UNIVERSITY SYSTEM OF GEORGIA

USG INFORMATION TECHNOLOGY HANDBOOK

VERSION 2.9.3

9/23/2020

SENSITIVE

Abstract: USG Information Technology Handbook's purpose is to primarily set forth the essential standard components USG organizations must follow to meet statutory or regulatory requirements of the federal government, state government, Board of Regents (BOR) policy, information technology and cybersecurity best practices. Secondly, it is designed to provide new IT professionals within the USG the necessary information and tools to perform effectively. Finally, it serves as a useful reference document for seasoned professionals at USG organizations who need to remain current with changes in federal, state law and BOR policy.

Introduction

The University System of Georgia (USG) comprises public institutions of higher learning, a University System Office, Georgia Public Library System (GPLS), Shared Services Center (SSC), Georgia Archives and Georgia Film Academy; hereinafter referred to as USG organizations. These USG organizations represent the rich diversity of a state system spanning the spectrum of educational and research offerings. This manual respect the value of the diversity of USG organizations while providing guidance with regards to information technology (IT) operations within the USG.

Version Control

Date	Name	Version	Description of Change
04/18/2016	Revised cost estimate		Section 4.1 – added a statement in IT Procurement Policies.
05/02/2016	PDF, structure and format.	2.0	Initial redesign referenced in a new structure and format.
05/17/2016	System-level password information added.	2.1	Section 5.12.3 – added a statement about system-level passwords in bullet point number 4.
05/27/2016	Updated flow chart	2.2	Section 3.1 – updated “Recommended Process Flow Chart” added to match content.
05/27/2016	Introduction to the IT Handbook	2.2	Section Introduction – updated entire section.
11/1/2016	Department title changed	2.3	As of Nov. 1, 2016, the department name changed to Cybersecurity.
11/3/2016	Revised Domain Name System	2.3	Section 5.13 – content in section was updated and revised.
11/3/2016	Domain Name System Guidelines	2.3	Section 5.13 – added link to the revised Domain Name System (DNS) Guidelines.
11/3/2016	Addition to USG organizations	2.3	Section Introduction – Georgia Film Academy added to the list of USG organizations.
11/17/2016	Clarification of information system owner	2.4	Section 1.3.2 – added clarification of information system owner roles and responsibilities within the framework of people, process and technology.
11/17/2016	Spending limits updated	2.4	Section 4.1 – updated spending limits for purchases in excess of $1 million.
05/15/2017	Revised section for consistency in format and content. Added title.	2.5	Section 1.2 – added the correct title to 1.2.1.
05/15/2017	Revised section for consistency in format and content.	2.5	Section 1.3 – deleted a misplaced word.
05/15/2017	Revised section for consistency in format and content. Changed location of definitions.	2.5	Section 3.0 – added definitions from 3.1 and deleted definitions already stated in Introduction section.

05/15/2017	Revised section for consistency in format and content. Changed location of definitions.	2.5	Section 3.1 – moved definitions to 3.0.
05/15/2017	Revised section for consistency in format and content. Deleted exceptions.	2.5	Section 3.2 – deleted exceptions to log management standard.
05/15/2017	Revised section for consistency in format and content. Added ac curate titles and deleted standard.	2.5	Section 3.3 – provided accurate title for ISO and deleted management of USG continuity of operations planning standard.
05/15/2017	Revised section for consistency in format and content. Deleted table.	2.5	Section 5.3 – added "USG organizations" as stated in the Introduction section, changes made to the USG Incident Response and Reporting Standard and deleted Incident Categories and Reporting Timeframes table.
05/15/2017	Revised section for consistency in format and content.	2.5	Section 5.10 – added content for clarification.
09/07/2017	Reviewed and revised entire Section 5 for consistency of content	2.6	Section 5 – Added "USG organizations" as stated in the Introduction section and other minor editorial changes removing policy and standard where appropriate.
09/07/2017	Incorporated revisions in Section 5 by University of North Georgia	2.7	Section 5 – Incorporated minor editorial changes recommended by University of North Georgia.
01/02/2019	Revised Section 5.10 to align with the NIST framework and FIPS.	2.8	Revisions to required security reporting activities with corresponding due dates. Changed ISPR to CPR and revised components. New sub section "Remediation and Mitigation Tracker" added.
03/18/2019	Migration	2.9	Migrated to MS Word format, Export to PDF. Relocated Section 9 to the BPM. Value added Appendix: References, Glossary, Acronyms, and Index. Updated BOR policy reference from section 11 to section 10.
02/24/2020	Incident Management	2.9.1	Section 5.3 – Updated language, added baseline requirements and template to submit a plan for review.
02/24/2020	Awareness Training	2.9.1	Section 5.9 – Updated language to align with Section 5.10.
02/22/2020	Required Reporting	2.9.1	Section 5.10 – Updated language and diagram to include biannual awareness training requirements.
02/22/2020	Multifactor Authentication	2.9.1	Section 3.1.2 – Added section to standardize MFA deployment across the USG enterprise.
04/30/2020	Strike "Section"	2.9.2	Section 3.1.2 –Standardized MFA deployment heading.
04/30/2020	Strike "Compliance Dates…" move to "Compliance" table pg. 18	2.9.2	Section 3.1.2 – moved compliance information to table.
04/30/2020	Strike extra space and add "All recovery planning must include lessons learned and update recovery strategies."	2.9.2	Section 3.3.1 – editorial change, and cybersecurity framework (CSF) alignment.

04/30/2020	Add ", or dependent" and add bullet 1 "Create, implement, maintain and test backup and recovery plan…."	2.9.2	Section 3.3.1 – editorial change, and CSF alignment.
04/30/2020	Add bullet 2 ", and to provide timely communication." And add bullet 3 "The communication controls ensure that information…."	2.9.2	Section 3.3.1 – editorial change, and CSF alignment.
04/30/2020	Add "continuous"	2.9.2	Section 5.1.1 – editorial change, and CSF alignment.
04/30/2020	Add bullet 3 "expected dataflow diagrams," and add bullet 4 "expected dataflow diagrams,"	2.9.2	Section 5.1.2 – editorial change, and CSF alignment.
04/30/2020	Editorial corrections #6, and add "Principle of Least Function…"	2.9.2	Section 5.1.2 – editorial change, and CSF alignment.
04/30/2020	Add list "i. – v." to # 5 and add "incident alert thresholds" to #6	2.9.2	Section 5.3.1 – editorial change, and CSF alignment.
04/30/2020	Add "continuous," add "5.5.2 - Event data (logs) shall be collected and correlated from sources and sensors." Add "both internal and external to the organization" and add definition "Risk Register"	2.9.2	Section 5.5 and 5.5.2 – editorial change, and CSF alignment.
04/30/2020	Add "Continuously monitor…" and add ", which includes:" and list "a. – d."	2.9.2	Section 5.5.5 – editorial change, and CSF alignment.
04/30/2020	Renumber Figure to 4/relocate reference to bottom	2.9.2	Section 5.10.1 – editorial change.
04/30/2020	Add "principle of lease function…"	2.9.2	Section 5.11.7 – editorial change, and CSF alignment.
04/30/2020	Rebrand section title to "Domain Name System Management"	2.9.2	Section 5.13 – editorial change.
04/30/2020	Rebrand section title to "Information Protection Management." Strike space in 1st paragraph, strike "of this manual", and add "program's protection processes will:". Add "To improve the protection processes, ensure…" and add "information protection/"	2.9.2	Section 5.14 – editorial change, and CSF alignment.
04/30/2020	Add "or protocols" and "or protected" and strike "Information & ePrivacy"	2.9.2	Section 5.14.5 – editorial change, and CSF alignment.
07/08/2020	Update section to incorporate data privacy framework (PF) components	2.9.3	Section 3.1, 3.3, and 5 – editorial changes, CSF and PF alignment.
08/07/2020	Align with NIST Privacy Framework and NIST CSF Framework and provide IT	2.9.3	Section 6 – editorial change, CSF and PF alignment;

	Handbook portion of USG data privacy program.		
08/07/2020	Performed a "harmful language" review.	2.9.3	Entire Document
09/16/2020	Added Georgia Cybersecurity Board requirements for reporting.	2.9.3	Section 5.3 – addition.

Information, in all forms, is a strategic asset to USG organizations and the USG as a system. It is the responsibility of the Vice Chancellor and Chief Information Officer (USG CIO), under Board of Regents (BOR) Policy 10.2 to establish, "the procedures and guidelines under which the acquisition, development, planning, design, construction/renovation, management and operation of USG technology facilities and systems shall be accomplished." Part of this responsibility is to prepare a manual of IT standards and best practices to be followed by USG organizations.

The hierarchy of USG IT policies and procedures is as follows:

1. *Board of Regents Policy Manual* is the top-level set of Board of Regents (BOR) approved policies from which all lower-level USG documents flow. Section 7.11 describes the Risk Management Policy including objectives and oversight. Compliance Policy is covered in Section 7.12 and defines applicability and implementation. Section 10, Information, Records & Publications, covers aspects of USG information technology including general policy, IT project authorization and cybersecurity.
2. The BOR *Business Procedures Manual* (BPM) has in recent years become important for IT and cybersecurity familiarization. Specifically, Section 12 describes Data Governance and Management which addresses governance, audit, cybersecurity and data privacy requirements.
3. USG *IT Handbook* is a standard containing IT and cybersecurity requirements and recommendations that establish acceptable IT and cybersecurity practices for USG organizations.
4. USG organization policies and processes establishes the detailed practices and tools used by USG organizations to meet the standards set forth in the USG *IT Handbook*.
5. Program or project policies and processes establish the detailed practices and tools to implement the standards set forth in the USG *IT Handbook* or USG organizations' policies and processes.

This USG *IT Handbook* serves several purposes. Primarily, it sets forth the essential standard components USG organizations must follow to meet statutory or regulatory requirements of the federal government, state government, BOR policy and IT and cybersecurity standard practices. Secondly, it is designed to provide new IT and cybersecurity professionals within the USG the necessary information and tools to perform effectively. Finally, it serves as a useful reference document for seasoned professionals at USG organizations who need to remain current with changes in federal and state law and BOR policy.

This document provides direct links to reference information identifying the underlying source of some procedures and to provide broader understanding of the basis for others. Thus, the USG *IT Handbook*, while focusing on USG standards, also offers ready access to important policies, statutes and regulations that will aid the IT and cybersecurity professional in his or her daily performance of duties.

Governance, Compliance and Authority

The USG CIO fully supports this standard. USG Cybersecurity is responsible for managing and administering this standard for all USG organizations. Authority to create this standard originates from section 10 of the *BOR Policy Manual*.

This document is subject to periodic review and revision. The current online version supersedes all previous versions.

Scope

This standard applies to USG organizations.

Implementation and Applicability

A system wide or enterprise approach to IT operations and cybersecurity operations shall be adopted by USG organizations. It is expected that cybersecurity compliance will be embedded into each organization's cybersecurity plan. All compliance efforts will be focused on supporting the organization's objectives. Therefore, USG organizations' executive leaders or designee shall determine the direction and develop the organization's cybersecurity plans, standards and guidelines to:

- Identify and document applicable policies, procedures, laws and regulations;
- Establish the roles and responsibilities necessary to manage an information technology and cybersecurity program;
- Appoint skilled personnel into the identified roles;
- Communicate the importance of polices, standards and guidelines as defined in *BOR Policy Manual*, Section 10; and,
- Submit annually the Cybersecurity Program Review and required reporting as defined by *BOR Policy Manual*, Section 10.4.

Companion Documentation

USG Cybersecurity shall develop and publish companion documentation to enhance the USG *IT Handbook* or provide supporting documentation (e.g., templates, risk registers, system risk assessment tools and project tracking tools) to aid in the development of organizational plans and procedures.

Exceptions

Exceptions to any standard, procedure or guideline set forth in the USG *IT Handbook* shall be at the discretion of, and approved in writing by, the USG CIO or the USG Chief Information Security Officer (USG CISO). In each case, USG organizations or vendors must complete and submit an Exception Request Form (Access to the document is restricted to authorized users only) including the need, scope and extent of the exception, safeguards to be implemented to mitigate risks, specific timeframe, requesting organization and management approval. Contact USG Cybersecurity to obtain more information. Denials of requests for exceptions may be appealed.

Definitions

The following definitions of **Shall**, **Will**, **Must**, **May**, **May Not**, and **Should** are used throughout this USG *IT Handbook*.

1. **Shall**, **Will** and **Must** indicate a legal, regulatory, standard or policy requirement. **Shall** and **Will** are used for persons and organizations. **Must** is used for inanimate objects.
2. **May** indicates an option.
3. **May Not** indicates a prohibition.
4. **Should** indicates a recommendation that, in the absence of an alternative providing equal or better protection from risk, is an acceptable approach to achieve a requirement.

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Section 1. Information Technology (IT) Governance

Section Control

Table 1.1: Revision History

Date	Name	Description of Change
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.
11/17/2016	Clarification of information system owner	Section 1.3.2 – added clarification of information system owner roles and responsibilities within the framework of people, process and technology.
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05/15/2017	Revised section for consistency in format and content.	Section 1.3 – deleted a misplaced word.

Table 1.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date
1.1	Service Administration	July 2015	July 2015	December 2015

Introduction

Achieving strategic alignment between the Information Technology (IT) organizations and the enterprises they serve is an important goal for any organization. This alignment requires a process to assure that investments in IT projects and assets are directed toward achieving the organization's strategic vision, goals and objectives. Without alignment of purpose, intent and actions, the IT organization will not contribute purposefully to the overall mission.

Alignment is achieved through a variety of means, but two essential elements that should be formally prescribed are:

- A well-defined and understood role for the organization's Chief Information Officer (CIO).
- A well-defined and adopted working relationship between the CIO and the other Chief Officers (CxOs) also known as a governance structure.

Section 1.1. Chief Information Officer Role and Responsibilities

A CIO in a higher education institution must be operationally sound and a skilled leader of staff, peers and causes. The CIO position must act as a fundamental partner with the other CxOs of the organization and must anticipate the organization's needs. Therefore, this position must be a contributing member of the leadership team; understand the organization's mission, purpose and intent; and provide a sound operating platform on which to launch new initiatives. The CIO may not be the subject matter expert on all things that the organization requires Information Technology (IT) to support, improve or launch. He or she will not be the perfect combination of all who rely on him or her: a professor, a researcher, an accountant, a librarian, a scientist.

While the requirement for a strong leader is paramount, projects should not be led solely by the CIO. The CIO must be an advisor, a consultant and a co-leader of projects to achieve strategies but is not the sole person in the organization that should be advocating for an implementation of an IT solution. The implementation of any new IT solution must be sought to create, resolve or improve some business, academic or research function, and therefore should be led by the CxO responsible for that function.

While a well-defined and adopted working relationship between the CIO and other CxOs is paramount, the CIO must also have similar business relationships with key institution non-CxO-level management, such as human resources, legal counsel, audit and risk management, accreditation, compliance, campus police, deans, etc., as well as local authorities. For example, the CIO should be included directly in conversations and assessments of legal acts that impact IT operations such as the Health Insurance Portability and Accountability Act of 1996 (HIPAA), the Electronic Communications Privacy Act (ECPA), the Family Education Rights and Privacy Act (FERPA) and other similar federal and state legislation.

Section 1.2. Governance Structure

Information Technology (IT) can be leveraged to advance the organization and to enable achievement of business goals. To best advance the organization's priorities, there is the need for greater accountability for decision making around the use of IT in the best interest of all stakeholders.

Effective IT governance is the prescribed relationship between the IT organization and its customers through established operational processes of communication and decision making. A governance structure should be established and function appropriately to foster partnership of business and IT leadership. Typically, an effective IT governance framework includes defining organizational structures (e.g., reporting relationships, advisory committees, etc.), processes, leadership, roles, responsibilities and other attributes to ensure that the organization's IT investments are aligned and delivered in accordance with established strategies and objectives.

Enterprise governance and IT governance should be strategically linked, leveraging technology and organizational resources to increase the competitive advantage of the enterprise.

1.2.1 Shared Governance Framework

The IT governance process should be defined, established and aligned with the overall organization governance and control environment. The framework is a shared governance model and should be founded on service management principles where all stakeholders (other CxOs) are identified and participate actively in processes that prioritize how IT resources are allocated for the organization's maximum benefit, and these stakeholders are collectively engaged in the shared responsibility of assuring that resources are aligned with needs.

Without the collective participation and interchange among the stakeholders about the priorities for the IT organization, customers relinquish control to the CIO by putting him or her in the position of making decisions on the priorities of where to assign resources. When resources are plenty and there is no competition among customers with regard to what gets done first, this might not be a problem. However, when demand outpaces supply, the collective group needs to assist with the prioritization across the institution.

1.2.2 Strategic Alignment

The framework will lead to the collective understanding of how IT resources are deployed as well as the potential opportunities for their use. This information can then be used to determine the best use of these resources for the maximum institutional benefit. Priorities should be informed by not only the

operational requisites, but also by organizational strategic plan and goals using a disciplined approach to portfolio, program and project management. The organization must have a methodology and set of practices to demonstrate prioritization of IT services and initiatives.

Section 1.3. IT Organization, Roles, Responsibilities and Processes

The IT organization must be defined by considering the requirements of the primary organization it serves. Its placement within the overall structure should be considered based on the scope and breadth of services it is expected to provide to the organization. The organization should have a reporting structure that incorporates IT into planning and decision making at the leadership level.

The CIO should be a regular contributing member of the executive leadership team in order to participate in relevant decision processes of the stakeholder groups in order to adequately anticipate technology resource needs, offer advice on technology enabled opportunities and respond to emergent requirements. Decisions about staffing levels, skills, functions, accountability, authority and supervision should be derived from these expectations.

