

Memorandum

Software Technology

February 7, 2022

To: Members of the Board
From: Josh R. Williams, Senior Analyst
Thru: Monica R. Valentine, Executive Director
Subject: **Software Technology Guidance Updates** (Topic E)

INTRODUCTION

At the August meeting, the Board officially added an intangible assets project to the technical agenda with objectives to (1) develop updates for software reporting guidance, (2) develop a working definition of intangible asset for the Board's internal use, and (3) further assess the costs versus benefits of developing reporting guidance for intangible assets.

The attached issues paper addresses the first objective of developing updates for software reporting guidance. For this session, staff is requesting the Board's feedback on the proposed scope and project plan for guidance updates.

REQUEST FOR FEEDBACK BY February 18, 2022

Prior to the Board's February meeting, please review the attached staff recommendations and analyses and respond to the questions by February 18, 2022.

Please submit responses to Josh Williams at WilliamsJR@fasab.gov with a cc to Monica Valentine at ValentineM@fasab.gov.

NEXT STEPS

Pending Board feedback, staff will continue to engage with the working group to develop and recommend specific guidance updates for the Board in accordance with the proposed scope and project plan.

ATTACHMENTS

1. Staff Recommendations and Analyses
2. Software Guidance Comparison Analysis
3. Intangible Assets Project Plan

Staff Analysis

Software Technology

February 7, 2022

CONTEXT

Background

In 2021, staff led a task force to research the significance of intangible assets in the federal government. The research identified potential intangible assets, such as patents, trademarks, data sets, and software-based resources. During Board meeting deliberations, members agreed with staff that research indicated a need to update software guidance. The Board also shared staff concerns with recognition challenges associated with the other types of identified intangible assets. Research showed that intangible assets exist among federal reporting entities but there are significant concerns with the practicality of measuring and recognizing their value.

During the August 2021 meeting, the Board officially added an intangible assets project to the technical agenda with the following three objectives:

1. Develop updates for software reporting guidance
2. Develop a working definition of intangible assets for the Board's internal use
3. Further assess the costs vs. benefits of developing reporting guidance for intangible assets

This issues paper addresses the first objective of developing updates for software reporting guidance. More specifically, this issues paper proposes a scope and project plan to bridge the gap between existing software guidance and guidance needs among federal entities.

Research

Staff formed a working group with representation from several entities to assist with this issues paper. The working group includes representation from

- Department of Defense
- Securities and Exchange Commission
- Veterans Affairs
- General Services Administration

- U.S. Citizenship and Immigration Services
- Nuclear Regulatory Commission
- Census Bureau
- Federal Election Commission
- Department of Energy
- Library of Congress
- Department of Commerce
- Treasury
- KPMG

Working group volunteers possess backgrounds in accounting, financial reporting, internal review, auditing, and/or information technology (IT). Staff corresponded with the working group extensively through email, round table meetings with individual entities, and a working group meeting. The working group provided insight from federal entity perspectives to help staff develop significant software guidance needs, guidance scope categories, and an approach for updating guidance. Working group volunteers ensured that their IT operations and procurement personnel contributed during the process.

Additionally, staff researched the following statements for insight into existing software related reporting guidance from other standard setters.

- GASB 51, *Accounting and Financial Reporting for Intangible Assets*
- GASB 96, *Subscription-Based Information Technology Arrangements*
- GASB Implementation Guidance 2015-1
- IPSAS 31, *Intangible Assets*
- FASB 350-40, *Internal-Use Software*

Note that GASB, IPSASB, and FASB address software as part of their intangible assets guidance.

Staff compared the above guidance with FASAB's SFFAS 10, *Accounting for Internal Use Software* and TR 16, *Implementation Guidance for Internal Use Software* to identify software resources and reporting guidance that is absent or significantly different from FASAB guidance. Refer to Attachment 2, *Software Guidance Comparison Analysis* for key highlights of FASAB, GASB, IPSASB, and FASB software reporting guidance. Note

that the comparison analysis is based on staff's understanding of the guidance and serves only to summarize the differences and similarities between guidance from different standard setters for research and discussion purposes. Staff will reference this attachment many times throughout this issues paper to propose the scope of guidance update needs.

Staff also consulted with another standard setter to discuss software guidance ideas and preferred approaches for issuing guidance updates. Staff has included insight from all of the research into the following recommendations and analyses.

RECOMMENDATIONS AND ANALYSES

This issues paper provides a framework for developing reporting guidance updates for software related assets. Specifically, the issues paper recommends

- A scope of software guidance needs
- A project plan for developing software guidance updates

Staff is requesting the Board's feedback on these proposals in the following sections.

RECOMMENDATION

SCOPE OF UPDATE NEEDS

Based on extensive correspondence with the working group and a deep dive analysis of current software reporting guidance from FASAB and other standard setters, staff is recommending a scope of significant software guidance issues that the Board should address. The purpose of the following analysis is to identify how to bridge the gap between current FASAB software reporting guidance and reporting guidance that stakeholders need in the current federal software technology environment. Staff recommends that members provide feedback on the proposed scope in the following analysis.

ANALYSIS

This analysis provides a list of software related terms, a list of significant software guidance issues, and a tree diagram depicting a scope of guidance update categories. Staff primarily derived the information and recommendations in this analysis from federal entities and auditors along with the guidance comparison analysis from Attachment 2.

Software technology definitions

Staff believes it is imperative to establish a common set of software technology terms and definitions for the Board and working group to reference when discussing future software reporting issues. Like many topics that the Board addresses, software technology and other IT resources are often esoteric to people who do not possess IT backgrounds. Additionally, staff observed that many people sometimes use different terms to describe the same activity or resource.

Staff compiled the list of terms and definitions with multiple rounds of review from the working group. Staff first provided the working group a list of terms along with multiple definitions gathered from several sources, such as IT websites, GAO reports, FASAB guidance, and guidance from other standard-setters. Staff then requested that the working group provide feedback on:

- The applicability of each term in the federal government
- Recommendations on preferred terms
- Recommendations on preferred definitions
- Additional terms to add to the list

After two rounds of review, staff developed one definition for each term based on the feedback and requested one more round of review from the working group. In summary, the staff developed these software terms and associated definitions based on research from multiple sources and extensive feedback from accounting and IT professionals among the federal government.

This list of terms and definitions provides a foundation for identifying and discussing software guidance issues now and in the future and provides a reference so that everyone involved with guidance development can communicate clearly with one another during future discussions. The following list of terms and definitions are in alphabetical order and serve as a research and development tool.

Software Technology Definitions

Agile development – an umbrella term used to describe software development methods that incrementally deliver working segments of a product in short iterative cycles instead of only delivering a usable product once at the end of a sequential process. This typically involves cross-functional collaboration between development, operational, and security interests to seek constant feedback from the end-user in order to improve the functionality of the product through multiple iterations and provide constant support.

