples	Expense	Capitalize
Training costs for stage three	X	
Interest costs incurred during stage three	X	
Fees paid to third parties for costs incurred during stage three	X	
Travel expenses incurred by employees during stage three	X	
Payroll and payroll-related costs for stage three	X	
General and administrative costs or overhead cost (for example, project management salaries, space rental costs and depreciation of equipment) for stage three	X	

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Appendix C - Examples of Accounting for Certain Types of Transactions for Internally-Developed Software

HUIT processes the following entry to reclassify costs originally expensed to other object codes to a work-in-process (WIP) object code:

EXAMPLE: HUIT has decided to develop a new accounting software application for their finance department. This software is expected to have an economic useful life of four years. Before the software development process was started HUIT estimated a total cost of $1,215,000, of which $730,000 was related to capitalizable costs of the second stage, Software Application Development (excluding training and general and administrative costs). Since the estimated capitalizable costs for the second stage of the development process are above the minimum required capitalization threshold of $500,000 and the useful life of the software is more than one year, HUIT must capitalize the project. HUIT tracked and maintained records of all types of costs charged to the project at each stage.

During the first stage, Preliminary Project, HUIT incurred the following costs:

Evaluating the alternatives	$ 150,000 (expense)
Designing the chosen option	$ 350,000 (expense)
Total actual costs incurred in the first stage	$ 500,000

All the costs incurred during the first stage are appropriately expensed as incurred; therefore, no additional accounting is required.

During the second stage, Software Application Development, HUIT incurred the following additional costs:

Coding the software	$ 350,000 (capitalize)
Installing the software	$ 150,000 (capitalize)
Training employees*	$ 115,000 (expense)
Testing the software	$ 120,000 (capitalize)
Total actual costs incurred in the second stage	$ 735,000

The tub initially expensed the entire cost of $735,000. However, costs incurred in the second stage, except for training costs, must be capitalized. The total costs to be capitalized are $620,000 ($735,000 - $115,000). A reclassification entry must be recorded to move the expenditures to work in process (WIP) on the Balance Sheet. The following are three possible funding scenarios and the entries HUIT will need to record to reclassify the expense to WIP in each scenario:

NOTE: Any expense related to salary and wages as well as benefits, must be reclassified to WIP by crediting object codes 6230, "Recovery of Salaries+Wages, GENERAL" and 6370, "Recovery of Employee Benefits, GENERAL," respectively.

*NOTE: Training (including training-related travel expenses) as well as general and administrative costs are always expensed, regardless of the software development stage in which they are incurred.

In the third stage, Post-Implementation/Operation, HUIT incurred the following additional costs:

Maintaining the application	$ 50,000 (expense)
Training users	$ 65,000 (expense)
Total actual costs incurred in the third stage	$115,000

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All the costs incurred during the third stage (Post-Implementation/Operation) are appropriately expensed as incurred. Therefore, no additional accounting is needed.

Upgrades follow the same guidelines as those for equipment. See the PPE Policy, Appendix B for additional guidance.

Scenario # 1 - The project is non-sponsored and internally funded (i.e., not debt-financed)

HUIT processes an AP adjustment expensed to other object codes to a work-in-process (WIP) object code, or processes a journal entry to move salary & wages and applicable benefits charged to non-sponsored projects to a WIP object code:

Debit object code 6811, "Non-Sponsored, Work in Progress^Equip>=$5,000" (HUIT fund)	$ 620,000
Credit the expense object codes originally charged or 6230/6370 for salaries and benefits	$ 620,000

Each evening, an automated allocation entry is made to reclassify the amount charged to object code 6811 to object code 1150, "Equip WIP, Non-sponsored" as follows:

Debit object code 1150, "Equip WIP, Non-sponsored"	$ 620,000
Credit object code 6811, "Non-Sponsored, Work in Progress^Equip>=$5,000" (Equipment expense contra fund)	$ 620,000

Also at the end of the month, the following computer-generated entry is made to record equity invested in capital equipment:

Debit object code 9336,"Transfers to/from Funds Invested in Equipment-WIP" (Equipment expense contra fund	$ 620,000
Credit 9300 series code "Transfers to/from Unrestricted Designated Balances" (fund 724005)	$ 620,000

This entry uses the non-operating transfer codes to "zero out" the equipment expense contra fund and record equity in Funds Invested in Equipment WIP (fund 724005).