1.3.1 Organization

Organizational Placement of the IT Function

The CIO should be placed in the overall organizational structure based on the scope and breadth of services the IT unit is expected to provide to the organization. In many complex organizations, a matrix reporting relationship among the most senior executive staff is not unusual. In smaller, less complex organizations, such hierarchies may not be necessary and a direct reporting relationship to the CEO is feasible. The important point is that it should not matter to whom the CIO reports, as long as the position is adequately incorporated into the organization's leadership team decision-making processes.

It is also important to distinguish between the role of the CIO and the most senior centralized line management function of the centralized IT function (VP, Director, etc.) Regardless of whether the IT functions are managed in a highly centralized or decentralized manner, the role of the CIO must be recognized as that of the Chief Information (technology) Officer. The responsibilities and authority of this role should span any direct reporting structures and cross over organizational boundaries to encompass any and all IT functions of the organization. This is so that the CIO is responsible for the organization's total IT footprint as it relates to policy, compliance, security and risk management of IT-enabled functions, regardless of any decentralized line management of departmental IT functions.

Management Structure

Decisions about the appropriate balance of a centralized vs. decentralized resource pool of staffing and budget resources is directly related to the expectations of the organization. The centralized IT organization structure must be defined by considering the requirements of the primary organization it serves.

IT Continuous Improvement Expectations

As with all administrative and educational support functions in higher education organizations, the Commission on Colleges expects units to engage in systematic planning and assessment processes to assure institutional effectiveness (See SACS Core Requirement 3.3). Processes for planning, assessing and improving services must be documented. IT processes and services should be periodically and systematically assessed for effectiveness. Opportunities for improvement should be incorporated into the planning process and implemented over time.

1.3.2 IT System Ownership Roles and Responsibilities

Definition of Information System

Information system is a discrete set of information resources organized for the collection, processing, maintenance, use, sharing, dissemination, or disposition of information. (FIPS 199&200; SP 800-18; SP 800-37; SP 800-53A; SP 800-60 and 44 U.S.C Section 3502.)

Selecting, implementing, and maintaining an appropriate set of security controls to adequately protect the information systems, products, or services employed by USG organizations requires strong collaboration between three primary audiences: information system owners, operation and cybersecurity managers, and information system developers. For responsible operation, it is critical each audience understands how evolving mission and business requirements, operational environment and system uses impact system operations.

Information System Ownership Roles

At the highest level, every IT application and service should have an identified information system owner. This individual should be the senior person in the organization responsible for the application or service and ensures that the application or services renders value to the organization. For most infrastructure services such as the local area network, the CIO is that information system owner. For most business and educational support systems, the CxO, vice chancellor, or executive director to whom the function reports are normally the information system owner. However, the designation is dependent upon the organizational structure.

Information system owners may appoint a functionally responsible designee as the primary liaison between the IT service unit and the customers served by the system or services provided by IT. For example, the VP of Enrollment Management who is the information system owner for the student information system might appoint the registrar as the day-to-day liaison between the customers of the enrollment management system and IT for support and service provisioning. Within the USO, the vice chancellor of academic affairs for example may be the designated system owner of GeorgiaBEST. Information system owners serve as the focal point for the information systems, products, or services. In his or her capacity, the information system owner serves as both an owner and as the central point of contact between the system authorization process and subsystem owners. Examples of subsystems are application, networking, servers or workstations, owners or stewards of information stored, processed or transmitted by the system and owners of the mission and business functions supported by the system. Some organizations may refer to information system owners as program managers or business owners.

Information System Ownership Responsibilities

The information system owner is responsible for addressing the operational interests from the framework of people, process and technology. For example:

- People
    - The information system owner determines and communicates to IT the access rights and privileges to the information system for the purpose of ensuring compliance with regulatory and security requirements.
    - The information system owner ensures system users and support personnel receive requisite cybersecurity training.
- Process

- In coordination with the Information Security Officer (ISO), the information system owner provides information and support for creating and maintaining the system security plan addressing the people, process and technology elements, and ensuring the system is deployed and operated in accordance with the agreed-upon security controls.
- In coordination with the data owner or data steward, the information system owner is also responsible for maintaining a documented process describing access entitlements for the purpose of ensuring compliance with regulatory and cybersecurity requirements.

- Technology
  - Establish through contract, statement of work, memorandum of understanding, or service level agreement, and the technology responsibilities of IT in support of the information systems, products or services.
  - Provide liaison between the IT service unit and the customers served by the information systems, products or services provided by IT.

Figure 1: People, Process and Technology Framework

In support of the information system owner, ISOs are responsible for managing the repository of inventoried information systems, products or services; the information systems security plans associated with each information system identified, and any additional documentation collected in support of the information system security plans.

Attestation and Assessment – Based on guidance from the USG *IT Handbook* and the *BPM*, the information system owner informs IT and cybersecurity of the need to conduct user access and entitlement review as defined by process, ensures that the necessary resources are available for the effort, and provides the required system access, information and documentation to the ISO or audit authority. The information system owner in return shall receive the security assessment or audit results and guidance to address any discrepancies should there be any.

Section 1.4 Strategic Planning

Each USG organization should have an IT strategic plan that is integrated with the organization's strategic plan. The effective management of information technology services should include a strategic

planning component to direct IT resources across the organization in line with the business strategy and priorities. This direction should be inclusive of all IT resources, regardless of the departmental structure. Within the planning effort, the CIO and other CxOs of the organization assume shared responsibility for ensuring that IT resources are expended toward a catalog of services and projects that provide the maximum benefit to the organization. Strategic planning efforts and discussions also improve key stakeholders' understanding of IT opportunities and limitations, provide opportunities to assess current performance, identify resource requirements and clarify the level of investment required.

IT strategic planning should be a documented process, which is considered in business goal setting and results in discernible business value through investments in IT. Risk and value-added considerations should be periodically updated in the IT strategic planning process. Realistic long-range IT plans should be developed and regularly updated to reflect changing technology and business developments. Benchmarking against well-understood and reliable industry norms should take place and be integrated with the strategy formulation process. The strategic plan should include how new technology developments can drive the creation of new business capabilities and improve the competitive advantage of the organization.

1.4.1 Technology Direction Planning

Existing and emerging technologies should be analyzed to determine which technological direction is appropriate for IT strategy and business systems architecture. The planning should include identification of which technologies have the potential to create business opportunities and should address systems architecture, technological direction, migration strategies and contingency aspects of infrastructure components.

1.4.2 Standards and Quality Practices

Standards, procedures and practices for key IT processes should be identified and maintained. Industry best practices should be used for reference when improving and tailoring the organization's quality practices.

1.4.3 Development and Acquisition Standards

Standards for all development and acquisition that follow the life cycle of the ultimate deliverable should be adopted and maintained. This should include sign-off by the CIO and Executive Sponsor, or their designees, at key milestones based on agreed-upon criteria.

Section 1.5 Resource Management

The CIO must establish a process to periodically review current performance and capacity of IT resources, as well as forecast future needs based on workload, storage and contingency requirements. This process should highlight the adequacy, or lack, of the resources needed to support the organization.

As a goal, performance and capacity plans should be fully synchronized with the business demand forecasts; for example, enrollment growth or a significant change in business process that results in the peak demand for a resource. The IT infrastructure and business demand should be subject to regular reviews to ensure that optimum capacity is achieved at the lowest possible cost.

Trend analysis should be performed to show imminent performance problems caused by increased business volumes in order to enable planning and avoid unexpected issues. The CIO should adjust the planning for performance and capacity following analysis of these measures.

Section 2. Project and Service Administration

Section Control

Table 2.1: Revision History

Date	Name	Description of Change
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.

Table 2.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date

Introduction

IT service can be defined as a set of related functions provided by IT systems, products or services in support of one or more business areas, which in turn may be made up of software, hardware and communications facilities perceived by the customer as a coherent and self-contained entity. An IT service may range from access to a single application, such as a general ledger system, to a complex set of facilities including many applications, as well as office automation that might be spread across a number of hardware and software platforms. Effective communication between IT management and their customers regarding services required is enabled by a documented definition of, and agreement on, IT services and service levels. This process also includes monitoring and timely reporting to stakeholders on service level accomplishments. This process enables alignment between IT services and the related business requirements.

A project, by definition, is a temporary activity with a starting date, specific goals and conditions, defined responsibilities, a budget, a plan, a fixed end date and multiple parties involved. Clear and accurate definition of a project is one of the most important actions you can take to ensure the project's success. The clearer the target the more likely you are to hit it. Defining a project is a process of selection and reduction of the ideas and perspectives of those involved into a set of clearly defined objectives, key success criteria and evaluated risks. A project management framework will help maintain the organization's portfolio of projects that support its IT-enabled programs by identifying, defining, evaluating, prioritizing, selecting, initiating, managing and controlling these projects in order to ensure that the projects support the organization's objectives. The framework will help coordinate the activities and interdependencies of multiple projects, manage the contribution of all the projects within the organization to expected outcomes and resolve resource requirements and conflicts.

A documented definition of, and agreement on, required IT services and service levels must be established between IT management and organization customers. A framework for the management of all IT projects must be established to ensure the correct prioritization and coordination of all projects.

Section 2.1. Service Administration

A documented definition of, and agreement on, required IT services and service levels must be established between IT management and organization customers. This process should include monitoring and timely reporting to stakeholders on service level accomplishments. Portfolio

management includes the demand and resource allocation across all services, programs and projects; including those resources to support internal services and projects. Programs and projects exist either to create a new service; to expand, enhance or improve (e.g., to reduce risk or cost per planning unit or to add features); or to retire a service. Service levels must be periodically re-evaluated to ensure alignment of IT and business objectives. All service level management processes should be subject to continuous improvement. Customer satisfaction levels should be regularly monitored and managed. Expected service levels must reflect strategic goals of the organization and be evaluated against industry norms. IT management must have the resources and accountability afforded by the institution to meet service level targets. Senior management should monitor performance metrics as part of a continuous improvement process.

2.1.1 Service Level Management Framework

A framework that provides a formalized service level management process between customers and the service provider must be defined. This framework should maintain continuous alignment with business requirements and priorities and facilitate common understanding. The framework should also define the organizational structure for service level management; covering the roles, tasks and responsibilities of internal and external service providers and customers. The framework should include processes for creating service requirements, service definitions and funding sources, as well as documentation such as Service Level Agreements (SLAs) and Operating Level Agreements (OLAs). Specified service level performance criteria should be continuously monitored and reports on the achievements of service levels should be provided in a format that is meaningful to stakeholders. The monitoring statistics should be analyzed and acted upon to identify positive and negative trends for individual and overall services provided. SLAs and their associated contracts, if applicable, with internal and external service providers should be regularly reviewed to ensure that they are effective, up-to-date and that changes in requirements have been taken into account.

2.1.2 Definition of IT Services

Definitions of IT services should be based on service characteristics and business requirements. These definitions should be organized and stored centrally.

2.1.3 Service Support

Service Support must focus on the IT end user, ensuring that they have access to the appropriate IT services to perform their business functions. Effective service support management requires the identification and classification, root cause analysis and resolution of issues. This process also includes the formulation of recommendations for improvement, maintenance of issue records and review of the status of corrective actions. This process should include setting up a service desk or service request function with registration, issue escalation, trend and root cause analysis and resolution. In addition, root causes of issues, such as poor user training, can be identified and addressed through effective reporting.

Service Desk/Service Request Function

A service desk or service request function, which is the end user interface with IT, should be established to register, communicate, analyze and route all customer service requests, reported issues and information requests. It should be the single point-of-contact for all end user issues. Its first function should be to create a ticket in an issue tracking system that will allow logging and tracking of service support requests. Issues must be classified according to type, business, and service priority. There must be monitoring, and escalation procedures based on agreed-upon service levels relative to the

appropriate SLA that allow classification and prioritization of any service support requests (e.g., an incident, problem, service request, information request, etc.).

Once an issue has been logged, an attempt should be made to solve the issue at this level. If the issue cannot be resolved at this level, then it should be passed to a second or third level within the issue tracking system and routed to the appropriate personnel for analysis and resolution. The service desk or service request function should work closely with related processes such as change management, release management and configuration management. Customers must be kept informed of the status of their requests. The function must also include a way to measure the end user's satisfaction with the quality of the service support and IT services. As a goal, the service desk and service request function should be established and well organized and take on a customer service orientation by being knowledgeable, customer-focused and helpful. Advice should be consistent, and incidents resolved quickly within a structured escalation process. Extensive, comprehensive FAQs should be an integral part of the knowledge base, with tools in place to enable a user to self-diagnose and resolve issues. Metrics must be systematically measured and reported. Management should use an integrated tool for performance statistics of the service desk and service request function. Processes should be refined to the level of best industry practices, based on the results of analyzing performance indicators, continuous improvement and benchmarking with other organizations.

Clarification of Issues

Processes to classify issues that have been identified and reported by end users must be implemented in order to determine category, impact, urgency and priority. Issues should be identified as incidents or problems, and be categorized into related groups, such as hardware, software, etc., as appropriate. These groups may match the organizational responsibilities of the end user and customer base and should be the basis for allocating problems to the IT support staff. Note that incident management differs from problem management. The purpose of incident management is to return the service to normal level as soon as possible with the smallest possible business impact. The principal purpose of problem management is to find and resolve the root cause of a problem and prevent further incidents.

Incident Management

An incident is any event that is not part of the standard operation of the service and causes, or may cause, an interruption or a reduction of the quality of the service. Incident Management aims to restore normal service operation as quickly as possible and minimize the adverse effect on business operations. Normal service operation is defined here as service operation within SLA limits.

Problem Management

A problem is a condition often identified as a result of multiple incidents that exhibit common symptoms. Problems can also be identified from a single significant incident, indicative of a single error, for which the cause is unknown. Problem Management aims to resolve the root causes of incidents to minimize the adverse impact of incidents and problems and to prevent recurrence of incidents. The objective of problem management is to reduce the number and severity of incidents and report findings in documentation that is available for the first-line and second-line of the service desk and service request function.

Tracking of Issues

The issue management process must provide for adequate audit trail capabilities that allow for tracking, analyzing and determining the root cause of all reported issues considering:

- All outstanding issues.

- All associated configuration items.
- Known and suspected issues and errors.
- Tracking of issue trends.

The process should be able to identify and initiate sustainable solutions to reported issues that address the root cause, raising change requests via the established change management process. Throughout the resolution process, regular reports should be made on the progress of resolving reported issues. The continuing impact of reported issues on end user services and against established SLAs should also be monitored.

In the event that this impact becomes severe or reaches established SLA thresholds, the issue management process must escalate the problem.

Escalation of Issues

Service desk and service request function procedures must be established so that issues that cannot be resolved immediately are appropriately escalated according to the guidelines established in the SLAs. Workarounds should be provided if appropriate. These procedures should ensure that issue ownership and life cycle monitoring remain with the service desk for all user issues, regardless of which IT group is working on the resolutions.

Resolution and Closure of Issues

Procedures must be put in place to close issues either after confirmation of successful resolution of the issue or after agreement on how to alternatively handle the issue. When an issue has been resolved, these procedures should ensure that the service desk records the resolution steps and confirms that the customer agrees with the action taken. Unresolved issues should be recorded and reported to provide information for the timely monitoring and clearance of such issues.

Reporting and Analysis

The issue management system must be able to produce reports of service desk activity so that management can measure service performance and service response times, as well as identify trends or recurring issues so that service can be continually improved.

Assessment

An effective service support process requires well-defined monitoring procedures, including self-assessments and third-party reviews. These procedures should allow continuous monitoring and benchmarking to improve the customer service environment and framework. Remedial actions arising from these assessments and reviews should be identified, initiated, implemented and tracked.

Service Metrics

The need for metrics is driven by the desire to deliver and demonstrate high-quality service. The type of metrics collected is driven by the business and IT requirements for service reporting and Key Performance Indicators (KPIs). Ultimately, metrics collection and aggregation provide input into key business decisions such as how to equitably allocate costs. Service metrics represent the KPIs of an IT service. They should be based on measurable attributes of the associated process, network, system, application, server or storage components that support the service. For example, the availability of a service may be dependent on the combined availability of various underlying components as well as a minimum volume of transactions processed by an application.

The basic requirement of any collected metric is that it be derived from performance and availability attributes of the specified target. Extended metrics will rely on more sophisticated attributes related to

resource usage, transactions and process efficiency. Other metrics specify indicators that are more representative of business processes and operations. The technical infrastructure required to measure and collect metric data varies widely depending on the characteristics of the metrics and the availability of supporting data. There are dependencies on how the measured resource is instrumented and how the information can be collected. The complexity, effort and cost-of-collection required to maintain such an infrastructure in a dynamic environment is another important element. Use of standards, best practices and effective integration are important considerations for successful and maintainable IT service metering. To reduce the overhead associated with common data collection implementations that use proprietary agents, IT service metrics should be based on agents with mechanisms supplied by applications and operating systems vendors or with agents based on standards. This nonproprietary approach helps minimize support overhead as well as speed deployment as it reduces much of the upfront planning and configuration efforts.

Service Benchmarking

IT service benchmarking defines a strategic management method that compares the performance of one IT service provider with the IT services of other institutions or organizations. Performance means both efficiency and effectiveness criteria. The comparison can be carried out within one organization, but also on an enterprise basis. The objective of IT benchmarking is to identify optimization potentials and extrapolate recommendations on how performance could be improved. The benchmark is the so-called best practice. This means that the organization or its processes provided by the IT service in question largely meets the defined efficiency and effectiveness criteria of the best.

A typical benchmarking procedure may include, but is not limited to:

- Identifying efficiency and effectiveness criteria that serve as comparative factors and asking how IT services within an operative process should be changing.
- Finding internal and external benchmarking partners or donors in order to set up a comparative platform, with each partner being prepared to share the necessary information.
- Setting up a key data system by taking the comparability into account, with a clear and definition- based boundary in order to ensure a fair comparative platform.
- Analyzing the database and identifying the best-practice participants and defining the target benchmark.
- Identifying optimization potentials and guidelines by comparison with the best practice.
- Calculating theoretical savings potentials.
- Extrapolating objectives in order to close the gap to best practice.
- Setting up an implementation plan.
- Controlling results and improvements.