Application programming interface (API) - a set of definitions and protocols for building and integrating application software that enables applications to exchange data and functionality

Application software – a type of computer program that performs a specific function for an end-user

Blockchain - refers to the technological infrastructure and protocols that allow simultaneous access, validation, and record updating across a network in a decentralized manner. Blockchain technology is used with cryptocurrency and smart contracts.

Bundled IT products and services - services offered as part of acquiring COTS, licenses, or cloud services that is separate but complementary to the acquired resource (e.g., training, maintenance, data conversion, reengineering, and rights to future upgrades and enhancements)

Cloud service arrangements – a contract or agreement in which the customer accesses and uses information technology resources provided and managed by a vendor on demand. These arrangements often occur on a subscription or term basis over the internet without the customer taking possession of the resource on its systems. Common types of cloud service arrangements include software, platform, and infrastructure as a service.

Commercial-off-the-shelf software (COTS) – ready-made application software that is purchased or licensed from a vendor to utilize as intended for internal-use

Computer network – A set of computers that are connected for the purpose of communicating data electronically

Computer system – a combination of functional and related hardware and software components to perform a desired outcome

Computing infrastructure – consists of essential and foundational compute, storage, and networking resources required to operate and manage information technology environments. Examples include servers, data centers, routers, operating systems and firewalls

Computing platform - a group of technologies that are used as a base upon which software applications are developed and implemented. Examples include coding language, middleware, database management systems, operating systems, application programming interface (API), and firewalls

Cryptocurrency - a digital currency in which transactions are verified and records maintained by a decentralized system using blockchain technology, rather than by a centralized authority

Data conversion – the process of modifying and converting the format of data to transfer it to a more useful format based on a target system. Data conversion enables the data to be read, altered, and executed in an application or database other than that in which it was created

Data migration – the process of transferring data between formats or systems

Development, modernization, and enhancement (DME) - refers to projects and activities that lead to new IT assets/systems, or change or modify existing IT assets to substantively improve capability or performance

Enhancements – any modification that significantly increases computer system capabilities beyond its original functions

External-use software - software developed by an entity to be sold, licensed, or made publicly available solely for the end user's needs

Hardware – refers to the tangible parts of computer systems that store and run instructions provided by software

Impairment - occurs when software or another IT asset no longer provides substantive service potential or a significant reduction occurs in the capabilities, functions, or uses of the asset prior to end of its estimated useful life

Information technology (IT) - the development, implementation, maintenance, and use of computer hardware, software, systems, cloud services, and networks to organize, communicate, and secure information electronically

Information technology security – a set of strategies, objectives, and methods used to prevent unauthorized access to an organization's IT resources, such as hardware, networks, software, and data

Internet domain - an identification string that defines a realm of administrative autonomy, authority or control within the Internet (usually ending in a generic name such as .com, .org, or .gov)

Intranet – a network for sharing information, collaboration tools, operational systems, and other computing services within an organization, usually to the exclusion of access by outsiders

Internal-use software – acquired or developed software that is operated by an entity strictly for its own administrative, security, operational, or mission needs, with no intent of selling or licensing the software

Internally developed software - software that an entity actively develops through internal employees, contractors, or a combination of both. This includes significant

modifications that adds additional capabilities to new software and existing or purchased COTS software

Legacy modernization - rewriting or updating a legacy system to modern computer programming languages, architectures, data formats, software applications, or hardware platforms. Legacy systems are often modernized to maintain functionality, add features, or add security

Legacy system - an old technology, computer system, or application program relating to or being an outdated, inefficient, and/or incompatible computer system that is still in use and may pose inoperability issues or risks to other systems without modernization

Operating system – the software that supports a computer system’s basic operations by communicating with hardware and directing the processing of programs. Also called system software

Prototyping – the activity of creating working models of software applications used to gather end-user feedback for further design and implementation considerations for the final product. Prototyping can be utilized as part of agile development methods

Robotic process automation – software automation technologies that imitate mundane rules-based business processes traditionally performed by humans, such as extracting data, filling in forms, and moving files

Shared service - a mission, operation, or administrative support function provided by a federal entity to other federal entities (interagency) or to separate components within the same entity (intra-agency). In the federal environment, commercial shared services refer to a pool of qualified private vendors that provide standardized services that federal entities can utilize.

Software - a set of instructions that tell a computer to operate and perform specific tasks. Software is often used to describe the intangible functional aspects of a computer and includes application and operating system programs, procedures, rules, and any associated instructions pertaining to the operation of a computer system or program.

Software-hardware integrated asset – application software that is integrated into and necessary to operate general PP&E and does not serve another purpose separate from the hardware. Also referred to as “integrated or embedded systems”

Software in development – the accumulated cost of developing an internal use software asset that is not yet complete. Similar to construction in process (CIP) for PP&E

Software license - a legal instrument governing permissions and restrictions for use of a software application, source code, or related product. Acquiring a license generally gives the licensee the right to possess and manage the software on their systems but

the term can also denote the number of user rights for cloud-based services. A license can apply to individuals or entire organizations and can provide perpetual or term-based rights through a subscription.

Software maintenance and repair – the process of monitoring, updating, and preserving software applications and IT infrastructure currently in use, to sustain computer system security and operability without adding new capabilities or functions

Update – a way to fine-tune a product to keep it running in an optimal manner. Software updates usually consist of small and frequent changes to correct security issues or coding bugs.

Upgrade – a new version of software that replaces the old product and is used for significant changes and/or major improvements

Waterfall development model – a non-iterative development method that breaks down activities into sequential and exclusive phases where each phase depends on the deliverables of the previous one and a usable product is produced after all phases occur. Also referred to as “linear development model”

Web applications – an application software that is accessed through a website

Webpage – a document written in hypertext (known as HTML) that can be accessed over the internet by a web browser

Website - collection of internally or publicly accessible, interlinked Web pages that share a single domain name

Some of the terms above represent software-based resources and directly relate to the guidance scope that staff will later propose. Other terms, such as maintenance, data conversion, and modernization do not represent resources, but activities or processes associated with the federal software environment that is relevant for software guidance discussion. Staff has highlighted a few of the terms below, as they are integral to the guidance scope.

Agile development

Based on research and correspondence with several federal entities, staff decided to use the term “agile development” to encompass many non-linear software development models that are relevant to federal entities. There are many variations of non-linear

development methods/models used across the federal government, to include iterative, incremental, spiral, DevSecOps, and others¹.

Staff realized during research that many of these methods while distinct in specific ways, share similarities in that they describe software development methods that incrementally deliver working segments of a product in short iterative cycles. This is in contrast to the linear waterfall development model that delivers a usable product once at the end of a sequential process.