When the software is ready to be used and placed in service, HUIT notifies FAR via the "**Notification of Completion of Capital Equipment Fabrication or Debt-Financed Purchase**" form. FAR will record the following reclassification entry to transfer the balance from WIP to place in service (PIS):

Debit object code 1032, "CO^Equip, Software, Nonsponsored"	$ 620,000
Credit object code 1152, "CO^Equip WIP, Nonsponsored, Closed to PIS"	$ 620,000

FAR creates the following manual journal entry to transfer the WIP equity (in fund 724005) to PIS equity (fund 724001):

Debit object code 9340 "Close Out between Funds Invested in Equipment - PIS+WIP" (fund 724005)	$ 620,000
Credit object code 9340 "Close Out between Funds Invested in Equipment - PIS+WIP" (fund 724001)	$ 620,000

Scenario #2 - The project is sponsored

HUIT processes an AP adjustment expensed to other object codes to a work-in-process (WIP) object code:

Debit object code 6812, "Sponsored, Work in Progress ^Equip>=$5,000" (sponsored fund)	$ 620,000
Credit the expense object codes originally charged	$ 620,000

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Each evening, an automated allocation entry will reclassify the amount charged to object code 6812 to object code 1151, "Equip WIP, Sponsored" as follows:

Debit object code 1151, "Equip WIP, Sponsored"	$ 620,000
Credit object code 6812, "Sponsored, Work in Progress ^Equip>=$5,000" (Equipment expense contra fund)	$ 620,000

Also at the end of the month, the following computer-generated entry is made to record equity invested in capital equipment:

Debit object code 9336, "Transfers to/from Funds Invested in Equipment-WIP" (Equipment expense contra fund)	$ 620,000
Credit 9300 series code, "Transfers to/from Unrestricted Designated Balances" (fund 724005)	$ 620,000

This entry uses the non-operating transfer codes to "zero out" the equipment expense contra fund and record equity in Funds Invested in Equipment WIP (fund 724005).

When the software is ready to be used and placed in service, HUIT notifies FAR via the "**Notification of Completion of Capital Equipment Fabrication or Debt-Financed Purchase**" form. FAR will record the following reclassification entry to account for the cost as an asset placed in service (PIS):

Debit Object code 1033, "CO^Equip, Software, Sponsored"	$ 620,000
Credit object code 1153, "CO^Equip WIP, Sponsored, Closed to PIS"	$ 620,000

FAR creates the following manual journal entry to transfer the WIP equity (in fund 724005) to PIS equity (fund 724001):

Debit object code 9340, "Close Out between Funds Invested in Equipment - PIS+WIP" *(fund 724005)*	$ 620,000
Credit object code 9340, "Close Out between Funds Invested in Equipment - PIS+WIP" *(fund 724001)*	$ 620,000

Scenario #3 - The project is debt-financed

HUIT processes an AP adjustment expensed to other object codes to a work-in-process (WIP) object code, or processes a journal entry to move salary & wages and applicable benefits charged to non-sponsored projects to a WIP object code

Debit object code 1140, "Equip, Debt-financed, WIP"	$ 620,000
Credit the expense object codes originally charged or 6230/6370 for salaries and benefits	$ 620,000

To ensure that WIP equity balances, a monthly entry is recorded by OTM to set up a WIP loan:

Debit object code 3120, "GOA+Pooled Loans, WIP, Others" (Central Bank)	$ 620,000
Credit object code 3120, "GOA+Pooled Loans, WIP, Others" (HUIT)	$ 620,000

This loan balance entry is reversed at the beginning of the following month. OTM records a monthly manual entry to charge interest on the WIP loan using object code 1142, "Equipment WIP, Interest Expense." Interest is manually capitalized to the cost of the project each month based on the prior month's balance.