Section 2.2. Project Administration

A framework for the management of all IT projects must be established to ensure the correct prioritization and coordination according to priorities established by the Board of Regents, the Chancellor, institution presidents and organization directors. This framework may include, but is not limited to:

1. Business case.

2. Project scope to include deliverables and requirements.
3. Sponsor engagement and appropriate sign-off.
4. Schedule, preferably including resources.
5. Method for tracking issues, risks and decisions.
6. Change management approach.
7. Risk management approach.
8. Testing and implementation.
9. Post-implementation review.

The project management framework should define the scope and boundaries of managing projects, as well as the method to be adopted and applied to each project undertaken. This approach:

1. Insures project risk management and value-added delivery to the organization.
2. Reduces the risk of unexpected costs and project cancellation.
3. Improves communications to, and involvement of, stakeholders and end users.
4. Ensures the value and quality of project deliverables.
5. Maximizes their contribution to IT-enabled programs.

A proven, full life cycle project administration methodology[1] must be implemented, enforced and integrated into the culture of the entire organization. An ongoing initiative to identify and institutionalize best project management practices should be implemented. An IT strategy for sourcing development and operational projects should also be defined and implemented.

2.2.1 Initiation

A project management approach should be established corresponding with the size, complexity and regulatory requirements of each project. The project governance structure should include the roles, responsibilities and accountabilities of the various personnel involved in the project and the mechanisms through which they can meet those responsibilities. These personnel may include, but are not limited to:

1. Program or executive sponsors
2. Project sponsors
3. Project leads
4. IT steering committee
5. Project manager
6. Project management organization
7. Stakeholders
8. End users

All IT projects must have sponsors with sufficient authority to own the execution of the project within the overall organization strategic plan. These sponsors should exist outside of the IT department. Stakeholders and end users should be engaged in the work of the program, including projects, to ensure success and collaboration. The project manager and project management organization should work with the appropriate personnel to develop the appropriate documentation for the project during initiation. This documentation may include several types of documents, such as a business case, a project scope

[1] Reference: Institute, P.M. (2008). A guide to the project management body of knowledge. (4th Ed.). Newton Square: Project Management Inst.

and other documents that define key aspects of the project such as goals, benefits, risks, resources required, sponsor, success criteria and metrics, etc. Templates for a business case, project scope, change management plan and risk management plan are shown in Section 2.3.

2.2.2 Planning

A formal, approved integrated project plan should be established to guide project execution throughout the life of the project. Changes to this plan should be approved in line with the IT governance framework. Planning should include documentation of program and project interdependencies so as to minimize risk to all projects undertaken within a program or service. The organization and project team should develop the project plan, including the project schedule, change management and communications plans, and the way in which risks, decisions and issues will be tracked and managed during the project life cycle. The change management plan should establish the mechanism by which all changes to the project baseline, including cost, schedule, scope and quality will be appropriately reviewed, approved and incorporated. Project risks should be eliminated or minimized through a systematic process of planning, identifying, analyzing, monitoring, controlling and responding to the areas or events that have the potential to cause unwanted change. Risks should be identified and centrally recorded.

2.2.3 Execution

During the execution phase, the project team should execute the project plan in compliance with the project scope. Approval of the project should be based on IT governance decisions. Approval of subsequent phases should be based on review and acceptance of the deliverables from the previous phase. In the event of overlapping project phases, an approval point should be established by program and project sponsors to authorize project progression.

2.2.4 Monitoring and Controlling

The project timeline, scope and budget must be monitored and controlled per the project and change management plans during the controlling phase of the project. Project performance should be measured against key project performance scope, schedule, quality, cost and risk criteria. Deviations from the project plan should be identified and assessed for impact on the project. Results should be reported to key stakeholders. Remedial action should be recommended, implemented and monitored in-line with the program and project governance framework.

2.2.5 Closing

A project should be closed when the project sponsor agrees that the project scope has been satisfied. At the end of each project, the project stakeholders must ascertain whether the project has delivered the planned results and benefits. Any outstanding action items that are required to achieve the planned results of the project should be identified, communicated and disposed of as needed. Project documentation should be archived, and lessons learned for use on future programs and projects should be identified and documented.

Section 2.3 Project Documentation Templates

The following templates are provided as examples that could be used as a starting point for developing project documentation. Templates already in place at your institution are acceptable as well.

2.3.1 Project Scope

The project scope document must include project goals and deliverables.

Table 2.3: Project Goals and Deliverables

Project Name		**Date**	
Project Sponsor		IT Project Sponsor	
Program Manager		Project Manager	
Executive Summary	High level description of the project, linkages to strategic goals, and justification.		
Project Description	Define who, what, when and why of the project.		
Project Goals and Objectives	These may come from the business case but should be refined if additional information is available.		
Project Scope	Specific features, functions, and regulations that must be complied with for the project to be deemed a success. Specify those features and functions that are out of scope for this project.		
Project Deliverables	What will be produced as a result of this project?		
Assumptions and Constraints/Boundaries	Assumptions are conditions that are assumed to be true or to exist and will impact the success of the project. Constraints and boundaries are limits to the project deliverables and sphere of influence.		
Project Dependencies	Conditions that must exist or be met in order for the project to move forward and successfully meet its objectives.		

Signature

Project Sponsor Date

2.3.2 Change Management Plan

Purpose

The purpose of a Change Management Plan is to set out the methods and procedures to handle all changes affecting this project's:

- Resources, costs, and timing as set out in the project plan.
- Deliverable, product and process quality.

A change management plan exists to provide a formal process for:

- Submission and receipt of change requests.
- Review and logging of change requests.
- Determination of the feasibility of change requests.
- Approval of change requests.
- Implementation and closure of change requests.

All project changes should enter the Change Management cycle in the format of a Change Request. Legitimate changes to the product/project may stem from:

- Responses to problems internal to the project.
- Externally imposed requirements.
- Change in business requirements or strategy.
- Proactive changes to improve performance or benefit.

A Change Management Plan should employ an industry standard cyclical approach to:

- Ensure standardized methods, processes and procedures are used for all project changes;
- Facilitate efficient and prompt handling of all changes; and,

- Maintain a proper balance between the benefits of change and the detrimental impact of change on the Project Plan.

Table 2.4: Change Management Roles and Responsibilities

Role	Responsibilities
Project manager	• Develop change management plan • Take change requests to change review board • Monitor change requests • Log change requests
Project team	• Evaluate change requests and estimate impact to scope, schedule, and budget
Change Review Board	• Evaluate change requests, make decisions as to whether they are accepted, rejected, or deferred
Sponsors (Project/IT)	• Approve change management plan

Table 2.5: Change Review Board

Role	Name
Project manager	
Change Review Board leader	
Technical Review Board members	
Change Review Board members	

Table 2.6: Change Control Documents

Document	Function
Change request	• Documents desired changes as requested or discovered • Documents what the change is • Documents the rationale and benefit of the change • Documents the risk of not changing
Change/Decision log	• Summarizes change requests received • Tracks status of change requests submitted • Documents change decisions made, when, and by whom
Type of Change	**Control Document**
Scope	• Scope statement • WBS (work breakdown structure) • Product requirements • Scope management plan
Time	• Schedule baseline • Schedule • Milestones • Schedule management plan
Costs	• Cost baseline • Budget • Cost management plan
Risk	• Risk management matrix • Risk management plan
Communications	• Communication plan • Stakeholder analysis
Resources	• Roles and responsibilities • Resources/staffing allocations

Change Management Procedures

A Change Management Cycle may be comprised of the following events:

- Raise and record Change Request (CR)
- Assess impact and value of change
- Present assessment results and obtain approval
- Implement change and re-baseline plan
- Close CR

Raise and Record Change Request

The change initiator prepares a Change Request and communicates the details of the change to the Project Manager. The change initiator should complete and store the Request Section. Information below reflects information typically requested on a change request form.

Request Section

Completed and sent to the project manager:

Table 2.7:

Requester Name:	
Requester Contact Information:	
Change Request Date:	
Priority:	
Summary of Change:	
Description of Change:	
Rational for Change:	
Benefit of Change:	
Date Required for Approval	

Evaluation Section

Completed and sent to the project manager and project sponsors:

Table 2.8:

Change Request ID:	
Change Request Assigned Date:	
Implication for Project:	
Risk:	
Resource Impact Statement:	
Estimated Impact on Effort:	
Estimated Impact on Cost:	
Estimated Impact on Schedule:	
Decision:	
Decision Detail:	
Decision Maker:	
Decision Date:	

Details of each change request should be recorded in the Change Log.

Assess Impact and Value of Change

The Change Request is escalated to the project core team for technical evaluation. All change requests will be reviewed at team meetings or on an as needed basis. The CR is assessed for its impact on the project plan (resources, costs and schedule) by the Project Manager and the project core team. A brief Business Case is completed with the assistance of the project core team. Present Assessment Results and Obtain Approval. The results of the CR assessment are presented to the Change Control Review Board – Steering Committee, project sponsor, or other authority. Based on the value judgment passed on the CR, it is accepted or rejected. If accepted, sign-off represents a new agreement on the updated Project Plan. The new timeline, scope, costs and schedule should be baselined.

Implement Change and Re-baseline Plan

Work should not begin on the CR until an approval has been given. At that time, the new work required by the change is undertaken and completed according to the new Project Plan.

Close Change Request

Following successful implementation and testing of the CR work, a closing entry is made in the Change Management Log.

Project Archives

This section defines where change management documentation will be stored and archived.

Signatures

The Project Sponsor signs off on the change management plan, giving authority to the team members to record, assess, track and approve or reject change requests.

2.3.3 Project Risk Management Plan

A Project Risk Management Plan is a controlling document that incorporates the goals, strategies and methods for performing risk management on a project. The Project Risk Management Plan describes all aspects of the risk identification, impact analysis and control processes. The purpose of developing such a plan is to determine the approach for performing risk management on the project.

Table 2.9: Roles and Responsibilities

Role	Responsibilities
Project Manager	• Leads the development of a Project Risk Management Plan • Leads the project team through identification of risks • Facilitates risk analysis with Risk Management Team • Monitors and escalates risks to the Risk Management Lead
Project Sponsor	• Approves the Risk Management Plan
Risk Management Lead	• Chairs the Risk Management Team • Approves Risk Scoring • Approves risk disposition strategy
Risk Management Team	• Identifies risks • Conducts risk impact analysis • Develops disposition strategy recommendations
Project Team	• Identifies risks

Risk Identification, Qualification and Quantification

Methods to be used to identify risks for a project may include, but are not limited to, brainstorming sessions, historical review of similar projects and expert interviews. Risks may be identified during daily project activities, in risk assessment meetings or in critical issues sessions. Identified risks should be added to a project risk register. In order to determine the severity of the risks identified by the team, a probability and impact factor may be assigned to each risk. This process allows the risk management team to prioritize risks based upon the effect they may have on the project. In this template, the project manager utilizes a probability-impact matrix to give each risk a score. The chart below defines the criteria used to calculate the Risk Score. There is an assigned numeric value to each risk factor choice. The risk factor values are multiplied together to calculate the Risk Score.

Table 2.10: Risk Score

Probability	Impact	Timeline
75% - 100%	Critical: Project stops or fails	
51% - 74%	Elevated: Major impact to project timeline, costs, or scope	
26% - 50%	Moderate: May have impact to project timeline, costs, or scope	
0% - 25%	Minor: No impact to project timeline, costs, or scope	

Risk Prioritization

Once the risks are assigned a Risk Score, they may be prioritized with the highest Risk Score being given the highest priority.

Risk Response Planning

The risks for a project may be managed and controlled within the constraints of time, scope, and cost. All identified risks may be evaluated in order to determine how they affect the triple constraint. The project manager, with the assistance of the Risk Management team, may determine the best way to respond to each risk to ensure compliance with these constraints. The project manager may lead the Risk Management Team to assign a Risk Disposition for each identified risk. Risk Disposition options include:

- **Mitigate** – Action will be taken to manage the risk so as to minimize the likelihood that it will become a project issue.
- **Transfer** – The risk will be managed outside of the project. The transfer recipient must be identified and accept transfer.
- **Accept** – Risk Management Lead approves no action will be taken for this risk.

Risk Monitoring and Control

It is recommended that risks are monitored during the time the project is exposed to each risk. Risk monitoring must be a continuous process throughout the life of a project. As risk mitigation tasks approach on the project schedule, the project manager should provide the necessary status updates that include the risk status, identification of trigger conditions, and the documentation of the results of the risk response.

Risk Register

The Risk Register is a log of all identified risks, their probability and impact to the project, the category they belong to, mitigation strategy and when the risk will occur. An example of a Project Risk Register is shown below.

Table 2.11: Risk Register

ID	Description	Timeline	Probability	Impact	Score	Risk Exposure	Risk Status	Disposition	Trigger Date	Action Description	Owner	Updated Date
1.												
2.												
3.												

See Risk Identification, above, for recommended approaches to identify risks to be entered into the Risk Register. Based on the identified risks and timeframes in the risk register, each risk may be added to the project plan. At the appropriate time in the plan, prior to when the risk is most likely to occur, the project manager may assign a risk manager to ensure adherence to the agreed upon mitigation strategy. The Risk Register should be maintained in a central location available to the entire project team.

Signature

The Project Sponsor must sign the risk plan, thereby agreeing to the project approach for managing project risks.

Section 3. Information Technology Management

Section Control

Table 3.1: Revision History

Date	Name	Description of Change
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.
05/27/2016	Updated flow chart	Section 3.1 – updated "Recommended Process Flow Chart" added to match content.
05/15/2017	Revised section for consistency in format and content. Changed location of definitions.	Section 3.0 – added definitions from 3.1 and deleted definitions already stated in Introduction section. Section 3.1 – moved definitions to 3.0.
05/15/2017	Revised section for consistency in format and content. Deleted exceptions.	Section 3.2 – deleted exceptions to log management standard.
05/15/2017	Revised section for consistency in format and content. Added accurate titles and deleted standard.	Section 3.3 – provided accurate title for ISO and deleted management of USG continuity of operations planning standard.
02/22/2020	Managing Multifactor Authentication	Section 3.1.2 – Added section to standardize MFA deployment across the USG enterprise.
04/30/2020	Strike "Section"	Section 3.1.2 –Standardized MFA deployment heading.
04/30/2020	Strike "Compliance Dates…" move to "Compliance" table pg. 18	Section 3.1.2 – moved compliance information to table.
04/30/2020	Strike extra space and add "All recovery planning must include lessons learned and update recovery strategies."	Section 3.3.1 – editorial change, and CSF alignment.
04/30/2020	Add ", or dependent" and add bullet 1 "Create, implement, maintain and test backup and recovery plan…."	Section 3.3.1 – editorial change, and CSF alignment.
04/30/2020	Add bullet 2 ", and to provide timely communication." And add bullet 3 "The communication controls ensure that information…."	Section 3.3.1 – editorial change, and CSF alignment.
07/09/2020	Strike "Introduction"	Section 3.1 – editorial change, and CSF alignment.
07/09/2020	Edit and add content "provisioned" and "deprovisioned"	Section 3.1.1 – editorial change, and CSF alignment.
07/09/2020	Add content, "to address both cybersecurity and privacy concerns."	Section 3.1.1.1 – editorial change, and CSF alignment.
07/09/2020	Add sentence to second paragraph.	Section 3.2.1 – editorial change, and CSF alignment.
07/09/2020	Add bullet and content, "Define criteria…" and "or "mission-critical systems"	Section 3.2.2 – editorial change, and CSF alignment.

07/09/2020	Add content to final paragraph.	Section 3.2.3 – editorial change, and CSF alignment.
TBD	Update content to align with the larger enterprise Continuity of Operations Project focusing on IT and Cybersecurity incident response, disaster recovery and contingency planning.	Section 3.3 – complete restructuring and CSF and PF alignment.

Table 3.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date
3.1	Information System User Account Management	November 2012	March 2013	July 2013
3.1.2	Implementation plans must be submitted	January 2018	February 2020	December 2019
3.1.2	Implementation must be complete	June 2019	February 2020	December 2019
3.1.2	Multifactor Authentication (MFA) – OneUSG (Tier I)	October 2019	March 2020	December 2019
3.1.2	MFA - Systems storing or processing critical or protected information. Examples include databases, data warehouses, email, internet facing servers and portals (Tier II).	October 2019	March 2020	TBD
3.1.2	MFA - Systems permitting privileged access, remote access, server(s) critical to supporting business functions and single sign-on systems (Tier III).	October 2019	March 2020	TBD

Introduction

Knowledge Management provides IT systems, tools, governance and support to facilitate the creation and management of data and the use of information and knowledge for effective analysis and decision making. IT Management establishes and advances an environment and a set of practices that support agile and accessible collection, transformation, warehousing, retrieval, analysis and exchange of vital enterprise data and decision-support information.

Section 3.1 Information System User Account Management

IT Management establishes practices that support agile and accessible collection, transformation, warehousing, retrieval, analysis and exchange of vital enterprise data and decision-support information. Knowledge Management provides information technology systems, tools, governance and support to create and manage data as well as the use of information and knowledge for effective analysis and decision-making.

3.1.1 Information System User Account Management

Controlling access to information systems, products or services and managing user accounts are critical business processes that support effective use of information resources. Effective use of information resources is a shared responsibility among human resource management (HRM), system owners and data stewards. Examples of these key responsibilities can be found with the student information system where the registrar may serve as the data steward in defining access procedures and guidelines for at

least part of the system, while IT may serve as the system owner by developing, integrating and maintaining interfaces to the system, while HRM ensures that personnel changes affecting user access to the system are communicated to concerned parties.