Staff believes that it is best to approach software guidance updates by focusing on non-linear development models as a general category, using the term “agile development” to represent all of the individual non-linear models, rather than attempting to develop specific guidance for each individual model. Staff believes this would enable the guidance updates to have longevity as the term “agile development” could encompass any non-linear model. If the Board developed specific reporting guidance for each possible model, the guidance could quickly become outdated and require multiple updates in the future since it is likely that the specific models used by federal entities will evolve over time.

Cloud service arrangements

During the research effort, it was apparent to staff that federal entities use many different terms to describe service arrangements in which a federal entity utilizes cloud-based IT resources provided and managed by a third-party vendor. Some examples include, cloud computing services, hosting arrangement, cloud hosting arrangements, cloud computing subscription arrangement, and pay-as-you go cloud service, among others. Staff observed that federal entities often use several terms synonymously without an official or predominant term with some expressing the need for clarification. Additionally, it appears that GASB 96 uses the term “subscription based IT arrangement (SBITA)” and FASB 350-40 uses the term “hosting arrangement” when generally describing cloud-based IT services.

Staff believes it is important to establish a common term for the Board to use when discussing future reporting guidance for these types of IT services and recommends the term “cloud service arrangements.” Staff suggested this term after discussions with a federal IT professional who recommended cloud service arrangements as an appropriate term for the federal environment. They specifically recommended not using “computing” because that could narrow the scope of the term. Additionally, other federal entities pointed out that cloud service arrangements do not always present as a subscription, leading staff not to use “subscription” in the term either. Establishing an agreed upon term will enable the Board and working group to have effective guidance update discussions by ensuring everyone is using the same term to deliberate a significant resource throughout the federal IT environment.

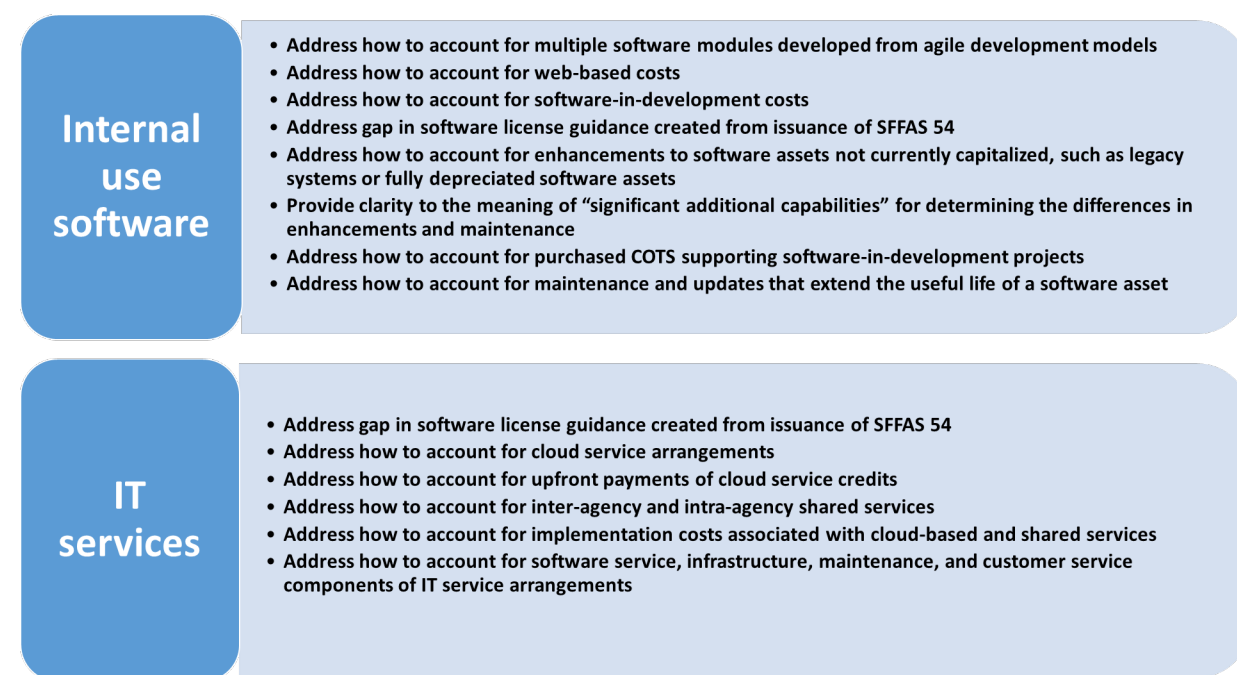
¹ GAO-20-590G, *GAO Agile Assessment Guide*, September 2020 (<https://www.gao.gov/products/gao-20-590g>) offers best practices for agile adoption and implementation. This guide also provides specific examples of commonly used agile frameworks applicable to the federal government, such as, DevOps, eXtreme programming, Lean, Kanaban, Scrum, and others.

Therefore, staff will use both of the terms “agile development” and “cloud service arrangements” when proposing a scope for guidance updates in the following section.

Significant software guidance needs

Task force and working group volunteers notified staff of several software reporting issues that they see a need for guidance. Staff compiled a list of these issues below.

Significant Software Guidance Needs



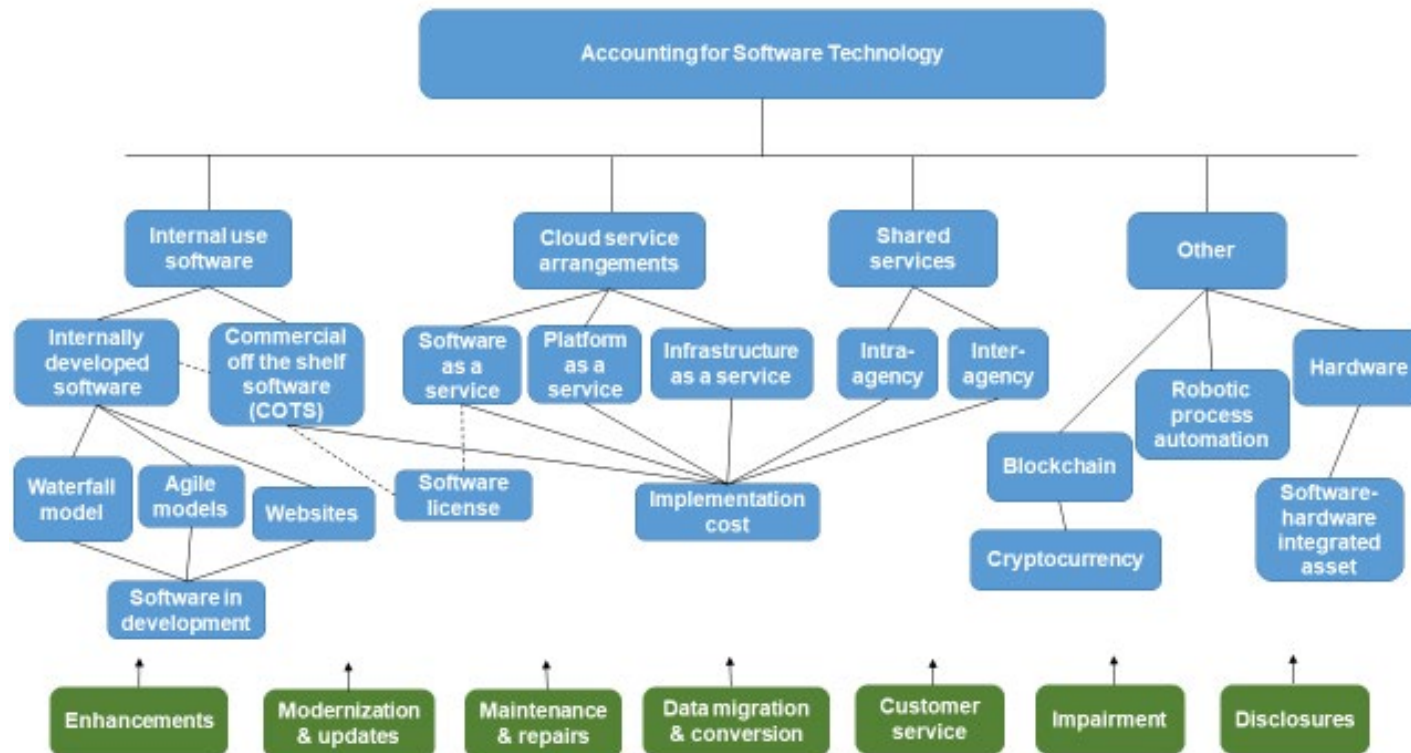
For organization and analysis purposes, staff categorized the issues above as either internal use software or IT services. This list serves as the foundation for the scope for software guidance that staff will propose in the next section.