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When the software is ready to be used and placed in service, HUIT notifies OTM and FAR via the "**Notification of Completion of Capital Equipment Fabrication or Debt-Financed Purchase**" form. FAR will capitalize the WIP, which will automatically generate the following reclassification entry to move the WIP to Place in Service (PIS):

Debit object code 1051, "CO^Equip, Debt-financed, Software"	$ 620,000
Credit object code 1143, "CO^Equip WIP, Debt-financed, Closed to PIS"	$ 620,000

The following manual entry is made by OTM to record OTM's loan receivable and HUIT's loan payable:

Debit object code 3030, "CO^Pooled Loans, PIS Equipment" (Central Bank)	$ 620,000
Credit object code 3030, "CO^Pooled Loans, PIS Equipment" (HUIT)	$ 620,000

Note: For purposes of simplifying this example, interest expense was not calculated.

Scenario # 4 - Betterment or Upgrade of Internally-Developed Software
A one-time enhancement upgrade is made to a HUIT project which was a WIP, but was placed in service.

A department creates an additional module to a previously purchased capitalized software.

Debit object code 6811, "Non-Sponsored Work in Progress^Equip >=$5,000" (HUIT fund)	$ 15,000
Credit the expense object codes originally charged or 6230/6370 for salaries and benefits	$ 15,000

Each evening, an automated allocation entry will reclassify the amount charged to object code 6811 to object code 1150, "Equip WIP, Nonsponsored" as follows:

Debit object code 1150, "Equip WIP, Nonsponsored"	$ 15,000
Credit object code 6811, "Non-sponsored, Work in Progress ^Equip>=$5,000" (Equipment expense contra fund)	$ 15,000

Also at the end of the month, the following computer-generated entry is made to record equity invested in capital equipment:

Debit object code 9336, "Transfers to/from Funds Invested in Equipment-WIP" (Equipment expense contra fund)	$ 15,000
Credit 9300 series code, "Transfers to/from Unrestricted Designated Balances" (fund 724005)	$ 15,000

This entry uses the non-operating transfer codes to "zero out" the equipment expense contra fund and record equity in Funds Invested in Equipment WIP (fund 724005).

When the software is ready to be used and placed in service, HUIT notifies FAR via the "**Notification of Completion of Capital Equipment Fabrication or Debt-Financed Purchase**" form. FAR process the capitalization, which generates the following reclassification entry to account for the cost as an asset placed in service (PIS):

Debit Object code 1032, "CO^Equip, Software, Nonsponsored"	$ 15,000
Credit object code 1152, "CO^Equip WIP, Nonsponsored, Closed to PIS"	$ 15,000

FAR creates the following manual journal entry to transfer the WIP equity (in fund 724005) to PIS equity (fund 724001):

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Debit object code 9340, "Close Out between Funds Invested in Equipment - PIS+WIP" *(fund 724005)*	$ 15,000
Credit object code 9340, "Close Out between Funds Invested in Equipment - PIS+WIP" *(fund 724001)*	$ 15,000

*Once the asset has been PIS, the tub will want to create a Parent-Child relationship between the original software asset and the upgrade asset.

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Accounting for Software Costs
Appendix D - Recommended Tracking Models for Internally-Developed Software Projects

Payroll and payroll-related costs for employees who are working on the second stage of the internally-developed software project is allowable on non-sponsored funds, but not on sponsored funds. Only costs integral to developing the software may be charged to the WIP object codes for sponsored funds. Integral costs include any material or supply that becomes a permanent part of the software development, any internal service center charges, and any external shop fees. Harvard labor costs which are outside of a service center cannot be capitalized and charged to the WIP object codes when using sponsored funds.