At its core, this section refers to the process by which an individual's access and permissions is activated (provisioned), reviewed and deactivated (deprovisioned) consistent with their roles and responsibilities as an employee. To be effective, an account provisioning process should ensure that the creation of accounts and the access to applications and data are consistent while maintaining required privacy and protecting information systems. Information systems user account management must be addressed in order to lower the risks and threats facing users, hosts, networks and business operations.

3.1.1.1 Information System User Account Management Procedures

The USG recognizes its information resources are strategic and vital assets belonging to the people of Georgia. These assets require a degree of protection commensurate to their value. Information systems, products or services must be protected from unauthorized access, loss, contamination or destruction. Proper management and protection are characterized by ensuring the confidentiality, integrity and availability of the system. User account access is a continual process and vital to proper management and security of information systems. HRM, system owners and data stewards will work together to create organizational procedures focused on good communication, accuracy of user account data and protection of confidential or sensitive data.

Purpose

Establish procedures for user account management of information systems, products or services including granting, reviewing, inactivation, updating or terminating access for USG administrators, executives, faculty, staff, researchers, clinical care providers and students. These procedures also apply to individuals or representatives of entities in relationship through formal, informal, contract or other types of agreements who interact with USG information systems, products, or services.

Procedures

- USG organizations shall identify and categorize information systems, products or services that process or store confidential or sensitive information or are mission-critical systems. The suggested responsible party is the system owner.
- USG organizations will identify the system owner and data steward for each critical system or systems, products or services containing confidential or sensitive information. A list of these systems, products or services and the associated owners shall be made available upon request. The suggested responsible parties are the system owner and data steward.
- USG organizations will maintain an up-to-date mapping of users to information systems, products or services. The system owner will provide the data steward with user ID information. The suggested responsible parties are the system owner and data steward.
- Only authorized users should be allowed physical, electronic or other access to information systems, products or services.
- USG organizations will define both administrative and technical access controls to address cybersecurity and data privacy concerns. The suggested responsible parties are HRM, the system owner and data steward. Access controls must include, but not limited to:

- Documented procedures to grant, review, deactivate, update or terminate account access.
- Ensure appropriate resources are available and maintained to adequately authenticate and verify authorized access.
- Ensure appropriate resources are available and maintained to prevent and detect unauthorized use.

- System owners, data stewards and users share the responsibility of preventing unauthorized access to USG organizations' information systems, products or services.
- Data stewards will analyze user roles and determine level of access required to perform a job function. The level of authorized access must be based on principle of least privilege (POLP).
- HRM and data stewards will notify the system owner of personnel status changes in job function, status, transfers, referral privileges or affiliation. The suggested responsible parties are the system owner, data steward and HRM.
- Access to an information system must be reviewed regularly. Data stewards must review user access to the information system every six months and document findings with the system owner.
- System owners will update information system access no more than five business days after terminations and no more than 30 days after other personnel status changes.

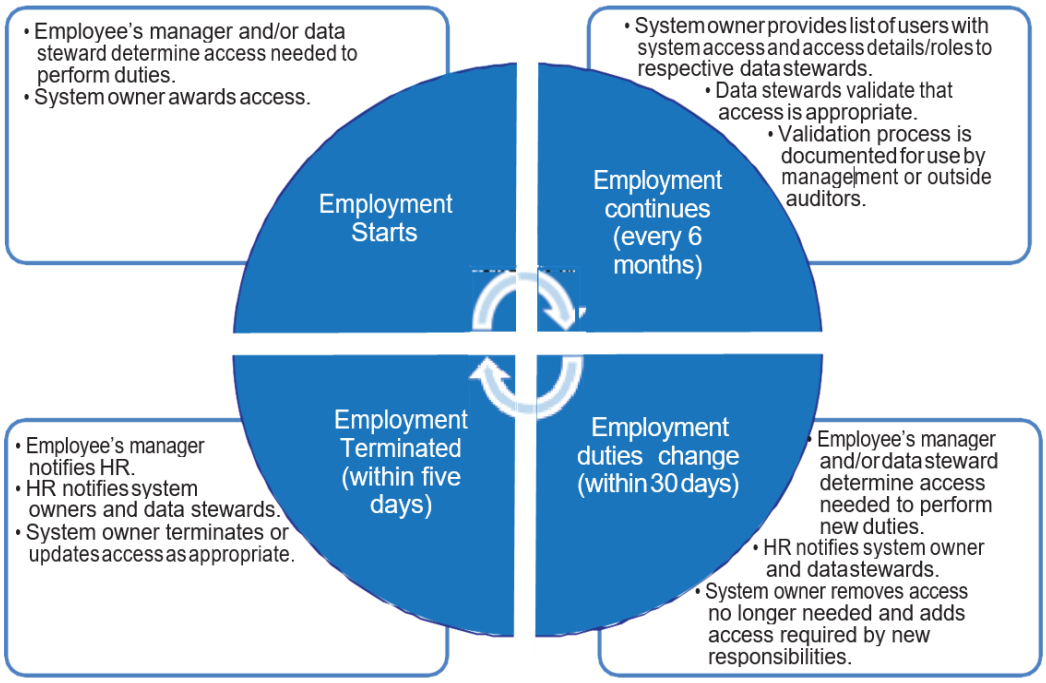

Figure 2: Recommended Process Flow

3.1.2 Managing Multifactor Authentication

Securing information and information systems, products or services remains a core responsibility of the University System of Georgia (USG). USG organizations maintain a legal and ethical responsibility to protect information in its care. Organizations using only single sign-on authentication are no longer

secure and at risk of compromise. To mitigate this risk, multifactor authentication (MFA) must be implemented across the USG.

Organizations without MFA must develop a plan of action to implement this authentication service to reduce the risk of account compromise by mitigating the weakness of single-factor authentication. USG Cybersecurity will be tracking the implementation of MFA.

Plans of Action

Elements of the organization's MFA plan of action shall include deployment priorities (roadmap), personnel affected, and configuration baselining.

Deployment Priorities: Deployment may be implemented using a tiered approach beginning with:

1. Systems, products or services storing critical (protected) information. Examples of these systems, products or services include and are not limited to OneUSG, databases and warehouses, email and internet facing web servers and portals.
2. Systems, products or services permitting privileged access (e.g. administrator roles), remote access, servers critical to supporting business function and all single sign-on systems.
3. All remaining systems, products or services supporting the organization.

Personnel Affected: Any faculty, staff, student, affiliate and contractor that has access to any protected USG or third-party managed resource.

Configuration Baselining: Securely configure MFA to limit legacy protocol bypass, direct local access and protocols that weaken the safeguards effectiveness. Additional setting to harden should be considered, for example: push notification versus call or passcode, US versus non-US connectivity, and time-out limits.

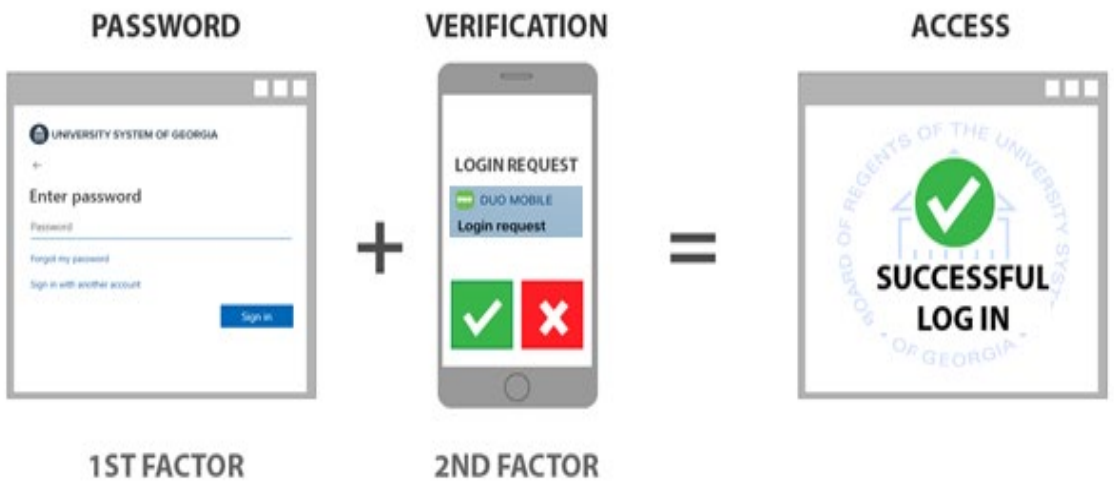

Figure 3: Multi-Factor Authentication

Goal

USG organizations shall request Employee Self Service (ESS) features to be enabled once MFA protection is implemented for OneUSG. Following that, MFA shall be the standard for accessing all USG or third-party managed resources by all USG employees, students, affiliates and contractors.

Section 3.2 Log Management

3.2.1 Purpose

Logs contain information related to many different types of events occurring within systems, products or services, networks and applications. Logs serve functions such as optimizing system and network performance, recording the actions of users and providing data useful for investigating security events. Logs containing records related to computer security, may include audit logs that track user authentication attempts and security device logs that record possible attacks. These requirements address security-related logs and log entries.

A fundamental problem with log management occurring in many organizations is effectively balancing a limited quantity of log management resources with a continuous supply of log data. Log generation and storage can be complicated by several factors: including a high number of log sources, inconsistent log content, formats, timestamps among sources and increasingly large volumes of log data. Log management also involves protecting the confidentiality, integrity and availability of logs. This challenge can be mitigated in part by implementing the principle of data minimization – log only what is necessary. The dominant problem with log management is ensuring that cybersecurity, system and network administrators regularly perform effective analysis of log data.

3.2.2 Objective

Establish the requirements for computer and network resource log management for the USG organizations computing and network environment. The goals of log management are:

- Define the criteria for log generation, log transmission, log storage and disposal.
- Proactive maintenance of information system resources.
- Awareness of “normal” vs. “abnormal” network traffic or system performance.
- Support after-the-fact investigations of cybersecurity incidents.

3.2.3 Standard

USG resources that store, access or transmit data and categorized as “HIGH” or “Critical System” shall be electronically logged. Logging shall include system, application, database and file activity whenever available or deemed necessary.

USG organizations must formalize log management by:

- Creating and maintaining a secure log management infrastructure by balancing system performance, storage resources and legal requirements;
- Committing resources to perform timely log review and analysis about access, change monitoring, malfunction, resource utilization, security events and user activity;
- Identifying roles and responsibilities of staff associated with this process;
- Developing standards, procedures and guidelines as needed to support this program. Reviewing audit logs minimally every 30 days during system reviews;
- Prioritizing log management; and,
- Describing log lifecycle process from defining preservation, legal holds, and regulated retention requirements to disposal and verification.

The following table provides recommendations of logging configuration types. Moreover, USG organizations should not adopt these values as-is, instead use them as a starting point for determining what values are appropriate for their needs.

Table 3.3: Logging Configurations

Category	Low Impact Systems	Moderate Impact Systems	High Impact Systems
Log retention	1 to 2 weeks	1 to 3 months	3 to 12 months
Log data analyses frequency (through automated or manual means)	Every 1 to 7 days	Every 1 to 3 days	Once a day

Section 3.3 Continuity of Operations Planning

3.3.1 USG Continuity of Operations Planning Standard

Purpose

Continuity of operations planning ensures the continuity of business and essential functions through a wide range of emergencies and disasters including localized acts of nature, accidents and technological or attack-related emergencies to ensure that at minimum the general support systems continue to operate and be available.

Guiding Principles

- The USG *Continuity of Operations Plan* (COOP) shall be developed following existing standards, industry best practices, Federal Information Security Management Act (FISMA), Federal Information Processing Standards (FIPS), National Institute of Standards and Technology (NIST) guidelines, USG Cybersecurity tools and templates.
- The USG COOP will require the involvement of all USG organizations to ensure an effective USG response to contingencies and disasters.
- The USG COOP must incorporate the physical and logistical limitations of the USG operating locations.
- The USG COOP will be aligned with and operationalize the USG *Emergency Operations Plan* and the Enterprise Risk Management Program.

Standard

Recovery strategies must be developed for IT systems, products, or services. This includes network connectivity, servers, data and support systems. Priorities for IT recovery must be consistent with the priorities for recovery of network connectivity and other critical processes that were developed during the operational impact analysis. All USG IT organizations must:

- Create, implement, maintain and test a continuity of operations plan – COOP, that will allow appropriate response to a wide range of contingencies and disasters that may occur at all USG organizations.
- Describe the actions to be taken before, during and after events that disrupt critical information system operations.

- All plans must be tested every 24 months and evidence of testing must be available upon request, and part of the continuity of operations plan documentation.
- All recovery planning must include lessons learned and update recovery strategies.

The formal COOP and processes must at minimum include:

- The backup and recovery processes, and plan for critical general support systems.
- A cyber incident response process and plan.
- A disaster recovery plan for critical general support systems.

Each USG organization must keep its COOP up-to-date and provide a COOP status report annually via the Cybersecurity Program Report (CPR). It is important to adapt the detailed content of each plan section to suit the needs of the individual USG organization, with the understanding that disaster recovery plans (DRP) are based upon available information so they can be adjusted to changing circumstances.

General Support System

A general support system (GSS) is an interconnected or dependent set of information resources under the same direct management control that shares common functionality. A general support system normally includes hardware, software, information, data, applications, communications, facilities and people and provides support for a variety of users and/or applications. A general support system, for example, can be a:

- Backbone (e.g., network core);
- Communications network;
- USG organization data processing center, including its operating system and utilities; or,
- Shared information processing service facility (data center).

A GSS should have a Federal Information Processing Standard Publication (FIPS) 199 impact level of low, moderate or high in its security categorization depending on the criticality or sensitivity of the system, and any major applications the general support system is supporting. A general support system is considered a major information system when special management attention is required, there are high development, operating or maintenance costs; and the system/information has a significant role in the administration of USG organization's programs. When the general support system is a major information system, the system's FIPS 199 impact level is either moderate or high. A major application can be hosted on a general support system.

Minimum Continuity of Operations Plan Content (can be separate processes and plans)

- *Backup/Recovery and Off-site Storage of Critical Data and Systems*

  Create, implement, maintain and test a backup and recovery process that will allow appropriate response to a wide range of contingencies and disasters that may occur within the USG. Backup and retention schedules and procedures are critical to the recovery of USG organization's systems, products or services, and data. The detailed procedures for such a recovery should include hardware, software (including version), data file backup and retention schedules, off-site storage details, and appropriate contact and authority designation for personnel to retrieve media. Store backup materials and media at suitable off-site locations. For locations where off-site storage is not practical or cost effective, COOP leadership will designate an appropriate facility to serve as the off-site storage of backup media. A suitable facility is one within

reasonable distance of the main campus or facility, but not likely to be immediately threatened by the contingency or disaster.

- *Cyber Incident Response Capability*

  The USG organization will establish a cybersecurity incident response capability program to respond to and manage adverse activities or actions that threaten the successful conduct of teaching, instruction, research and operations in the USG. The cybersecurity incident response plan will follow existing USG policies, standards, cybersecurity tools, industry best practices and International Standards Organization (ISO) or NIST guidelines. The USG organization's management must promptly investigate incidents involving loss, exposure, damage, misuse of information assets or improper dissemination of information. All USG organizations are required to report information security incidents consistent with the security reporting requirements in the cybersecurity incident management standard. Proper incident management includes the formulation and adoption of a written incident management plan that provides for the timely assembly of appropriate staff that are capable of developing a response to, appropriate reporting about and successful recovery from a variety of incidents. In addition, incident management includes the application of lessons learned from incidents, together with the development and implementation of appropriate corrective actions directed to preventing or mitigating the risk of similar occurrences in the future.

- *Disaster Recovery Management*

  Each USG organization must establish a disaster recovery plan for information systems, products or services categorized as critical, that provides processes supported by executive management and resources to ensure the appropriate steps are taken to identify the impact of potential losses, maintain viable recovery strategies and plans and ensure the USG organization has the ability to continue its essential functions during a business disruption or major catastrophic event and to provide timely communication. The program controls ensure that information is protected by providing for regular backup of automated files and databases, identifies and reduces risks, limits the consequences of the incident, and ensures the availability of information assets for continued business. The communication controls ensure that information concerning recovery are provided to internal and external stakeholders, executive and management leadership to inform and manage public relations for the purpose of repairing reputation post-incident.

- *Disaster Recovery Planning*

  Disaster recovery planning provides for continuity of computing operations that support critical business functions, minimizes decision-making during an incident, produces the greatest benefit from the remaining limited resources, and achieves a systematic and orderly migration toward the resumption of all computing services within a USG organization following a business disruption. It is essential that critical IT services and critical applications be restored as soon as possible. It is significant to recognize that no disaster recovery program is ever complete. All disaster recovery planning is based upon available knowledge and assumptions and must be adapted to changing circumstances and business needs, as appropriate. Strategies, procedures and resources must be adapted as often as necessary in order to recover critical applications.

Recovery strategies must be developed and updated routinely to anticipate risks including loss of utility (e.g., hardware, software, power, and telecommunications), loss of access to the facility and loss of facility. Also, avoid the typical scenario planning approach that calls for separate plan for each "what-if" scenario. Instead, develop one plan that can be adapted to different scenarios, which also reduce the effort to maintain the *Disaster Recovery Plan (DRP)/Business Recovery Plan (BCP)*. The disaster recovery planning process supports necessary preparation to identify and document procedures to recover critical operations in the event of an outage. USG organizations should consider the results of their risk analysis process and their business impact analysis when developing their DRP. Each USG organization's processes should culminate in a viable, fully documented, and tested DRP. To improve the likelihood for the full recovery of key business processes, DRPs should be developed as part of a complete business continuity (BC) program, which includes emergency response and business resumption plans.

Applicability and Compliance

This standard applies to all USG information resources, systems, products, or services and to all users of these resources, systems and technology within the USG information infrastructure. Compliance with this standard is mandatory.