Proposed scope for guidance updates

In addition to the previous list of guidance needs, staff communicated with accounting and IT professionals from federal entities to understand the current federal IT environment and relevant software-based resources that entities are using. Using this research, staff developed the following tree diagram to propose a scope for guidance updates.

(Scope diagram on next page)

Software Technology Guidance Scope



As depicted in the scope diagram, staff decided to use “Accounting for Software Technology” as the working title for the guidance update project. This signals that guidance updates should not just focus on internal use software, but also to other IT related resources prevalent in the federal government, such as cloud service arrangements and shared services. The proposed scope separates the updates into four major categories.

- Internal use software
- Cloud service arrangements
- Shared services
- Other

Staff decided to divide the scope into these major categories because each represents a significant software technology resource in the federal government that staff believes will require different guidance considerations. Note that the blue boxes represent major topics of each scope category while the green boxes, such as impairment, enhancements, and disclosures represent potential software reporting issues associated with each major category. Staff explains each category in more detail in the following sections.

Internal use software

Current FASAB guidance in SFFAS 10 and TR 16 primarily addresses internal use software. One of the most prevalent issues raised by federal entities involves cost recognition complexities with accounting for internally developed software using agile development methods. The current FASAB guidance appears to primarily address recognizing internally developed software around a linear development approach, often referred to as “waterfall development method.” The linear development approach was most likely the prevalent model when the Board issued SFFAS 10 but as time has passed, more and more federal entities use some form of non-linear agile development model².

The waterfall method entails a linear approach in which the process follows a sequential order from planning phase, to development phase, to operational phase. The current FASAB guidance addresses capitalization and expense recognition around that process. However, agile methods do not follow these sequential phases. For example, federal entities reported that all three phases of planning, development, and operations can occur simultaneously. Additionally, development teams release incremental

² OMB Circular A-130, *Managing Information as a Strategic Resource*, paragraph 5.d.3.c instructs federal entities that IT investments should ensure an agile development approach, as appropriate.

functions of a software product in short iterative cycles to obtain feedback from end-users for further development, which means that multiple development phases happen in the same project. Federal entities noted specific challenges with separating capitalized costs from expenses and deciding when to place individual software modules into service.

Paragraphs 33 through 36 of TR 16 do address non-linear development models to an extent. However, it does not appear that the other standard setters have directly addressed non-linear development methods (see Attachment 2). At least one federal entity is of the opinion that the current FASAB guidance is sufficient for agile development methods. However, many different federal entities voiced a need for more reporting guidance on agile development methods. Therefore, staff believes that the Board should consider ways to improve reporting guidance to assist federal entities with reporting cost associated with agile development models. This could enable consistency with cost recognition among federal entities.

Staff also observed issues relating to the fact that current FASAB guidance does not address website or web-based assets. It appears that GASB, IPSASB, and FASB have issued guidance that specifically addresses website development cost (see Attachment 2). Staff observed some inconsistencies among federal entities with how they account for website development, with some already applying it to the SFFAS 10 requirements. This leads staff to recommend the Board address reporting guidance for website development.

Other internal use software issues relate to more specific reporting challenges. For example, staff observed an inconsistency with how federal entities report software-in-development cost. The majority of entities appear to disclose software-in-development as a PP&E line item separate from internal use software, similar to construction-in-process. However, staff observed that some entities do not disclose software-in-development cost separately from internal use software. Staff believes this presents issues with comparing software asset value among federal entity financial reports. Additionally, staff believes it is important for users to understand what amount of internal use software value is placed in service versus in development.

Additionally, some working group volunteers raised issues with determining the differences between software enhancements and maintenance. One volunteer mentioned a need to address reporting issues with software maintenance and/or upgrades that may not add new capabilities but extends the useful life of an asset (see Attachment 2). Refer to the graphic on page 10 for the full list of significant issues.

Cloud service arrangements

Staff believes that the most significant reporting guidance needs relate to cloud service arrangements. Several federal entities indicated that cloud service arrangements are replacing capitalized internal use software assets in their operations. In some cases, such as infrastructure service arrangements, cloud service arrangements are replacing

IT hardware. According to some federal entities, these cloud service arrangements generally provide entities with the same economic benefits and services that internal use software did, but come with less investment risk and more flexibility to alter the amount and type of services they receive based on current needs.

The fact that federal entities are turning more to cloud service arrangements³ presents an asset reporting issue since these arrangements are replacing typically capitalized assets. Paragraphs 28 and 29 of TR 16 do currently address cloud computing if a cloud arrangement includes a software license. The guidance essentially states that entities receiving the service should account for the license element of the arrangement in accordance with lease criteria from SFFAS 5, *Accounting for Liabilities of The Federal Government* and SFFAS 6, *Accounting for Property, Plant, and Equipment*. However, there are two problems with this guidance.