If an internally-developed software project meets requirements around splitting out labor costs on non-sponsored funds and has estimated costs above the capitalization thresholds, tubs must track and document time, salary and other costs incurred in each of the development stages. Internal employee costs (salary and fringe) must be tracked using a GAAP-compliant method, suggested models include:

Internally-developed software costs are charged using a software object code and unique Work in Progress (WIP) activity assigned to a project. A placeholder asset using tag number, activity, or other unique identifier must be created in Oracle Fixed Assets to track associated transactions.

Monthly tracking: track individual employee time on a monthly basis using a form completed by the employee or supervisor. The form should detail the hours spent on each capitalizable task for each project. The form then calculates the percentage of time spent on each task for each project and it applies it to either an actual salary by person or a blended salary rate. A finance manager or project manager should review each form to determine the calculation of total salary and fringe to be capitalized each month for each project. See the Sample Monthly Tracking Spreadsheet.

Different project stages that tubs may wish to use are:
• Implementation Tasks
• Training Tasks (training costs must be expensed – see Appendix B)
• Data Tasks
• Process/Organization Design
• Non-Project Tasks

Percentage of time estimate (Labor): At the outset of a project, employee time spent on the project is estimated (using a percentage of time). The cost of time spent on the project is capitalized based on this estimate. The project manager or finance manager should review the project quarterly for significant shifts in employee time spent on the project. In addition, employees or supervisors could be asked to identify significant (generally, greater than 10%) changes in time spent. The Sample Labor Summary Tracking Spreadsheet can be used for this option as well, but would typically be completed at the beginning of the project or to notify project manager of significant changes.

Note that annual certification is required for projects using the percentage of time estimate. If a tub uses a method to estimate the percentage of time an employee spends on a project, project managers in that tub must certify at least annually that the time estimates are reasonable. Project managers may certify more frequently throughout the year as project milestones are met.

Other methods: Approaches other than the two described above must be approved by FAR at the outset of the project.

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Sample Monthly Tracking Spreadsheet

YEAR	Preliminary Project Phase Tasks			Application Development Phase Tasks			Post-Implementation/Operation Phase			Training Tasks			Project % Time	Project $	Non-project % time	Non-Project $	Capitalizable Tasks		
	# Resources	% Time	Cost	# Resources	% Time	Cost	# Resources	% Time	Cost	# Resources	% Time	Cost					# Resources	% Time	Cost
June	6	4.6%	$2,321	6	17.9%	$8,929	6	17.9%	$8,929	6	19.9%	$9,940	60.2%	30,119	39.8%	19,881	6	17.9%	$8,929
July																			
August																			
Sept																			
Oct																			
Nov																			
Dec																			
Jan																			
Fen																			
March																			
April																			
May																			
Totals		4.6%	2,321		17.9%	8,929		17.9%	8,929		19.9%	9,940	60.2%	30,119	39.8%	19,881		17.9%	8,929

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Sample Percentage of Time (Labor) Estimate Spreadsheet

Represents One Month of Activity

Highlighted columns require input

	Empl. 1	Empl. 2	Empl. 3	Empl. 4	Empl. 5	Empl. 6	Total TIME	INPUT # OF RESOURCES	AVERAGE TIME	Actual Salary or Blended Rate $100,000
PRELIMINARY PROJECT PHASE • Conceptual formulation and evaluation of alternatives • Determining software performance requirements/specifications • Final selection of alternative	10	15	14				39	6	4.64%	$2,321
APPLICATION DEVELOPMENT PHASE • Design of chosen path, including software configuration and software interface • Coding • Installation to hardware • Testing, including parallel processing phase	25	25	25	25	25	25	150	6	17.86%	$8,929
POST-IMPLEMENTATION/OPERATION PHASE • Software application maintenance • Upgrades that do not contribute to additional functionality	25	25	25	25	25	25	150	6	17.86%	$8,929
Training Tasks	25	25	25	27	30	35	167	6	19.88%	$9,940
Non-project tasks	55	50	51	63	60	55	334	6	39.76%	$19,881
Total Hours (should equal monthly total)	140	140	140	140	140	140	840			
TOTAL								6	100.0%	$ 50,000