Section 3.4 Network Services

3.4.1 Network Services Standard

Purpose

PeachNet®, USGs statewide network, is the foundation that enables efficient, robust access to mission-critical online learning resources, business applications and transactions, and academic research. The transformation to the "Information Age" continues to be revolutionary in its impact on higher education. Students, researchers and administrators have come to view the network as a tool to enhance their learning experience.

Standard

PeachNet services are governed by the BOR of the USGs *PeachNet Acceptable Use Policy*. In addition, the following outlines the roles and responsibilities of ITS and USG Organizations:

ITS Network Services

- Regional Wide Area Networks (WANs)
    - ITS will facilitate the construction and management of Regional WANs to provide managed telecommunications services to the physical addresses of USG locations.
    - The bandwidth delivered to each location, unless explicitly defined, will be provisioned based on utilization and trend-analysis data.
    - ITS will maintain the fiber infrastructure to support USG Regional WANs.
    - ITS will provide each location with public IP address ranges based on site needs and requirements.
- Internet and Internet 2
    - ITS will provide Internet and Internet 2 access to all USG locations.

- ITS will require and establish appropriate Service Level Agreements (SLA) from Service Providers for any contracted network services. These SLAs will be established in accordance with normal industry standards for network-based performance measurements. ITS will also perform continuous network monitoring and service management to capture availability, performance and utilization statistics.

USG Institutional Responsibilities

- USG organizations will provide Co-Location facilities allowing ITS to create a PeachNet Point of Presence to support interconnections for Regional USG WANs, the Internet and Internet 2.
- USG organizations will provide necessary power to support USG Regional WANs equipment within the PeachNet POP facilities.
- USG organizations shall have the ability to accept and utilize the physical interface specified and delivered by ITS.
- USG organizations are responsible for the oversight and distribution of the public Internet Protocol address assigned to each institution by ITS.
- USG organizations will be responsible for providing ITS with local administrative and technical contacts.

Firewall services at a statewide, regional or district level are excluded from this section.

- USG organizations are responsible for implementing and managing a campus security architecture and may consist of devices such as firewalls, intrusion detection/prevention, content filters, etc.

Section 4. Financial and Human Resource Management

Section Control

Table 4.1: Revision History

Date	Name	Description of Change
04/18/2016	Revised cost estimate	Section 4.1 - added a statement to the IT Procurement Policies.
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.
11/17/2016	Spending limits updated	Section 4.1 – updated spending limits for purchases in excess of $1 million.

Table 4.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date

Introduction

Sound management principles are required for the budget and human resources allocated to the CIO and centralized IT organization. In the event any standards defined in this manual are in conflict with the USG BOR policy or procedures as defined in other relevant guides such as the Fiscal Affairs BPM, those documents take precedence.

A financial management framework that encompasses cost, benefits, prioritization within budget, a formal budgeting process and management against the budget should be established and maintained to manage IT-enabled investment programs and projects. Stakeholders should to be consulted to identify and control the total costs and benefits within the context of the IT strategic and tactical plans and initiate corrective action where needed.

A competent workforce should be acquired and maintained for the creation and delivery of IT services to the organization. This is achieved by following defined and agreed-upon practices for recruiting, training, evaluating performance, promoting and terminating personnel.

Section 4.1. Technology Procurement Approval Process

Authority for processing technology procurements is assigned to the Georgia Technology Authority (GTA) through the Official Code of Georgia Annotated (O.C.G.A § 50-25). In the same chapter (O.C.G.A § 50-25-1), the USG is specified as being exempt from this legislation. The establishment of the GTA intersected with the authority of the Department of Administrative Services (DOAS), which resulted in a memorandum of understanding between the GTA, DOAS and the USG in 2007, granting delegated authority, with some constraints, for technology procurements to the USG CIO).

Section 10.3 of the BOR *Policy Manual* delegates authority from the BOR to the USG CIO to approve USG technology procurements on their behalf. Section 10.3 authorizes the USG CIO to further delegate approval authority to institution presidents or their designee(s). This section of the USG *IT Handbook* implements this BOR policy.

4.1.1 Spending Limits

The USG CIO delegates approval authority for individual IT purchases according to the following limits:

1. $500,000: Georgia Institute of Technology, Augusta University, Georgia State University and the University of Georgia.
2. $250,000: Columbus State University, University of North Georgia, Georgia Southern University, Kennesaw State University, University of West Georgia and Valdosta State University.
3. $100,000: All other USG organizations.

4.1.2 IT Procurement Policies

1. IT is defined in Section 10.1, General Policy on Information Technology, of the *BPM*.
2. Procurement of technology-related goods and services should follow the relevant *BPM* procedures.
3. Authorization is not required for activities that are part of normal maintenance of an existing system.
4. Any purchase of software that necessitates an inbound data interface with any hosted or centrally supported USG enterprise application must be approved by the USG CIO.
5. Purchases for goods or services that are likely to have a significant impact on the wide area network bandwidth allocated to the institution should be carefully planned with the USG CIO.
6. Externally approved, grant-funded technology purchases that do not interact with USG enterprise applications or USG enterprise networks may be approved by the institution president or his or her designee for IT purchases.
7. Institutions may not divide large purchases into smaller packages to avoid the need for USG approval. Individual purchases that are below these amounts but are part of a larger initiative that will eventually exceed these amounts, shall also require written USG CIO approval (e.g., purchases of microcomputers for various lab locations on a campus even if the purchases are for different buildings and from multiple fund sources.)
8. USG CIO approval of IT requests will expire one year after being granted.
9. If there is a revised cost estimate to a previously approved IT procurement request and that estimate increases by more than 10%, a new IT procurement approval must be obtained.
10. Purchases over $1 million will require a business case to be submitted for review and approval.

4.1.3 Requesting Approval

IT requests requiring USG CIO approval must be submitted via the SharePoint CIO Advisory Council Team Site by following the USG IT Purchase Approval link in the left-hand menu. If the purchase is over $1 million, the business case template shall be downloaded, completed, and attached to the purchase approval request.

The USG CIO normally approves IT requests within four (4) business days of receipt. Business cases will require a longer period of time depending on the amount of communication, coordination, and vetting that needs to take place. Institutions should plan appropriately.

Section 4.2 Financial Management

A financial management framework for the centralized IT budget and the overall spend on IT across the organization should be established. Ideally, the IT Shared Governance process would incorporate some degree of budget review that includes the cost and benefit analysis of major planned expenditures, a budget request process and a method of expense monitoring throughout the year.

Section 4.3 Human Resource Management

A competent workforce is required for the creation and delivery of effective IT services to the organization and requires close coordination with the Human Resources (HR) office. The workforce management responsibilities delegated to the line managers of the IT organization should be guided by defined and agreed- upon practices for recruiting and retaining staff. This should include a training plan, routine performance appraisals and clear criteria for promotions and disciplinary actions. This process is critical, since the creation and delivery of IT services are heavily dependent on the motivation and competence of IT personnel.

Section 5: Cybersecurity

Section Control

Table 5.1: Revision History

Date	Name	Description of Change
05/02/2016	Initial Redesign – Referenced in a new structure and format.	PDF, structure and format
05/17/2016	Section 5.12.3 – Added a statement about system-level passwords.	System-level password information added in bullet number 4.
11/03/2016	Section 5.13 – Content in section was updated and revised.	Revised Domain Name System
11/03/2016	Section 5.13 – Added link to the revised Domain Name System (DNS) Guidelines.	Domain Name System Guidelines
05/15/2017	Section 5.3 – Revised section for consistency in format and content. Deleted table.	Added "USG organizations" as stated in the Introduction section, changes made to the USG Incident Response and Reporting Standard and deleted Incident Categories and Reporting Timeframes table.
05/15/2017	Section 5.10 – Revised section for consistency in format and content.	Added content for clarification.
09/07/2017	Section 5 – Reviewed and revised entire Section 5 for consistency of content	Added "USG organizations" as stated in the Introduction section and other minor editorial changes removing policy and standard where appropriate.
09/07/2017	Section 5 – Incorporated revisions in Section 5 by University of North Georgia	Incorporated minor editorial changes recommended by University of North Georgia.
01/02/2019	Section 5.10 – Align with the NIST frame work and FIPS.	Revisions to required security reporting activities with corresponding due dates. Changed ISPR to CPR and revised components. New sub section "Remediation and Mitigation Tracker" added.
02/24/2020	Section 5.3 – Incident Management	Updated language, added baseline requirements and template to submit a plan for review.
02/24/2020	Section 5.9 – Awareness Training	Updated language to align with Section 5.10.
02/24/2020	Section 5.10 – Required Reporting	Updated language and diagram to include biannual awareness training requirements.
02/24/2020	Section 3.1.2 – Multifactor Authentication	Added section to standardize MFA deployment across the USG enterprise.
04/30/2020	Section 5.1.1 – editorial change, and cybersecurity framework (CSF) alignment.	Add "continuous"
04/30/2020	Section 5.1.2 – editorial change, and CSF alignment.	Add bullet 3 "expected dataflow diagrams," and add bullet 4 "expected dataflow diagrams,"
04/30/2020	Section 5.1.2 – editorial change, and CSF alignment.	Editorial corrections #6, add "principle of least function…"

04/30/2020	Section 5.3.1 – editorial change, and CSF alignment.	Add list “i. – v.” to # 5 and add “incident alert thresholds” to #6
04/30/2020	Section 5.5 and 5.5.2 – editorial change, and CSF alignment.	Add “continuous,” add “5.5.2 - Event data (logs) shall be collected and correlated from sources and sensors.” Add “both internal and external to the organization” and add definition “Risk Register”
04/30/2020	Section 5.5.5 – editorial change, and CSF alignment.	Add “Continuously monitor…” and add “, which includes:” and list “a. – d.”
04/30/2020	Section 5.10.1 – editorial change.	Renumber Figure to 4/relocate reference to bottom
04/30/2020	Section 5.11.7 – editorial change, and CSF alignment.	Add “Principle of least function…”
04/30/2020	Section 5.13 – editorial change.	Rebrand section title to “Domain Name System Management”
04/30/2020	Section 5.14 – editorial change, and CSF alignment.	Rebrand section title to “Information Protection Management.” Strike space in 1st paragraph, strike “of this manual”, and add “program’s protection processes will:”. Add “To improve the protection processes, ensure…” and add “information protection/”
04/30/2020	Section 5.14.5 – editorial change, and CSF alignment.	Add “or protocols” and “or protected” and “Cybersecurity” and strike “Information & ePrivacy”
07/08/2020	Incorporate cybersecurity charter verses publishing another document.	Replace “Introduction” with new “USG Cybersecurity Charter”
07/09/2020	Section 5.1 – editorial changes and alignment with the CSF and privacy framework (PF).	Remove existing 5.1 introductory paragraph – information was used in Section 5 Charter, replace with new 5.1 introductory paragraph, and change current old 5.1.1 heading to 5.1.2, leaving 5.1.1 open. Also, fill open 5.1.1 space with 5.1.1 Cybersecurity Program Plan Requirements, strike opening sentence and replace with 5.1.2 USG Organizational Responsibilities, and change current old 5.1.2 heading to 5.1.3. Lastly, insert content into sentence 4, Section 5.1.3 and change current old 5.1.3 heading to 5.1.4.
07/09/2020	Sections 5.3 through 5.14 – editorial changes and alignment with the CSF and PF.	Insert new Line “g.” to Section 5.3.1, Edit Section 5.3.3, edit Sections 5.4.1 and 5.4.2, insert new content Section 5.5.2, insert new content Section 5.5.5, strike: “Note: The definition of Data owner….” In Section 5.6.2, add “critical system” paragraph at end of Section 5.6.2, insert opening and closing sentences to Section 5.8.2, insert new Section 5.8.5, update Section 5.9.1, insert new Section 5.11.8 Segmentation, add opening sentence to Section 5.14, and edit opening sentence for Section 5.14.2 and add Step 9 and content.
09/16/2020	Section 5.3 – addition.	Added Georgia Cybersecurity Board notification requirement.

Table 5.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date	Revision Date(s)
5.0	USG Cybersecurity Charter	July 2020	August 2020	August 2020	July 2020

5.1	USG Cybersecurity Program	February 2009	February 2009 to Cybersecurity February 2013 to IT Handbook	February 2009	July 2020
5.2	Cybersecurity Organization and Administration	February 2009	February 2009 to Cybersecurity February 2013 to IT Handbook	February 2009	May 2014
5.3	Incident Management	December 2008	December 2008 to Cybersecurity February 2013 to IT Handbook	February 2009	July 2020
5.4	USG Information Asset Management and Protection	July 2013	May 2014	TBD	July 2020
5.5	IT/IS Risk Management	April 2010	April 2010 to Cybersecurity February 2013 to IT Handbook	April 2010	July 2020
5.6	USG Information System Categorization	June 2013	May 2014	July 2014	July 2020
5.7	USG Classification of Information	June 2013	May 2014	July 2015	July 2015
5.8	USG Endpoint Security	June 2013	May 2014	July 2015	July 2020
5.9	Security Awareness, Training, and Education	April 2009	April 2009 to Cybersecurity February 2013 to IT Handbook	April 2009	July 2020
5.10	Required Reporting	April 2009	April 2009 to Cybersecurity February 2013 to IT Handbook	April 2009	February 2020
5.11	Minimum Security Standards for USG Networked Devices	October 2008	October 2008 to Cybersecurity May 2014 to IT Handbook	October 2008	February 2020
5.12	Password Security	July 2010	July 2010 to Cybersecurity February 2013 to IT Handbook	July 2010	May 2014
5.13	Domain Name Service	February 2011	February 2011 to Cybersecurity February 2013 to IT Handbook	February 2011	May 2014
5.14	Identity Theft Prevention Standard - Red Flags Rule	January 2011	January 2011 to Cybersecurity May 2014 to IT Handbook	January 2011	July 2020
5.15	Email Use and Protection	January 2009	January 2009 to Cybersecurity May 2014 to IT Handbook	May 2014	May 2014
~~5.17~~	Asset Discovery and Inventory	September 2015	Moved to Section 5.4.1 June 25, 2109	Sept 2015	February 2020
~~5.18~~	Antivirus, Anti-malware, Anti-spyware	September 2015	Moved to Section 5.11.2 June 25, 2019	Sept 2015	February 2020
~~5.19~~	OS/App Patch Management	March 2016	Moved to Section 5.8.4 June 25, 2019	March 2016	February 2020

USG Cybersecurity Charter

Introduction — University System of Georgia (USG) Cybersecurity is an operational program providing advice and guidance in developing processes, selecting technologies and training USG personnel. To advance the role of advice and guidance, the USG chief information security officer (CISO) coordinates the efforts of the USG organizational information security officers (ISOs) primarily through the publication of the USG *IT Handbook*; through biannual program reviews, compliance reports, mandatory awareness training, and ISO meetings; and through participation in the Chief Information Officers Advisory Council (CIOAC). USG Cybersecurity's mission statement is "Develop and maintain an affordable and efficient enterprise cybersecurity organization to identify and reduce risk." This document presents the philosophy of cybersecurity within the USG and represents the endorsement of USG's executive leadership. IT identifies the motivation for cybersecurity, describes cybersecurity goals, and defines the scope of cybersecurity roles and responsibilities.

Authorization — *Board of Regents (BOR) Policy Manual*, Section 10.4. states, "The USG CISO shall develop and maintain a cybersecurity organization and architecture in support of cybersecurity across the USG between USG institutions. The USG chief information security officer shall maintain cybersecurity implementation guidelines that the USO, all USG institutions, and the GPLS shall follow in the development of their individualized cybersecurity plans." To the extent permitted by law, USG Cybersecurity is authorized to review and appraise all operations, policies, plans and procedures concerning cybersecurity and the functions supporting cybersecurity. Documents and other materials provided to USG Cybersecurity will be handled in the same prudent manner as handled by those employees normally accountable for them.

Motivation — USG recognizes that information and IT assets are critical business assets. It is the responsibility of all users to ensure the safeguarding of business assets. USG implements, maintains and monitors a comprehensive enterprise cybersecurity and compliance program. USG values the ability to openly communicate and share information. USG information (whether belonging to USG or held in trust on behalf of its clients and business partners) is an important asset that shall be protected according to its value and the degree of damage that could result from its misuse, unavailability, destruction, unauthorized disclosure or modification. Improper disclosure or destruction of these assets may result in harm to the USG. Information assets are identified, valued, assessed for risk and protected as appropriate to the needs and risks of the business.

Cybersecurity Goals — Cybersecurity is a risk management discipline addressing the preservation of information confidentiality, integrity and availability, which is established via a hierarchical set of policies, standards and procedures that help users and administrators define and mitigate risks, maintaining a trade-off between information value and cost of risk mitigation. The goals are:

- Provide processes, standards and guidelines that promote an enterprise cybersecurity environment.
- Improve cybersecurity by implementing a "defense-in-depth" architecture with the focus on proactive detection.
- Prioritize cybersecurity at all levels of the enterprise.
- Promote the importance of cybersecurity awareness, training and education system-wide.
- Inform the ISOs, CIOs, and USO leadership of the state of cybersecurity maturity across the USG enterprise.

Scope — Data and information is protected in whatever media, including, but not limited to, paper documents and electronic or digital formats. Data and information should be protected while at rest and when it is handled, transmitted or conveyed. IT assets include all devices and hardware and/or software components of the IT infrastructure, applications and data stores. This charter applies to all USG employees, affiliates and contractors that have access to USG resources.