1. Due to the issuance of SFFAS 54, *Leases: An Amendment of Statement of Federal Financial Accounting Standards (SFFAS) 5, Accounting for Liabilities of the Federal Government, and SFFAS 6, Accounting for Property, Plant, and Equipment*, the cloud computing guidance from TR 16 will become obsolete in fiscal year (FY) 2024. This is because SFFAS 54, paragraph 5 scopes out software licenses from leases reporting guidance. Therefore, when SFFAS 54 takes effect in FY 2024, FASAB guidance will not address cloud service arrangements in any meaningful way.
2. Multiple federal entities have told staff that they do not think the TR 16 guidance for cloud computing is currently relevant. They say this is because software licenses⁴ do not really apply when the entity is receiving cloud service arrangements because cloud service arrangements do not provide the user the ability to possess nor manage the software on their own system. Furthermore, paragraph 29 of TR 16 states that SFFAS 10 is not applicable to cloud computing arrangements that do not convey a contractual right or license to the internal use software associated with the cloud service. Given the reason stated above, it appears that this particular statement prevents current FASAB guidance from being applicable to many cloud service arrangement scenarios in the federal government.

It appears that GASB and FASB currently address cloud service arrangements in different ways. The reporting guidance from GASB 96 requires that preparers record a subscription liability and an intangible right-to-use asset for SBITAs along with capitalizing associated implementation costs. The guidance from FASB 350-40 also addresses capitalizing implementation costs associated with hosting arrangements.

³ The 2019 Office of the Federal Chief Information Officer *Federal Cloud Computing Strategy* provides a long-term, high-level strategy to drive cloud adoption in Federal agencies (<https://cloud.cio.gov/strategy/>).

⁴ Staff notes that there are differing opinions among federal entities regarding how software licenses apply in the IT environment. Some consider software licenses to denote a form of possession and control of a software product on the users system. This means software licenses could apply to purchased software but probably not to most cloud service arrangements. Other federal entities also use the term license to simply mean the number of users with access to a cloud service arrangement. This is a critical aspect of software reporting that staff will continue to research.

However, FASB treats the service aspect of a hosting arrangement as an expense if the arrangement does not constitute an acquisition of or convey a license to the associated software (see Attachment 2).

Staff believes it is critical that the Board address reporting guidance for cloud service arrangements. The examples from the GASB and FASB guidance offer different models for the Board to reference when considering how federal entities should account for cloud service arrangements. Staff believes the control⁵ that users have over the benefits and services of cloud service arrangements is a crucial element in determining if cloud service arrangements are assets to federal entities.

Shared services

Shared services relate to cloud service arrangements. However, staff proposes including shared services as a separate category in the guidance scope because staff envisions that shared services among federal entities present with unique characteristics and reporting challenges. Based on research and discussions with federal entities, it appears that shared services can apply to federal entities in two major ways.

1. There are scenarios in which a federal entity uses another federal entity's web-based services for administrative or operational needs, such as payroll or human resources processing. These shared services can include both an IT and labor element. Staff considers these scenarios as intragovernmental-shared services and would require unique reporting guidance, regardless of how the Board decides to approach cloud service arrangements.
2. There are also scenarios in which a federal entity establishes a pool of qualified commercial vendors that other federal entities can then establish agreements with as needed. This shared service effort is supposed to produce operational efficiencies and cost savings to the federal government. Initially, staff is of the opinion that this type of commercial based shared service would not require reporting guidance significantly different from typical cloud service arrangements since it appears that federal entities still enter into individual agreements with commercial vendors.

Paragraphs 30 through 32 of TR 16 do address shared services in essentially the same way that TR 16 addresses cloud computing. In other words, the guidance essentially states that entities receiving the service should account for the license element of the arrangement in accordance with lease criteria from SFFAS 5 and SFFAS 6.

Additionally, paragraph 31 says that an entity receiving the shared service can account for the service as internal use software if they have the contractual right and ability to run the software on their own hardware.

⁵ SFFAC 5, *Definitions of Elements and Basic Recognition Criteria for Accrual-Basis Financial Statements*, paragraphs 29-35 discuss "control" as an essential characteristic of an asset.

Therefore, the same issues with current FASAB cloud computing guidance also applies to shared services guidance. In summary, SFFAS 54 will make the shared service guidance obsolete in FY 2024 and the software license centric reporting guidance may not be relevant at this point anyway. Staff is not aware that any other standard setter currently addresses shared services (see Attachment 2).

Like cloud service arrangements, shared services are a software technology resource that federal entities are using with more frequency due to their relative advantages over internal use software⁶. However, they could present some unique issues and challenges separate from cloud service arrangements, particularly intragovernmental-shared services. Therefore, staff recommends the Board address shared service reporting requirements as a major scope category.

Other software technology

Staff decided to include a fourth scope category to serve as a catchall category for other types of software technology resources that staff believes the Board should consider for reporting guidance updates. Examples include blockchain technology, robotic process automation (RPA) technology, cryptocurrency, and hardware-software integrated assets. Federal entities did not mention these items as significant guidance issues. However, staff added them to the scope based on researching current events in the financial reporting environment.

Staff confirmed with multiple federal entities that they currently use or are planning to use both blockchain and RPA technology in their operations. It is not yet clear to staff if these types of resources would require reporting guidance separate from internal use software or cloud service arrangements. However, staff believes there is at least opportunity for disclosure requirements associated with these technologies if federal entities utilize them to significantly improve operating performance or if they improve an entity's systems and controls for financial reporting⁷.

Staff is currently not aware of a federal entity that purchases cryptocurrency. The only cryptocurrency scenario staff is aware of involves forfeitures and seizures that could apply to SFFAS 3, *Accounting for Inventory and Related Property*. Blockchain technology is the technology behind cryptocurrency but blockchain technology is also used for many other purposes, some of which federal entities do appear to implement. For example, some federal entities reported that they use or are planning to use blockchain technology for smart grants and smart contracts. Staff ultimately decided to include cryptocurrency in the scope for future guidance updates because it is currently a hot topic and it is foreseeable that it could eventually play a bigger role in the federal government.

⁶ OMB Circular A-130, *Managing Information as a Strategic Resource*, paragraph 5.d.1.c instructs federal entities to consider existing Federal contract solutions or shared services when developing planned information systems, available within the same agency, from other agencies, or from the private sector to meet agency needs to avoid duplicative IT investments.

⁷ See SFFAC 1, *Objectives of Financial Reporting* for concepts on the four primary objectives of financial reporting. Staff believes all four identified scope categories apply to one or multiple objectives.

Finally, staff chose to include hardware-software integrated assets in the scope with the notion that it is worth revisiting the relationship between hardware and software as interrelated assets in the current IT environment. Paragraph 16 of TR 16 currently addresses these types of assets and staff is not currently aware of a specific update need. However, staff believes it is important to maintain an open mind on whether the scope of the guidance updates should expand to hardware or network resources.

Final thoughts

The proposed scope for software guidance updates is not set in stone and staff will update it as needed. However, staff is confident that this scope identifies the most significant software guidance needs and represents a strong foundation to begin developing guidance updates. Pending the Board's feedback, staff will continue to work with the working group to begin developing specific guidance update recommendations for each scope category in accordance with the project plan in the next section.