Roles/Responsibilities

- Executive Leadership — Executive leadership shall establish strategic direction, define risk appetite, be accountable for cybersecurity and ensure compliance with security policies, standards, procedures and practices within their respective organization's areas of responsibility.
- USG Chief Information Security Officer (USG CISO) and USG Cybersecurity shall —
    - Create a cybersecurity program that ensures the confidentiality, integrity and availability of its information assets.
    - Provide oversight and guidelines for administration of cybersecurity policies, processes, and procedures and will consider the effects of security requirements on the USG enterprise by maintaining sections concerning data governance, management and privacy of the *Business Procedures Manual* (BPM) and all sections concerning cybersecurity of the USG *IT Handbook*.
    - Design, implement and maintain an enterprise security operations center (ESOC) that monitors University System Office (USO) and USG networking assets for evidence of cybersecurity events or incidents.
    - Promote communications within the USG and third-party partners to share a broad cybersecurity situational awareness and express the effectiveness of protection technologies.
    - Coordinate USG responses to information and information systems breaches and other cybersecurity incidents
    - Represent cybersecurity interests in and provide expertise and governance to USG/USO working groups, e.g. USG Enterprise Risk Management (ERM), Data Privacy, Data Governance and Management, and CIOAC.
    - Liaison with the state CISO and other external officials to keep them informed of significant cybersecurity incidents.
    - Report significant cybersecurity issues directly to the Executive Vice Chancellor of Administration and to the Chancellor.
    - Lead USG organization's cybersecurity functions of cyber-specific areas as needed to fulfill the system-wide cybersecurity plan.
- Users of USG resources — Cybersecurity is everyone's responsibility. Users are required to abide by this charter and subsequent standards and procedures. All have a responsibility to report suspected cybersecurity failures or policy violations as defined within the USG *IT Handbook*.

To operationalize the Charter, all USG organizational CIOs/ISOs shall implement the standards and directives located within the *BPM* and USG *IT Handbook*.

Section 5.1 USG Cybersecurity Program

USG organizations must ensure mission, objectives, stakeholders, and activities are understood and prioritized. This information is used to inform cybersecurity and data privacy roles, responsibilities and risk management decisions, which are used in developing cybersecurity plans. The *Board of Regent's Policy Manual*, Section 10.4 states, "The USO, all USG institutions, and the GPLS shall each develop, implement, and maintain a cybersecurity plan consisting of cybersecurity policies, standards, procedures and guidelines that is consistent with the guidelines provided by USG Cybersecurity and submit the plan to USG Cybersecurity for review upon request."

5.1.1 Cybersecurity Program Plan Requirements

USG Cybersecurity created a rubric to provide guidance in the development of a standardized cybersecurity plan – CYBERSECURITY PROGRAM PLAN RUBRIC: PHASE I (Standards for Safeguarding Customer Information; Final Rule 16 CFR Part 314 as required by Department of Education, Federal Student Aid - Section 4: Elements. Additional elements have been drawn from NIST SP800-53 Rev 4 Information Security Program.) The rubric consists of the following information:

The USG organization shall develop, implement, maintain and disseminate a written cybersecurity program plan that…

1. Provides an overview of the requirements for the cybersecurity program and a description of the cybersecurity program management safeguards (controls).
    (a) Designates a trained and dedicated Information Security Professional to implement the plan.
    (b) Defines how internal and external risks are identified.
        1. Establishes data management lifecycle procedures.
        2. Introduces risk assessment that considers identification, protection, detection, response and recovery plans.
    (c) Designs and implements cybersecurity safeguards to control the identified risks.
        1. Designs and implements a response plan.
        2. Regularly monitors the safeguard effectiveness.
        3. Defines notifying USG/USO in the event of a data breach when appropriate.
    (d) Oversees third party systems, products and service providers to implement and maintain safeguards.
    (e) Reviews, evaluates, adjusts and updates the Cybersecurity Plan annually.
        1. Protects the Cybersecurity Plan from unauthorized disclosure and modification.
        2. Approves plan by senior official with accountability and authority.
2. Implements biannual and mandatory awareness training to all employees.

5.1.2 USG Organizational Responsibilities

USG organizations shall develop and implement a governance structure that enables an ongoing understanding of the organization's risk management priorities. The policies, processes and procedures to manage and monitor the organization's regulatory, legal, risk, environmental and operational

requirements are understood and inform the management of cybersecurity and data privacy risk. USG organization can accomplish this by ensuring policies, processes and procedures (e.g., conditions on data processing such as data uses or retention periods, individuals' prerogatives with respect to data processing) are established and communicated. Accordingly, USG organizations must:

1. Build a cybersecurity program;
2. Assign management responsibilities for cybersecurity program, including the appointment of an Information Security Officer (ISO), as noted in Section 5.2 of this Manual;
3. Develop and maintain a computer/data incident management component as noted in Section 5.3 of this Manual;
4. Develop and maintain a program to manage and protect information assets, as noted in Section 5.4 of this Manual;
5. Establish and maintain an information technology and cybersecurity risk management program, including a risk assessment, analysis, planning mitigation, and a continuous monitoring process as noted in Section 5.5 of this Manual;
6. Categorize information systems, products, or services, as noted in Section 5.6 of this Manual;
7. Classify information records (data), as noted in Section 5.7 of this Manual;
8. Implement the minimum endpoint security standard requirements/capabilities, as noted in Section 5.8 of this Manual;
9. Maintain an annual cybersecurity awareness, and training component for all employees and contractors, as noted in Section 5.9 of this Manual;
10. Comply with USG reporting requirements, as noted in Section 5.10 of this Manual, including developing and maintaining a cybersecurity and privacy policy and compliance management process, and building, testing, and maintaining a Contingency Plan in support of the enterprise Continuity of Operations Plan (C.O.O.P.) including a:
    - Backup and Recovery Plan; and,
    - Incident Management Plan.
    - Note: It is our future intention to require a Disaster Recovery Plan and a Business Continuity Plan in support of the enterprise C.O.O.P. efforts.
11. Implement minimum security standards for networked devices, as noted in Section 5.11 of this Manual;
12. Implement password security controls, as noted in Section 5.12 of this Manual;
13. Implement and administer domain name security, as noted in Section 5.13 of this Manual; and,
14. Make reasonable efforts to managed information consistent with the organization's risk strategy to reduce cybersecurity risks, protect individuals' privacy, increase manageability and enable the implementation of privacy principles, as noted in Section 5.14 of this Manual.

5.1.3 Policy, Standards, Processes, and Procedure Management Requirements

The purpose of this section is to establish and maintain a "standard of due care" to prevent misuse or loss of USG information assets. Policy provides management direction for USG organizations to conform to business requirements, laws and administrative policies. Standards are the specifications that contain

measurable, mandatory rules to be applied to a process, technology and/or action in support of a policy. Procedures are the specific series of actions that are taken in order to comply with policies and standards.

USG organizations must provide for the integrity and security of its information assets by creating appropriate internal policies, processes, standards and procedures for preserving the integrity and security of each automated, paper file or database. USG organizations must…

1. Establish and maintain management and staff accountability for protection of USG information assets.
2. Establish and maintain processes for the assessment and analysis of risks associated with USG information assets.
3. Establish and maintain cost-effective risk management practices intended to preserve the ability to meet USG program objectives in the event of the unavailability, loss or misuse of information assets.
4. Develop and implement a vulnerability management plan that includes, but is not limited to…
    - Conduct continuous monitoring to identify and verify the effectiveness of implemented protective measures, e.g. vulnerability scanning.
    - Technology upgrades, which include, but are not limited to, operating system upgrades on servers, routers and firewalls. Appropriate planning and testing of upgrades must be addressed, in addition to departmental criteria for deciding which upgrades to apply.
    - Security patches and security upgrades, which include, but are not limited to, servers, routers, desktop computers, mobile devices and firewalls. Application and testing of the patches and/or security upgrades must be addressed, in addition to departmental criteria for deciding which patches and security upgrades must be applied and how quickly.
    - Intrusion Prevent System (IPS)/firewall configurations to detect anomalous activity in a timely manner to understand potential impacts. Documentation of the baseline configuration is a requirement for each IPS/firewall with expected dataflow diagrams, updates of the documentation for all authorized changes and periodic verification of the configuration to ensure that it has no changes during software modifications or rebooting of the equipment.
    - Server configurations, which must clearly address all servers that have any interaction with Internet, extranet or intranet traffic. Creation and documentation of a baseline configuration for each server with expected dataflow diagrams, updates of the documentation for all authorized changes, and periodic checking of the configuration to ensure that it has not changed during software modifications or rebooting of the equipment must be required.
    - Server hardening, which must cover all servers throughout the organization, not only those that fall within the jurisdiction of the organization’s IT area. The process for making changes based on newly published vulnerability information as it becomes available must be included. Principles of least functions must be implemented. Further, this must address, and be consistent with, the organization’s policy for making security upgrades and security patches.

- Software management and software licensing, which must address acquisition from reliable and safe sources and must clearly state the organization's policy about not using pirated or unlicensed software.
- Ensuring that the use of peer-to-peer technology for any non-business purpose is prohibited. This includes, but is not limited to, transfer of music, movies, software and other intellectual property. Business use of peer-to-peer technologies must be approved by the organization's CIO and ISO.

5. Require that if a data file is downloaded to a mobile device or desktop computer from another computer system, the specifications for information integrity and security, which have been established for the original data file, must be applied in the new environment.
6. Require encryption, or equally effective measures, for all personal, sensitive or confidential information that is stored on portable electronic storage media and on portable computing devices.

5.1.4 USG Appropriate Use Policy (AUP) Guidelines

This section establishes a USG-wide guideline regarding developing an appropriate use policy of USG information technology (IT) resources. It is USG policy to provide an environment that encourages the free exchange of ideas and sharing of information. Access to this environment and the USG's IT resources is a privilege and must be treated with the highest standard of ethics.

The USG expects all organizations and their users to use IT resources in a responsible manner, respecting the public trust through which these resources have been provided, the rights and privacy of others, the integrity of facilities and controls, state and federal laws, and USG policies and standards. USG organizations may develop policies, standards and guidelines based on their specific needs that supplement, but do not lessen, the intent of this policy.

This guideline outlines the standards for appropriate use of USG IT resources, which include, but are not limited to, equipment, software, networks, data, and telephones whether owned, leased, or otherwise provided by USG organizations. This guideline applies to all users of USG IT resources including faculty, staff, students, guests, external organizations and individuals accessing network services, such as the Internet via USG resources.

Guidelines

Preserving the access to information resources is a system-wide effort that requires each institution to act responsibly and guard against abuses. Therefore, USG organizations and its users have an obligation to abide by the following standards of appropriate and ethical use:

- Do no harm
- Use only those IT resources for which you have authorization
- Use IT resources only for their intended purpose
- Respect the privacy and personal rights of others
- Protect the access and integrity of IT resources
- Abide by applicable local, state, federal laws, organizational policies and respect the copyrights and intellectual property rights of others, including the legal use of copyrighted material

Failure to comply with the appropriate use of these resources threatens the atmosphere for the sharing of information, the free exchange of ideas, and the secure environment for creating and maintaining information property, and subjects one to discipline. Any user of any USG organization found using IT

resources for unethical and/or inappropriate practices has violated USG policy and is subject to disciplinary proceedings including suspension of system privileges, expulsion from school, termination of employment and/or legal action as may be appropriate. Although all members of the USG have an expectation of privacy, if a user is suspected of violating USG policy, his or her right to privacy may be superseded by the USG's requirement to protect the integrity of IT resources, the rights of all users, and the property of the USG and the state. The USG thus reserves the right to examine material stored on or transmitted through its resources if there is reason to believe that the standards for appropriate use are being violated by an organization, user, or a trespasser onto its systems or networks.

The guidelines outline the responsibilities USG organizations and its users accept when using USG's computing and IT resources. This is put forth as a minimum set of standards for all areas of the USG and may be supplemented with specific organization-level guidelines. However, such additional guidelines must be consistent with this document and cannot supersede this document. These guidelines include the use of information systems and resources, computers, telephones, Internet access, electronic mail (email), voice mail, reproduction equipment, facsimile systems and other forms of electronic communications.

User Responsibilities

Use of USG IT resources is granted based on acceptance of the following specific responsibilities: Use only those computing and IT resources for which you have authorization.

For example, it is a violation:

- To use resources, you have not been specifically authorized to use
- To use someone else's account and password
- To share your account and password with someone else
- To access files, data, or processes without authorization
- To purposely look for or exploit security flaws to gain system or data access

Protect the access and integrity of computing and IT resources. For example, it is a violation:

- To use excessive bandwidth
- To release a virus or a worm that damages or harms a system or network
- To prevent others from accessing an authorized service
- To send email that may cause problems and disrupt service for other users
- To attempt to deliberately degrade performance or deny service
- To corrupt or misuse information
- To alter or destroy information without authorization

Abide by applicable laws and USG policies and respect the copyrights and intellectual property rights of others, including the legal use of copyrighted software.

For example, it is a violation:

- To download, use or distribute copyrighted materials
- To download, use or distribute pirated software or music or videos or games
- To make more copies of licensed software than the license allows
- To operate and participate in pyramid schemes
- To upload, download, distribute, or possess (child) pornography

Use computing and IT resources only for the intended purposes. For example, it is a violation:

- To use computing or network resources for advertising or other commercial purposes
- To distribute copyrighted materials without express permission of the copyright holder
- To send forged email
- To misuse software to allow users to hide their identity
- To interfere with other systems or users
- To send terrorist threats or “hoax messages”
- To send chain letters
- To intercept or monitor any network communications not intended for you
- To attempt to circumvent security mechanisms
- To use privileged access for other than official duties
- To use former privileges except as stipulated by the USG organization

Respect the privacy and personal rights of others. For example, it is a violation:

- To disclose information about students in violation of USG Guidelines
- To access or attempt to access other individual’s password or data without explicit authorization
- To use electronic resources for harassment or stalking other individuals
- To tap a phone line or run a network sniffer or vulnerability scanner without authorization
- To access or copy another user’s electronic mail, data, programs, or other files without permission

System and Network Administrator Responsibilities

System Administrators and providers of USG computing and IT resources have the additional responsibility of ensuring the confidentiality, integrity and availability of the resources they are managing. Persons in these positions are granted significant trust to use their privileges appropriately for their intended purpose and only when required to maintain the system. Any private information seen in carrying out these duties must be treated in the strictest confidence, unless it relates to a violation or the security of the system.

Cybersecurity Caveat

Be aware that although computing and IT providers throughout the USG are charged with preserving the integrity and security of resources, security sometimes can be breached through actions beyond their control. Users are therefore urged to take appropriate precautions such as:

- Safeguarding their account and password
- Taking full advantage of file security mechanisms
- Backing up critical data on a regular basis
- Promptly reporting any misuse or violations of the policy
- Using virus scanning software with current updates
- Using personal firewall protection
- Installing security patches in a timely manner Violations

Every user of USG IT resource has an obligation to report suspected violations of the above guidelines. Reports should be directed to the institution, unit, center, office, division, department, school or administrative area responsible for the particular system involved.

5.2 Organization and Administration

The purpose of this section is to establish the guidelines for organizing and administering cybersecurity at USG organizations.

5.2.1 Cybersecurity Organization

USG organizations must create a cybersecurity organization and program that ensures the confidentiality, integrity, and availability of all USG information assets. The program will have oversight for administration of cybersecurity standards, processes and procedures, and will consider the effects of security requirements on the entire enterprise. Every cybersecurity requirement will be tied to an operational need, a state or federal regulation or an industry standard practice. Furthermore, the organization will interpret state or federal regulations and apply their requirements to USG information resources administer programs and execute projects to meet cybersecurity objectives and perform liaison functions between USG organizations and the USG for matters regarding cybersecurity and privacy.

Required administrative activities include, but are not limited to, the following:

1. Develop security policies, standards, processes and procedures;
2. Determine roles and responsibilities for cybersecurity within USG organizations
3. Develop and implement cybersecurity plans systems, products or services, and remote locations as required by local, federal, state and USG directives;
4. Evaluate local infrastructure compliance with cybersecurity policies, processes, standards and procedures;
5. Establish processes and procedures for access to sensitive information systems, products or services;
6. Establish processes and procedures to minimize the likelihood of disruptions, to recover from disasters and to respond to security incidents; and,
7. Develop programs to increase user awareness of cybersecurity issues and responsibilities.

5.2.2 Information Security Officer (ISO)

USG organizations must identify an ISO who will be responsible for establishing, maintaining, and reporting on cybersecurity roles, responsibilities, policies, standards, and procedures. This designee and the appropriate contact information must be sent annually to USG Cybersecurity, as noted in Section 5.10 of this Manual.

Section 5.3 Cybersecurity Incident Management

The number of cybersecurity incidents and the resulting cost of business disruption and service restoration continue to escalate. Implementing mature cybersecurity policies, limiting access to networks and computers, improving user security awareness, and early detection and mitigation of cybersecurity risks are some of the preventative actions that can be taken to reduce the risk, frequency and the cost of cybersecurity incidents. However, not all incidents can be prevented. Therefore, a cybersecurity incident response capability is necessary for rapidly detecting incidents, minimizing loss and destruction, mitigating the weaknesses that were exploited, and restoring computing and networking services.

Proper cybersecurity incident management includes the formulation and adoption of a written cybersecurity incident management plan, providing for the timely assembly of appropriate staff that is capable of developing a response to, appropriate reporting about, and successful recovery from a variety of incidents. Furthermore, cybersecurity incident management includes the application of lessons learned from incidents together with the development and implementation of appropriate corrective actions directed to preventing or mitigating the risk of similar occurrences in the future.

5.3.1 Cybersecurity Incident Response Plan Requirements

USG organizations shall establish and document an internal cybersecurity incident management capability, providing for prevention, monitoring, detection, containment, response, recovery, reporting and escalation, appropriate to the level of risk and threats to the USG organization. Concerning organizational incident response plans, USG Cybersecurity implemented NIST SP800-53 (Rev4) IR-8, which consists of thirteen requirements. This aligns with the federal requirement to implement National Institute of Standards and Technology (NIST) and Gramm-Leach-Bliley Act (GLBA) in support of the Federal Student Aid compliance efforts. In accordance with *Board of Regents Policy* Section 10.4, USG organizations must submit a copy of their cybersecurity incident response plans to USG Cybersecurity to have on file. USG Cybersecurity shall evaluate USG organizational submissions against the NIST model and provide guidance concerning any findings affecting the maturity of the submitted plans.