Question for the Board:

1. Do members have any feedback on the proposed scope for software guidance updates?

RECOMMENDATION

PROJECT PLAN

Based on correspondence with the working group, staff is recommending a project plan for developing guidance updates in accordance with the scope discussed in the previous section. The project plan establishes the order in which staff will address each major scope category and proposes a guidance update approach of rescinding both SFFAS 10 and TR 16 and reissuing updated guidance. Staff recommends that members provide feedback on the proposed project plan in the following analysis.

ANALYSIS

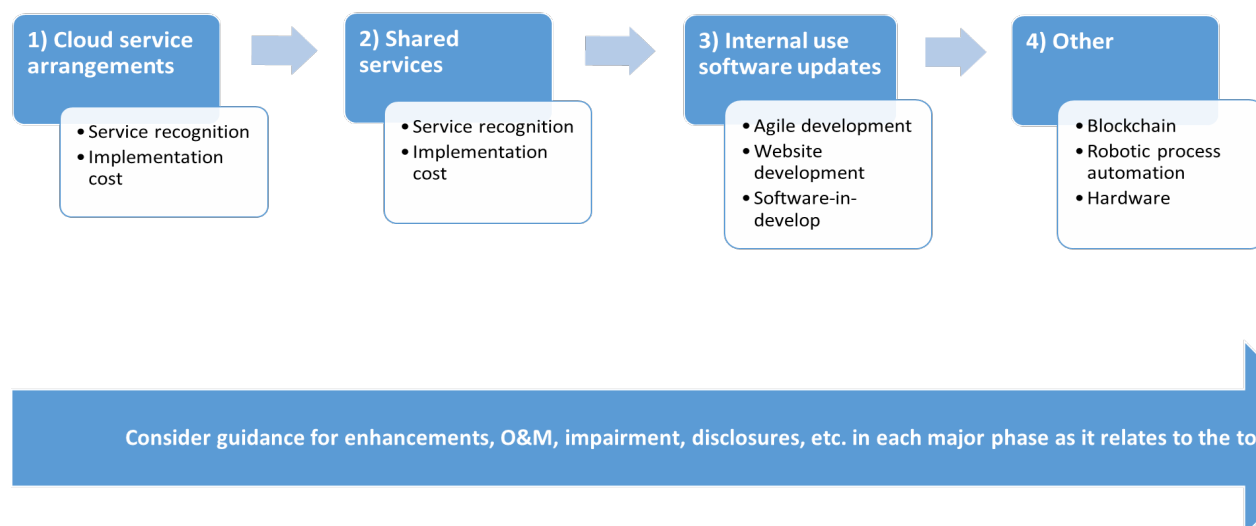
This analysis discusses the preferred order for developing guidance updates, the perceived needs for both standard and implementation guidance updates, and the pros and cons of amending versus rescinding guidance for updates. Staff based the analysis and proposals for these topics on federal entity preferences and opinions from another standard setter.

Scope order for updates

Recall from the previous recommendation that staff proposed a scope for software guidance updates based on four major categories including, internal use software, cloud service arrangements, shared services, and other software technology. Staff decided to divide the scope into these four categories so that the Board can address reporting guidance updates based on major software technology resources in a sequential order.

Staff believes that addressing these categories of software technology one-by-one will enable a more efficient project timeline by focusing Board, staff, and working group attention on one major guidance issue at a time. Therefore, staff proposes a scope order in the following diagram.

Guidance Update Plan



The diagram above proposes addressing guidance updates first for cloud service arrangements, followed by shared services, then internal use software, and finishing with other software technology. The white boxes in the diagram list some significant reporting issues that the Board should address with each category.

The blue arrow at the bottom of the diagram indicates that staff will consider guidance updates for enhancements, impairment, maintenance, updates, disclosures, useful life, and other issues as they apply to each major scope category. For example, staff will

consider disclosure requirements⁸ for cloud service arrangements and shared services separately during each phase.

Staff recommends addressing cloud service arrangements first because it is apparent that they represent the greatest need for reporting guidance. Staff recommends addressing shared services second because they share similar characteristics to cloud service arrangements. Staff believes that the discussions and decisions during the cloud service arrangement phase will naturally flow into guidance considerations for shared services.

Staff recommends addressing the other software technology category last because it represents a general category of software related resources that staff thinks is worth considering even though the working group did not identify any of them for significant guidance needs. Therefore, staff believes this category is the lowest priority of the four and it is appropriate to consider guidance needs for these resources at the end of the project.

This naturally results in internal use software coming in third in the order. However, staff believes this is just an important category to address as the first two, especially regarding agile development. Staff sees this category as more of a true update of existing guidance since the Board has already issued a lot of guidance on internal use software. Alternatively, staff believes that cloud service arrangements and shared services will require a significant amount of new reporting guidance. Staff will discuss this notion more in the next sections.

Hierarchy of guidance updates

Staff expects that the identified software reporting issues will require updates to SFFAS 10 (level A) and TR 16 (level C) guidance. For example, staff believes that any new reporting guidance for cloud service arrangements and shared services would require level A guidance since the updates would likely include new requirements.

On the other hand, staff believes that the Board could address some of the internal use software issues through both level A and level C guidance updates. As previously mentioned, one federal entity opined that SFFAS 10 is currently sufficient for applying agile development methods while other federal entities have requested additional guidance on agile development methods. This could indicate that additional implementation guidance is appropriate to provide preparers instruction on how to apply the current standards to agile development. One working group volunteer recommended that the Board develop an implementation guidance with a question and answer format, similar to the recent TR 20, *Implementation Guidance for Leases*, to address various guidance challenges.

⁸ Current guidance in SFFAS 10 and TR 16 does not appear to require unique disclosures for internal use software beyond what is required in SFFAS 6.

Therefore, staff recommends considering reporting guidance updates for both SFFAS 10 and TR 16 for each scope category. In the immediate future, staff plans to propose level A guidance updates to the Board to develop an exposure draft while also notifying the Board of update needs that staff and the working group deem more appropriate for level C guidance. The Board could issue level A standard updates first and then staff could engage with the Accounting and Auditing Policy Committee (AAPC) to develop and issues level C implementation guidance updates as a subsequent effort.

Rescind versus amend

As part of this research effort, staff also requested the working group's opinion on preferences for the Board amending statements versus rescinding and reissuing new statements when updating guidance. Staff observed that preparers largely favored rescinding and reissuing statements without tracked amendments.

One federal entity stated that if the guidance updates are minor, then amending a statement with a few tracked edits is ok. Otherwise, it is preferable to refer to a new statement without tracked amendments so that the resulting guidance is not convoluted or difficult to understand. Additionally, some federal entities expressed that they prefer to reference only one standard for reporting guidance on a particular topic rather than having to cross-reference multiple standards, such as an omnibus amendment, to assemble all of the relevant guidance.