Requirements

USG organizations shall:

a. Develop a Cybersecurity Incident Response Plan (IRP) that:
    1. Provides the organization with a roadmap for implementing its cybersecurity incident response capability;
    2. Describes the structure and organization of the cybersecurity incident response capability;
    3. Provides a high-level approach for how the cybersecurity incident response capability fits into the overall organization;
    4. Meets the unique requirements of the organization, which relate to mission, size, structure and functions;
    5. Defines reportable cybersecurity incidents, which includes how;
        i. Notification alerts are investigated;
        ii. Impacts are understood;
        iii. Incidents are categorized;
        iv. Incidents are contained; and,
        v. Incidents are mitigated.
    6. Provides metrics (incident alert thresholds) for measuring the cybersecurity incident response capability within the organization;
    7. Defines the resources and management support needed to effectively maintain and mature a cybersecurity incident response capability; and
    8. Reviews and approves plan by organization-defined personnel or roles;
b. Distribute copies of the cybersecurity IRP to organization-defined cybersecurity incident response personnel (identified by name and/or by role) and organizational elements;

c. Review cybersecurity IRP following organization-defined frequency;

d. Update the cybersecurity IRP to address system/organizational changes or problems encountered during plan implementation, execution or testing;

e. Communicate cybersecurity IRP changes to organization-defined cybersecurity incident response personnel (identified by name and/or by role) and organizational elements;

f. Protect the cybersecurity IRP from unauthorized disclosure and modification; and,

g. Response plans are tested following organization-defined frequency.

5.3.2 Cybersecurity Incident Reporting Requirements

USG organizations must establish a cybersecurity incident response plan to respond to and manage adverse activities or actions that threaten the successful conduct of teaching, research, service and operations in the USG.

Requirements

a. All incident response reporting and escalation procedures must be formally documented and approved by USG Cybersecurity.

    1. Cybersecurity events refer to any questionable or suspicious activity that could threaten the security of sensitive data and/or our information systems infrastructure. These events may or may not have criminal implications. Examples include: reconnaissance activity or human error.

    2. Cybersecurity incidents are violations (or imminent threats of violation) of cybersecurity policies, acceptable use policies, standard cybersecurity practices, and federal and state cybersecurity and privacy legislation. Examples include: An information system being "hacked" or the loss of a thumb drive containing sensitive data.

b. USG organizations must train employees on how to recognize and report cybersecurity incidents in accordance with the reporting and escalation procedures.

c. USG organizations must have a designated and documented incident management point of contact.

d. A timely response is critical. USG organizations must report all security incidents or events of interest affecting systems or data for any of the security objectives of confidentiality, integrity or availability to USG Cybersecurity through the ITS Service Desk (helpdesk@usg.edu) at 706-583-2001, or 1-888-875-3697 (Toll free within Georgia).

    1. Timely Response is defined by the type of data or information breached and the regulation governing the breach notification. For example, some regulations state within 24 hours of discovery, other regulations state most expediate time possible, or without reasonable delay.

    2. In accordance with the Georgia Cybersecurity Board memo dated 09/08/2020, all cybersecurity incidents affecting **mission-critical systems** and categorized as "**High**" shall be reported to USG Cybersecurity within **one hour** of identification. USG Cybersecurity has the responsibility to notify the governor's office or delegated authorities.

e. In addition, as part of the post-incident activity, an incident follow-up report must be submitted to the USG Cybersecurity that includes the application of lessons learned from incidents, together with the development and implementation of appropriate corrective actions directed at preventing or mitigating the risk of similar occurrences in the future.

5.3.3 Cybersecurity Incidents Involving Personal Information

In addition to the above listed requirements, any USG organizations that collect, use, or maintain records containing personal information shall establish and maintain procedures in its cybersecurity incident management program for ensuring that any breach of cybersecurity or data privacy involving personal information, regardless of its medium (e.g., paper, electronic, verbal) shall immediately trigger the cybersecurity incident response process. Plans and procedures must be documented and address, at a minimum, the following:

a. Identification of Roles and Responsibilities (reference *USG Incident Response Plan* template available within the USG Cybersecurity SharePoint site). Plans shall identify the roles responsible for responding to a breach of personal information.

    1. Reference Section 5.3.2 *Cybersecurity Incident Reporting Requirements*.
    2. Cyber Liability Insurance Decision Trigger
        i. 1st Criteria: EXPOSURE - any protected personal identifiable information exposed (unencrypted) to unauthorized access.
        ii. 2nd Criteria: SCOPE - breach of systems, products, or services needing forensic support, size of attack, potential civil/criminal prosecution.

b. Protocol for Internal Reporting. Procedures shall outline the method, manner, and progression of internal reporting to ensure that executive management is informed about breaches involving personal information.

c. Decision Making Criteria and Protocol for Notifying Individuals. Procedures shall include documentation of the methods and manner for determining when and how a notification is to be made. The procedures shall be consistent and comply with USG policies and applicable state and federal laws. At a minimum, these procedures will address the following elements:

- Whether the notification is required by law;
- Whether the notification is required by USG or state or federal policy;
- Timeliness of notification;
- Source of notice;
- Content of notice;
- Approval of notice prior to release;
- Method(s) of notification;
- Preparation for follow-on inquiries;
- Other actions that can be taken to mitigate harm to individuals; and,
- Other situations when notification should be considered.

Section 5.4 USG Information Asset Management and Protection

Information assets can be defined as:

1. All categories of automated information, including, but not limited to, records, files and data bases; and,
2. Information technology facilities, equipment (including endpoints, personal computer systems) and software owned or leased by a USG organization.

5.4.1 USG Information Asset Management Requirements

Asset inventory is required by state asset management procedures and is the method by which the USG maintains accountability of the systems, products or services, such as physical computing devices and software purchased with state funds.

Requirements

Each USG organization shall maintain perpetual and up-to-date accountability of all hardware and software (including licenses) acquired with federal or state funds. In the case of shared resource situations among two or more USG organizations, the hosting organization shall be responsible for this accountability. All assets shall be recorded in compliance with all applicable state or USG asset management policies and the Official Code of Georgia Annotated section 50-16-160 et. seq. Asset management shall include procedures for accountability throughout the asset's life cycle from acquisition to decommission, transfer of ownership, surplus and/or equipment refresh/upgrades.

5.4.2 USG Information Asset Protection Requirements

USG organizations must provide for the integrity and security of its information assets by identifying all information systems, products or services, for which the USG organization has ownership responsibility, and ensuring that responsibility for each information system, automated file or database is defined with respect to:

1. Owners of the information system;
2. Owners of the information within USG organizations;
3. Trustees and stewards of the information;
4. Users of the information;
5. Classification of information to ensure that each automated file or database is identified as to its information class in accordance with policies and standards;
6. The data processing environment is identified (e.g., geographic location, on-premises, cloud or third party managed);
7. Identified assets are scanned for vulnerabilities, which are documented and mitigated or remediated; and,
8. Systems, products, services and associated data are formally managed throughout removal, transitions and disposition.

Note: The definitions of Owners, Stewards, Trustees, and Users are covered in the BOR *BPM*, Section 12: Data Governance and Management.

Section 5.5 Risk Management

Risk Management is defined as the process of identifying, controlling, and managing the impact of uncertain harmful events, commensurate with the value of the protected assets, to avoid risk or reduce

it to acceptable levels. This process includes both the identification and assessment of risk through risk assessment, analysis, and the initiation and continuous monitoring of appropriate practices in response to that analysis through a risk management program. The USG CISO shall develop and maintain a risk management standard, processes and procedures for support of risk management across the USG and support of activities between organizations. The USG CISO shall also maintain risk management implementation standards that the USG organizations must consider in the development of their individualized risk management plans.

5.5.1 USG Organizations Responsibilities

USG organizations must ensure the integrity of computerized information resources by protecting them from unauthorized access, modification, destruction, or disclosure and to ensure the physical security of these resources. USG organizations shall also ensure that users, contractors, and third parties having access to state or USG computerized information resources are informed of and abide by this standard and the USG organizations' cybersecurity plan and are informed of applicable local, state, and federal policies, laws, regulations and/or codes related to computerized information resources. USG organizations employing information technology must establish a risk management process to identify, assess and respond to the risks associated with its information assets. The unauthorized modification, deletion or disclosure of information included in USG organizations files and databases can compromise the integrity of state and USG programs, violate individual right to privacy and constitute a criminal act.

5.5.2 Risk Assessment and Analysis

USG organizations understand the cybersecurity and data privacy risks to individuals, products and systems and how they may create follow-on impacts on organizational operations, including mission, functions, other risk management priorities (e.g., compliance, financial), reputation, workforce and culture.) Event data (logs) shall be collected and correlated from sources and sensors. Once the level of sensitivity of the information resources has been identified through an impact analysis, in which IT-related assets (e.g., information, people (both internal and external to the organization), software, hardware, facilities, etc.) are identified and which of those assets are determined to be most critical to protect, the threats to which they are subject must be identified and evaluated. This process is referred to as a risk assessment; i.e., the probability of each threat event occurring and the resultant impact of that event on the information resources should be assessed during this process.

USG organizations must ensure the policies, processes, and procedures for ongoing review of the organization's cybersecurity and data privacy posture are understood and informs the management of assessed risk. To achieve this:

- Potential problematic data actions are identified. A problematic data action is defined as a data action that could cause an adverse effect for individuals (e.g., unauthorized access/exposure), which is the focus concerning data privacy.
- Policies, processes and procedures are established and in place to receive, analyze and respond to problematic data actions disclosed to the organization from internal and external sources.
- Problematic data actions, likelihoods and impacts are used to determine and prioritize risk.
- Policies, processes and procedures incorporate lessons learned from problematic data actions.

The risk management tool used to record the risk assessment is a risk register. Risks are identified to include nature of risk, level of risk, impact and frequency of risk, reference the owner of the risk, and the mitigating measures in place to respond to the risk of the data ecosystems, products and services. For a given IT asset, an estimate should be made of the largest potential business impact, based on failures of

confidentiality, integrity, and availability. The relative business impact of these three types of failure events should then be estimated as high, medium, or low. For example, if a system is estimated as having a low requirement for confidentiality, a medium requirement for data integrity, and a high requirement for service availability, then that IT asset is treated as having a high requirement for attention.

5.5.3 Defining Risk Tolerance

USG organizations' senior leadership shall decide if and when a residual level of risk may be acceptable. It is then senior management's choice of one of the following activities pertaining to each of the identified risks to determine an appropriate risk response:

1. Mitigate the risk by implementing safeguards (controls and countermeasures);
2. Accept the risk;
3. Avoid the risk; or,
4. Transfer the risk.

5.5.4 USG Organizations Risk Management Programs

The practice of risk management within a USG organization must be based upon the results of the organization's risk analysis process. Based on the impact analysis and the risk assessment, the organization should determine what types of safeguards are appropriate to address their defined risks. In this manner, the safeguards deployed reflect the true importance of the investment in the information resources used to accomplish the organization's mission.

A risk management plan must then be developed documenting the actions, safeguards, or countermeasures that can be taken to reduce the identified risks based on available resources. While it is not required that this plan be on file with USG Cybersecurity, it must be made available upon request. A focus on the USG and organization missions is vital. The IT organization cannot, and is not expected to, mitigate every risk, but must prioritize based on the threat to the mission and available resources. Obtaining resources for risk management is subject to the same technical, programmatic, and budgetary justification and review processes required for any information technology program. The risk management practices implemented by the USG organization will vary depending upon the nature of the organization's information assets.

5.5.5 USG Risk Management Requirements

Cybersecurity risk management is a strategic business discipline that supports the achievement of an organization's objectives and goals by addressing the full spectrum of its risks and managing the combined impact of those risks. Risk management is an aggregation of three processes – risk assessment, risk mitigation, and controls evaluation and measurement – that help an organization ensure that processes are integrated with strategic and operational planning processes. Managing risk safeguards the organization's mission and goals and requires an ongoing evaluation and assessment of operations and processes. USG information assets (e.g., data processing capabilities, information technology infrastructure and data) are an essential resource and asset. For many organizations, program operations would effectively cease in the absence of key computer systems, products, or services. In some cases, public health and safety would be immediately jeopardized by the failure or disruption of a system. Furthermore, the unauthorized modification, deletion or disclosure of information included in institution files and databases can compromise the integrity of USG programs, violate individual right to privacy and constitute a criminal act.

USG organizations must ensure the integrity of computerized information resources by protecting them from unauthorized access, modification, destruction or disclosure, and to ensure the physical security of these resources. USG organizations must ensure that users, contractors and third parties that access the organization's computerized information resources are informed of and abide by this standard, all applicable organization policies, standards and procedures, and applicable federal and state laws related to computerized information resources. USG organizations that employ information technology, must establish risk management and disaster recovery planning processes for identifying, assessing, and responding to the risks associated with its information assets. Federal and state information technology regulations require USG information resources to undergo a cybersecurity risk management process to identify the risks associated with their operation and to take steps to reduce and maintain risk at an acceptable level.

5.5.6 USG Cybersecurity Risk Management Process

Federal and state information technology regulations require USG information resources to undergo a Cybersecurity Risk Management process to identify the risks associated with their operation and to take steps to reduce, and maintain that risk to an acceptable level. Risk management is integral to the development and operation of information resources.

Process

Risk management planners must communicate and collaborate with the USG organization's Enterprise Risk Management (ERM) coordinator, at least annually. Risk management practices implemented will vary depending upon the nature of the USG organization's information assets. Practices that must be included in each organization's risk management program are:

1. Discover endpoints and data;
2. Inventory endpoints and data;
3. Categorize the information system (impact/criticality/sensitivity);
4. Select and tailor baseline (minimum) security controls;
5. Supplement the security controls based on risk assessment;
6. Document security controls in system security plan;
7. Implement the security controls in the information system;
8. Assess the security controls for effectiveness;
9. Authorize information system operation based on mission risk; and,
10. Continuously monitor security controls on a continuous basis, which includes:
    a. Detecting network-based activity for potential cybersecurity events;
    b. Detecting environment-based activity for potential cybersecurity events;
    c. Detecting personnel-based activity (insider) for potential cybersecurity events; and,
    d. Detecting malicious code to include unauthorized mobile code.

Section 5.6 USG Information System Categorization

Data is a critical asset of the USG. USG organizations have a responsibility to protect the confidentiality, integrity, and availability of the information and information systems assets utilized. However, to adequately protect the data, there must be an understanding of what to protect, why protect it and how to protect it. The security objective is to maintain the confidentiality, integrity, and availability of all information and information systems, products or services. Security categorization is the characterization of information or an information system based on an assessment of the potential impact that a loss of confidentiality, integrity, or availability of such information or information system

would have on organization operations, assets, or individuals and the USG itself. Confidentiality, integrity and availability are defined as:

1. Confidentiality - “Preserving authorized restrictions on information access and disclosure, including means for protecting personal privacy and proprietary information…” [44 U.S.C., Sec. 3542] A loss of confidentiality is the unauthorized disclosure of information.
2. Integrity - “Guarding against improper information modification or destruction and includes ensuring information non - repudiation and authenticity…” [44 U.S.C., Sec. 3542] A loss of integrity is the unauthorized modification or destruction of information.
3. Availability - “Ensuring timely and reliable access to and use of information…” [44 U.S.C., SEC. 3542] A loss of availability is the disruption of access to, or use of, information or an information system.

5.6.1 Security Categories

Security categories are based on the potential impact to an organization should certain events occur that jeopardize the information and information systems needed by the organization to accomplish its assigned mission, protect its assets, fulfill its legal responsibilities, maintain its day-to-day functions and protect individuals.

5.6.2 Requirements

Data Owners shall inventory and assign a security category to the information systems for which they hold responsibility. The security category assigned shall conform to FIPS Publication 199, Standards for Security Categorization for Federal Information Systems, which addresses developing standards for categorizing information and information systems according to the potential impact on organizations should there be a breach in security.

Specifically:

1. The potential impact is LOW if the loss of confidentiality, integrity, or availability could be expected to have a limited adverse effect on organizational operations, organizational assets or individuals.
2. The potential impact is MODERATE if the loss of confidentiality, integrity, or availability could be expected to have a serious adverse effect on organizational operations, organizational assets or individuals.
3. The potential impact is HIGH if the loss of confidentiality, integrity, or availability could be expected to have a severe or catastrophic adverse effect on organizational operations, organizational assets or individuals.

Security categorization information is shown in the “Nine Box” from FIPS Publication 199, as shown below.

Table 5.3: NIST “Nine Box” Security Categorization

	Low	**Moderate**	**High**
Confidentiality	The loss of confidentiality could be expected to have a limited adverse effect on organizational	The loss of confidentiality could be expected to have a serious adverse effect on organizational operations, organizational assets, or individuals.	The loss of confidentiality could be expected to have a severe or catastrophic adverse effect on organizational

	operations, organizational assets, or individuals.		operations, organizational assets, or individuals.
Integrity	The loss of integrity could be expected to have a limited adverse effect on organizational operations, organizational assets, or individuals.	The loss of integrity could be expected to have a serious adverse effect on organizational operations, organizational assets, or individuals.	The loss of integrity could be expected to have a severe or catastrophic adverse effect on organizational operations, organizational assets, or individuals.
Availability	The loss of availability could be expected to have a limited adverse effect on organizational operations, organizational assets, or individuals.	The loss of availability could be expected to have a serious adverse effect on organizational operations, organizational assets, or individuals.	The loss of availability could be expected to have a severe or catastrophic adverse effect on organizational operations, organizational assets, or individuals.

The generalized format for expressing the security category (SC) of an information system is:

- SC information system = {(confidentiality, impact), (integrity, impact), (availability, impact)}, where the acceptable values for potential impact are LOW, MODERATE, or HIGH.