Staff also consulted with another standard setter on this issue and they stated that they generally look to amend existing guidance for minor edits. Otherwise, they prefer to rescind and reissue new statements so that they are more readable for users.

It is clear to staff that preparers prefer to reference reporting guidance without tracked amendments and without having to cross-reference multiple standards for the same topic. While it is difficult to predict the extent of needed updates for software guidance, staff is confident that the needed updates will be more than minor. For example, staff believes that new cloud service arrangement and shared service guidance will at least require major additions to existing guidance. Therefore, staff recommends rescinding existing guidance and reissuing new statements without tracked amendments when issuing future reporting guidance updates for software technology. A separate document could accompany the new guidance that highlights the major updates.

Below is a diagram that summarizes the previously stated recommendations for issuing guidance updates.

(Diagram on next page)

Guidance Update Approach

Rescind and reissue guidance

All reporting requirements addressed in one standard

Level A and C guidance updates needed

Address level A guidance updates first

Reissue updated statements without tracked amendments

Implementation guidance in Q&A format

Final thoughts

Pending the Board's feedback, staff plans to keep engaging with the working group to develop reporting guidance updates in accordance with the proposed scope and project plan. Additionally, staff will continue to consult the expertise of IT professionals throughout the process. Specifically, staff will immediately focus on developing a reporting guidance framework for cloud service arrangements.

For the next steps, staff plans to present characteristics and examples of cloud service arrangements in the federal government to the Board so that members can deliberate whether they meet the essential characteristics of an asset in accordance with SFFAC 5, *Definitions of Elements and Basic Recognition Criteria for Accrual-Basis Financial Statements*. Staff believes this is a critical first step in determining appropriate reporting guidance for cloud service arrangements. Refer to Attachment 3, *Intangible Asset Project Plan* for upcoming project milestones and a snapshot of the project's progress.

Question for the Board:

2. Do members have any feedback on the proposed project plan for developing updates for software guidance?

Software Reporting Guidance Comparison Analysis

Disclaimer: This material is presented for discussion purposes only; it is not intended to reflect authoritative views of the FASAB or its staff. Official positions of the FASAB are determined only after extensive due process and deliberations. Additionally, the information in this document is solely based on staff's understanding of the referenced guidance and is only for research purposes to summarize and compare guidance among different standard setters.

Activity	FASAB	GASB	IPSASB	FASB
Guidance Reference	SFFAS 10 TR 16	GASB 51 GASB 96 Implementation Guidance 2015-1	IPSAS 31	FASB 350-40 FASB 350-50
Intangible asset		* Reporting guidance for software assets is included in intangible asset reporting guidance	* Reporting guidance for software assets is included in intangible asset reporting guidance	* Reporting guidance for software assets is part of FASB 350, which addresses intangible assets
Internal use software	<ul style="list-style-type: none"> * Specifically identifiable * Determinate life of 2 years or more * Not intended for sale in the ordinary course of operations * Has been acquired with the intention of being used by the entity. 			<ul style="list-style-type: none"> * The software is acquired, internally developed, or modified solely to meet the entity's internal needs and no plan exists to market the software externally * Includes software associated with a hosting arrangement if entity has contractual right to possess the software and can run the software on its own hardware (or another contractor can host it); otherwise it is a service contract

Activity	FASAB	GASB	IPSASB	FASB
Internally developed software	<ul style="list-style-type: none"> * Categorizes cost into preliminary design, development, and operational phases - * All development phase costs are capitalized and other two phases are expensed 	<ul style="list-style-type: none"> * Includes software developed in-house, by a contractor, or commercial software purchased or licensed that requires more than minimal implementation * Categorizes cost into preliminary project, application development, and operational stages * Application development phase costs are capitalized and other two phases are expensed 	<ul style="list-style-type: none"> * Categorizes cost into a research phase and a development phase * Research costs are expensed and development costs are capitalized if the project meets various requirements related to technical feasibility and ability to use or sell the end product 	<ul style="list-style-type: none"> * Categorizes cost into preliminary, application development, and post-implementation operating stages * Costs incurred in the preliminary and operating stages are expensed and costs incurred during the application development stage are capitalized.
Contractor developed software	<ul style="list-style-type: none"> * Capitalized cost includes the amount paid to a contractor to design, program, install, and implement the software, as well as material internal cost to implement 			
Purchased software	<ul style="list-style-type: none"> * Capitalized cost includes amount paid to vendor, cost to prepare for use, and material internal cost to implement * Labeled as commercial-off-the-shelf software (COTS) 		<ul style="list-style-type: none"> * The cost of an acquired intangible asset comprises the purchase price and cost of preparing the asset for intended use 	
Data conversion	<ul style="list-style-type: none"> * All data conversion cost incurred for internally developed, contractor-developed, or COTS software should be expensed 	<ul style="list-style-type: none"> * Data conversion is considered an application development activity if it is determined to be necessary to make the software or SBITA ready for use * Otherwise, data conversion is considered an activity of the operation stage and expensed 		<ul style="list-style-type: none"> * Cost to acquire software to access or convert old data for new systems are capitalized * All other data conversion costs are expensed

Activity	FASAB	GASB	IPSASB	FASB
Software-hardware integrated asset	* Software integrated and necessary to operate PP&E, rather than perform an application, is considered part of the PP&E		* In determining if an asset with both intangible and tangible elements should be treated as PP&E or as an intangible asset, an entity uses judgement to assess which element is more significant	
Bundled IT products and services	* Allocate capitalizable and noncapitalizable cost among individual elements to a reasonable extent	* For a contract that contains both a subscription and a nonsubscription component, account for the subscription and nonsubscription components as separate contracts if possible		* Allocate the cost among individual elements based on the relative standalone price of the elements in the contract
Enhancements	* Enhancements to existing software is capitalized when it is more likely than not they will result in significant additional capabilities	* Capitalize modification cost that increases functionality and efficiency of the software or SBITA.		* Costs for upgrades and enhancements are either expensed or capitalized depending on what development stage (Preliminary, Application development, Operations) they apply
Maintenance	* Minor enhancements resulting from ongoing systems maintenance or to repair design flaws are expensed	* If modification does not increase functionality or efficiency of software or SBITA, then expense as maintenance		* Costs for maintenance are expensed *Entities that cannot separate internal costs on a reasonable basis between maintenance and relatively minor upgrades and enhancements shall expense
Training	* Training is considered part of the operational phase and is expensed	* Training is considered part of the operational phase and is expensed * Even if training is associated with the application development phase, it is expensed as incurred	* Training staff to operate the asset is generally considered an expense	* Training is considered part of the operational phase and is expensed * Even if training is associated with the application development phase, it is expensed as incurred

Activity	FASAB	GASB	IPSASB	FASB
Useful life	<ul style="list-style-type: none"> * Minor upgrades that extend useful life without adding capabilities are expensed * Amortization period is adjusted. 	<ul style="list-style-type: none"> * Useful life of an intangible asset should not exceed the service period of the asset that is limited by contractual or legal provisions * Modifications can increase useful life (without also increasing functionality or efficiency) in rare circumstances and should be capitalized 	<ul style="list-style-type: none"> * Technological and commercial obsolescence are considered in determining useful life * Useful life is often short due to rapid changes in technology 	<ul style="list-style-type: none"> * Technological and commercial obsolescence are considered in determining useful life * Useful life is often short due to rapid changes in technology.
Impairment	<ul style="list-style-type: none"> * Recognized when the software is no longer expected to provide substantive service and will be removed from service or a significant reduction occurs in the capabilities of the software 	<ul style="list-style-type: none"> * Mostly refers to Impairment of Capital assets statement (statement 42) * An indicator of impairment is development stoppage of software due to a change in the priorities of management 		<ul style="list-style-type: none"> * Occurs when software no longer provides substantive service potential or a significant change occurs in how software will be used
Amortization	<ul style="list-style-type: none"> * Amortize in a systematic and rational manner over the estimated useful life * Begin amortization when the module or component has been successfully tested * If the use of a module is dependent on completion of another module, then begin amortization when both modules are successfully tested 	<ul style="list-style-type: none"> * Software that will become obsolete and be replaced at some unknown point in the future has an indeterminate useful life that should be amortized over an estimated useful life * A SBITA asset should be amortized over the shorter of the subscription term or the useful life of the underlying IT assets 	<ul style="list-style-type: none"> * Begin amortization when intangible asset is available for use (when it is in location and condition necessary for operating as intended by management) 	<ul style="list-style-type: none"> * Amortize on a straight-line basis unless another rational basis is more representative of the software's use * Begin amortization when the software is ready for its intended use, regardless of whether it will be placed in service in planned stages * If the functionality of a module is dependent on completion of another module, then begin amortization when both modules are ready for intended use * Amortize hosting arrangement implementation cost over term of arrangement in straight-line manner

Activity	FASAB	GASB	IPSASB	FASB
Disclosures	<ul style="list-style-type: none"> * Same as PP&E disclosures - book value, amortization cost and method, estimated useful life of major categories 	<ul style="list-style-type: none"> * Regarding SBITAs, disclose a general description of SBITAs, principal and interest required to maturity, SBITA commitments, impairment losses, outflows not previously considered in the liability, among other things 	<ul style="list-style-type: none"> * Disclose amount of research and development expenditure recognized during the period 	<ul style="list-style-type: none"> * Disclose nature of hosting arrangements that are service contracts and capitalized implementation cost as a major class * The guidance does not provide other unique disclosure requirements and references other guidance
Waterfall/linear development	<ul style="list-style-type: none"> * Guidance provides linear stages. * Regardless of timing, the cost incurred for development phase activities should be capitalized or expensed based on the substance of the activity * Each iteration of development has its own acceptance testing before moving forward to the next iteration; so identify a milestone equivalent to a final acceptance test 	<ul style="list-style-type: none"> * Guidance provides linear stages * However, apply recognition guidance based on the nature of the activity, not the timing of its occurrence 	<ul style="list-style-type: none"> * Guidance provides linear stages 	<ul style="list-style-type: none"> * Guidance provides linear stages * However, development of internal-use computer software may not follow a linear order shown in the guidance * Apply guidance based on the nature of the costs incurred, not the timing of their incurrence
Iterative development	<ul style="list-style-type: none"> * Each module of a software project could be analyzed to determine whether it should be treated as a separate asset 			
Incremental development	<ul style="list-style-type: none"> * Each module of a software project could be analyzed to determine whether it should be treated as a separate asset 			

Activity	FASAB	GASB	IPSASB	FASB
Agile development model	<ul style="list-style-type: none"> * Apply the three internal development phases on an iterative basis * If an iterative product is considered a module or component asset, then treat as an individual project * Treat future incremental releases that result in additional functionality as an enhancement 			
Spiral development model	<ul style="list-style-type: none"> * Apply the three internal development phases on an iterative basis * If an iterative product is considered a module or component asset, then treat as an individual project * Treat future incremental releases that result in additional functionality as an enhancement 			
Software license	<ul style="list-style-type: none"> * A license should be evaluated against lease criteria as stated in SFFAS 5 and 6 to determine if it is a capital or operating lease * SFFAS 54 makes this obsolete * If the license is perpetual with an upfront cost to use the software for its entire lifetime, then treat as purchasing software 	<ul style="list-style-type: none"> * Outlays to acquire a license to use commercial software that is not considered internally generated generally should be recorded as an intangible asset * If the software is considered internally generated, then the licensing is an application development stage activity, and the related outlays are capitalized 		<ul style="list-style-type: none"> * A license that meets the internal use software requirements is accounted for as an intangible asset - essentially recognized at fair value when acquired if not part of a business combination

Activity	FASAB	GASB	IPSASB	FASB
Websites		<ul style="list-style-type: none"> * Websites should be considered software if the website meets the description of internally generated computer software 	<ul style="list-style-type: none"> * Specific guidance for website recognition breaks development into planning, application and infrastructure development, graphical design development, and content development stages * Websites that arise from development and is for internal or external access is an internally generated intangible asset and subject to the recognition guidance 	<ul style="list-style-type: none"> * Specific guidance for website recognition breaks costs into a planning, website application and infrastructure development, develop graphics, develop content, and operating stages * Website costs are either expensed or capitalized generally based on the internal-use software development guidance * Cost to obtain and maintain an internet domain are capitalized
Cloud service arrangements	<ul style="list-style-type: none"> * If a cloud computing arrangement includes a license, account for the license element using lease criteria from SFFAS 5 and SFFAS 6 * SFFAS 54 makes this obsolete * Guidance not applicable to an arrangement that does not convey a contractual right or include a license for the software. 	<ul style="list-style-type: none"> * For subscription-based information technology arrangements (SBITAs), recognize a subscription liability and an intangible right-to-use asset * Also capitalize implementation costs associated with the SBITA * Does not apply to scenarios in which the entity receives a perpetual license or right to the software (this applies to GASB 51) 		<ul style="list-style-type: none"> * Consider a hosting arrangement service contract as internal-use software to determine when implementation costs of the hosting arrangement are and are not capitalized * The service aspect of the arrangement is expensed as incurred over the term of the arrangement * This only applies to hosting arrangements that are considered service contracts because they do not constitute an acquisition of or convey a license to software

Activity	FASAB	GASB	IPSASB	FASB
Shared service	<ul style="list-style-type: none"> * For intra-agency shared services, a cost allocation methodology could be developed * For interagency shared services, the service provider that owns the software accounts for it * If the entity receiving the service has the contractual right to take possession and can run it on their own hardware, then account for it as internal use software * If service includes a license, then account for the license element of the service consistent with SFFAS 5 and 6 <p>(SFFAS 54 makes this obsolete)</p>			

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