The security categorization process is carried out by the information system owner and information owner/ steward in cooperation and collaboration with appropriate organizational officials (i.e., senior leaders with mission/business function and/or information security officer/risk management responsibilities). The security categorization process is conducted as an organization-wide activity taking into consideration the enterprise architecture and the cybersecurity architecture. This helps to ensure that individual information systems are categorized based on the mission and business objectives of the organization. The results of the security categorization process influence the selection of appropriate security controls for the information system and also, where applicable, the minimum assurance requirements for that system. Security categorization information must be documented in the system identification section of the security plan or included as an attachment to the plan.

“Critical System” designation uses the output of the categorization process. A Critical System is a system whose failure or malfunction will result in not achieving organizational goals and objectives. Criteria are a) contains confidential or sensitive data (i.e. personally identifiable information (PII) and other regulated information), or b) serves a critical and necessary function for daily operations, or c) a combination of both protected data and critical function.

Section 5.7 USG Classification of Information

The USG’s records (paper or electronic, including automated files and databases) are essential public resources that must be given appropriate protection from unauthorized use, access, disclosure, modification, loss or deletion. USG organizations must classify each record using the following classification structure:

1. *Unrestricted/Public Information* is information maintained by a USG organization that is not exempt from disclosure under the provisions of an open records act or other applicable state or federal laws.
2. *Sensitive Information* is information maintained by a USG organization that requires special precautions to protect from unauthorized use, access, disclosure, modification, loss, or deletion. Sensitive information may be either public or confidential. It is information that requires a higher than normal assurance of accuracy and completeness. Thus, the key factor for sensitive

information is that of integrity. Typically, sensitive information includes records of USG financial transactions and regulatory actions.

3. *Confidential Information* is information maintained by a USG organization that is exempt from disclosure under the provisions of an open records act[2] or other applicable state or federal laws.

In addition, Personal Information may occur in unrestricted/public, sensitive and/or confidential information. Personal information is information that identifies or describes an individual as defined in, but not limited by, the statutes listed below. This information must be protected from inappropriate access, use or disclosure and must be made accessible to data subjects upon request. Personal information includes, but is not limited to:

1. Notice-triggering personal information - specific items or personal information (name plus Social Security Number, driver's license/Georgia identification card number, or financial account number) that may trigger a requirement to notify individuals if it is acquired by an unauthorized person.
2. Protected Health Information - individually identifiable information created, received, or maintained by such organizations as health care payers, health care providers, health plans, and contractors to these entities, in electronic or physical form. Laws require special precautions to protect from unauthorized use, access, or disclosure.
3. Electronic Health Information - individually identifiable health information transmitted by electronic media or maintained in electronic media. Federal regulations require state entities that are health plans, health care clearinghouses, or health care providers conducting electronic transactions ensure the privacy and security of electronic protected health information from unauthorized use, access, or disclosure.
4. Personal Information for Research Purposes - personal information requested by researchers specifically for research purposes. Releases may only be made to the USG or other non-profit educational institutions in accordance with the provisions set forth in the law.
5. Personally Identifiable Information (PII) - any information that permits the identity of an individual to be directly or indirectly inferred, including any information that is linked or linkable to that individual regardless of whether the individual is a U.S. citizen, lawful permanent resident, visitor to the U.S., or employee or contractor to the institution. Some PII is not sensitive, such as the PII on a business card, while other PII is considered Sensitive Personally Identifiable Information (Sensitive PII), as defined below.
6. Sensitive Personally Identifiable Information (Sensitive PII) - personally identifiable information that if lost, compromised, or disclosed without authorization, could result in substantial harm, embarrassment, inconvenience, or unfairness to an individual, such as a Social Security number or alien number (A-number). Sensitive PII requires stricter handling guidelines because of the increased risk to an individual if compromised.

The designated owner[3] of a record is responsible for making the determination as to whether that record should be classified as public or confidential, and whether it contains personal and/or sensitive

[2] Note: Georgia's open records act is located at: http://law.ga.gov/law.

[3] Note: The definition of Owner is covered in Section 9, Data Governance and Management Structure, of this Manual.

information. The owner of the record is responsible for defining special security precautions that must be followed to ensure the integrity, security and appropriate level of confidentiality of the information. Records containing sensitive and/or personal information require special precautions to prevent inappropriate disclosure. When confidential, sensitive or personal information is contained in public records, procedures must be used to protect it from inappropriate disclosure. Such procedures include the removal, redaction or otherwise masking of the confidential, sensitive, or personal portions of the information before a public record is released or disclosed. While the need for the USG organizations to protect data from inappropriate disclosure is important, so is the need for the USG organization to take necessary action to preserve the integrity of the data. USG organizations must develop and implement procedures for access, handling and maintenance of personal and sensitive information. Information classification must be part of the risk management program, as detailed in Section 5.5 of this Manual, for USG organizations.

Section 5.8 Endpoint Security

5.8.1 Purpose

This section provides the components, features and operational sequence for endpoint security and system management. All USG organizations must implement endpoint security by deploying the components and features listed below by the dates listed in the implementation/compliance subsection. Compliance will be formally reported and verified by the biannual USG *CPR* and USG Internal Audit and Compliance.

5.8.2 Discovery and Inventory

Data processing by systems, products, or services is understood and informs the organization of cybersecurity and data privacy risks. Endpoint discovery is the process of collecting and listing assets. Discovering state-owned assets is a fundamental step in the defense and protection of USG assets, permitting a real-time inventory and system categorization. USG organizations must employ a comprehensive real-time endpoint discovery process that is capable of detecting and discovering all endpoint devices on the USG organizations' network. An up-to-date inventory of all state-owned endpoint devices must be developed, maintained and reported upon request. At a minimum, the inventory must include device name, categorization, MAC address and location. Beyond the state-owned assets, owners or managers (e.g., the organization or contracted third parties) and their roles with respect to the systems/products/services and components (e.g., internal or external) that process data are inventoried.

5.8.3 Anti-virus, Anti-malware, Anti-spyware Controls

Preventive or detective controls are activities that prevent or detect threats or vulnerabilities to mitigate risks. Anti-virus, anti-malware and anti-spyware protect and prevent known and emerging computer viruses, malicious programs and unwanted software applications on the endpoint. All endpoint devices must have installed and activated anti-virus, anti-malware and anti-spyware protection software. Anti-virus is a mandatory foundational control for protecting state-owned assets against certain attack vectors. Where possible, anti-virus software must be installed and configured for automatic updates on desktops, portables and mobile assets. Anti-malware software is designed to prevent, detect and remediate malicious programming on endpoint systems. Where possible, anti-malware software must be installed and configured for automatic updates on desktops, portables and mobile assets. Anti-spyware software is designed to prevent, detect and remediate spyware programs on endpoint systems.

Where possible, anti-spyware software must be installed and configured for automatic updates on desktops, portables and mobile assets.

5.8.4 Operating System (OS)/Application Patch Management

In order to ensure the security of our network and protect USG data, all endpoint assets must be securely maintained, and critical security patches must be applied consistent with an assessment of risk. Desktop and mobile assets must have activated and operating patch management solutions.

5.8.5 Maintenance

Maintenance and repairs of information system components is performed consistent with procedures. USG organizations must show maintenance and repair of organizational assets is performed and logged in a timely manner, with approved and controlled tools. USG organizations shall maintain and repair organizational assets, record the maintenance and repair, and do so utilizing pre-approved and vetted tools. Additionally, if remote maintenance is required, it must be approved, logging enabled and performed in a manner that prevents unauthorized access.

Section 5.9 Cybersecurity Awareness, Training and Education

Given the increased use of IT and Internet-based services, the USG has a compelling need to ensure confidentiality, integrity and availability of those systems, products or services as well as adequate protection from known and anticipated threats. As noted in Section 5.2.2 of the USG *IT Handbook*, USG organizations are responsible for the designation of officials to fulfill key cybersecurity functions and report on status of compliance with cybersecurity policy, standards and procedures.

5.9.1 Roles and Responsibilities

While it is important to understand the policies, standards and guidelines (PSG) that USG organizations develop and implement, it is crucial that faculty, staff, students and third-party affiliates understand who has responsibility for cybersecurity and data privacy defense.

Organization President or Chief Executive

The Chancellor, organization president or chief executive and senior leadership are responsible for ensuring that appropriate and auditable cybersecurity controls are in place to include awareness, training and education as stated within *Board of Regents Policy 10.4*.

Information Security Officer (ISO)

The ISO shall provide leadership in cybersecurity awareness, training and education as well as work with the academic, administrative and information technology leadership to:

1. Establish overall strategy for cybersecurity awareness, training and education.
2. Understand program maturity and compliance.
3. Provide evidence semiannually using the Cybersecurity Program Review (CPR) that all users accessing information or information systems, products or services are trained in their cybersecurity responsibilities.
4. Identify who within the organization has the data privacy role and coordinate the implementation of cybersecurity data privacy support responsibilities.

Users

Users are the largest audience and most important group to help reduce unintentional errors and vulnerabilities. Users requiring access to information and information systems, products or services must:

1. Understand and comply with USG organization's cybersecurity policies and procedures.
2. Be trained in the acceptable use of the systems, products or services to which they have access.
3. Work with management to meet training needs.
4. Be aware of actions to better protect USG organization's information and information systems, products or services. These include, but are not limited to password usage, data management, antivirus protection, incident reporting and actions to avoid social engineering attacks.

Third Party

Third parties (e.g., services providers, customers, partners) have been identified and they understand their roles and responsibilities concerning awareness training.

5.9.2 Cybersecurity Awareness, Training and Education Requirements

USG organizations cannot protect confidentiality, integrity and availability of information and information systems, products or services without ensuring that each person involved understands their roles and responsibilities and is adequately trained to perform them.

Learning Objectives

USG organizations shall provide cybersecurity awareness training to users that access information or information systems, products or services. Topics covered must include:

- Cybersecurity policy and guidelines and the need for cybersecurity;
- Data governance and management as well as roles and responsibilities;
- Importance of personal cybersecurity; and,
- Threats to cybersecurity and incident reporting.

Awareness training shall be conducted biannually, attendance shall be mandatory, completion shall be documented and shall provide practical and simple guidance pertaining to user roles and responsibilities. Additional role-based cybersecurity training shall be provided to IT specialists, developers, cybersecurity management and users having unique or specific cybersecurity responsibilities.

Enabling Learning Objectives:

- To know where to locate within the organization the PSGs governing cybersecurity.
- To know data governance, which data is protected and why, and one's role and responsibility.
- To know why personal cybersecurity is important.
- To know how to identify threats to the information assets and what to do to report them.

Terminal Learning Objectives:

- To raise awareness to the content's importance in reducing cybersecurity risk within the USG.
- To know the vocabulary.

Training Requirements

1. Cybersecurity policy and guidelines and the need for cybersecurity:
    - Define the location of USG's PSG's governing cybersecurity.
    - Define the location of the USG organizations' PSGs governing cybersecurity.
    - Define the location of relevant regulatory, industry and compliance legislation and standards.
    - Define data confidentiality, integrity and availability *(Reference: BPM Section 12).*
    - Define the factors contributing to the need for cybersecurity:
        - Establishing a standard of due care.
        - Elevation of threats – social engineering, mobile devices.
        - Technological growth and ubiquitous presence.
        - Data integrity and cross connectivity (shared services).
        - Compliance expectations.
2. Data governance and management *(Reference: BPM Section 12).*
    - Define the USG organizations' data management structure.
        - Define roles and responsibilities.
            - Data Owner, Data Trustee, Data Stewards and Data Users.
    - Define which data is protected and why.
        - Define the data classification process.
        - Define data handling procedures for protected data.
3. Importance of personal cybersecurity.
    - Define personally identifiable information (PII) and why it is important to protect.
    - Raise awareness of the Appropriate Usage Policy (AUP).
        - Define the AUP's location.
        - Describe the AUP's use.
    - Describe how to protect online transactions.
    - Identify identity theft efforts and what to protect.
4. Threats to cybersecurity and incident reporting.
    - Describe how to identify threats to the information assets.
        - Define threat categories:
            - Application.
            - Access control/authentication/authorization.
            - Cybercrime/social engineering/legal.
            - Data exposure/privacy.
            - Environmental.
            - Physical systems and facilities.

    - Identify the most common vectors of cybersecurity threats.
- Describe how to report an incident.
    - USG organizations to the USG in accordance with:
        - Information Technology Handbook requirements.
        - Federal, state and industry legislative and/or regulatory requirements.
    - End users to the USG organizations.

Recommended Tools and Materials

- USG organizational learning management system (LMS).
- USG organizationally developed LMS.
- Awareness training module delivered via electronic presentation.
- Document-based awareness training module.

Section 5.10 Required Reporting

The USG has a compelling need to ensure confidentiality, integrity and availability of IT systems, products or services as well as adequate protection from known and anticipated threats. As noted in Section 5.2.2 of the USG *IT Handbook*, USG organizations are responsible for the designation of officials to fulfill key cybersecurity functions and report on status of compliance with cybersecurity policy, standards and procedures.

5.10.1 Required Reporting Activities

The following provides a summary list and schedule of required cybersecurity reporting activities with corresponding due dates. Unless otherwise noted, all reports must be submitted in electronic format to USG Cybersecurity.

Cybersecurity Officer Contact Information Update

As noted in Section 5.2.2 of the USG *IT Handbook*, the name and appropriate designee contact information must be sent to USG Cybersecurity within 10 business days of any designee change.

Cybersecurity Incident Response Plan Submission

As noted in Section 5.3.1 of the USG *IT Handbook*, a cybersecurity incident response plan must be formally documented and electronically sent and filed with USG Cybersecurity.

Cybersecurity Incident Reporting Requirement

As noted in Section 5.3.2 of the USG *IT Handbook*, a timely response is critical. USG organizations must report all cybersecurity incidents or events of interest affecting information or information systems, products, or services for any of the cybersecurity objectives of confidentiality, integrity, or availability to USG Cybersecurity through the ITS Helpdesk (helpdesk@usg.edu) at 706-583-2001, or 1-888-875-3697 (toll free within Georgia). For all incidents affecting mission-critical systems and categorized as "**High**" shall be reported to USG Cybersecurity within **one hour** of identification.

Cybersecurity Incident Follow-up Reporting Requirement

As noted in Section 5.3.3 of the USG *IT Handbook*, an incident follow-up report must be submitted to USG Cybersecurity.

Cybersecurity Program Review (CPR) Submission

The Governor's Executive Order of March 19, 2008, requires development of a composite report on the status of cybersecurity for all state agencies. The USG has chosen to align itself with this order by producing its own USG CPR. Reference **Figure 3** Required Reporting Diagram. USG Cybersecurity will complete the following CPR processes on an annual basis:

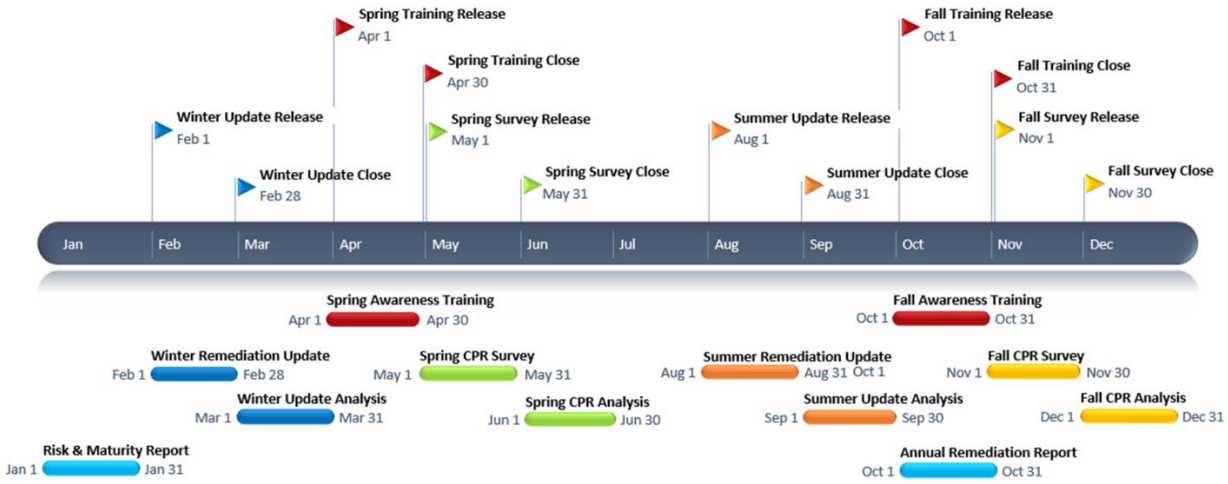

Figure 4: Required Reporting Diagram (Updated)

- **April**: USG Cybersecurity shall review previous CPR reports to determine if changes are required and identify areas of focus for the upcoming review period. USG Information Technology Services (ITS) senior staff and the Internal Audit and Compliance department will review proposed changes. USG Cybersecurity shall inform USG organization of any revisions to the report, changes to the CPR reporting process and the areas of focus for the upcoming review period.
- **May**: USG Cybersecurity releases the Spring CPR Survey to USG organizations. USG organizations have 30 days to complete the survey.
- **June**: USG Cybersecurity collects, compiles and analyzes Spring CPR Survey results.
- **November**: USG Cybersecurity releases the Fall CPR Survey to USG organizations. USG organizations have 30 days to complete the survey.
- **December**: USG Cybersecurity collects, compiles and analyzes Fall CPR Survey results.
- **January**: USG Cybersecurity shall merge the spring and fall analysis into the annual cybersecurity risk and maturity report and make available to respective USG CIOs, CISOs and USO senior staff.

Remediation and Mitigation Tracker Submission

Remediation and mitigation trackers provide a standardized method for USG organizations to represent the plan of actions and milestones to close on such tasks as Internal Audit findings, Federal Student Aid compliance, and special projects like multi-factor authentication deployment. Reference **Figure 3** Required Reporting Diagram. USG Cybersecurity will complete the following remediation/mitigation tracker processes on an annual basis:

- **February**: USG Cybersecurity requests USG organizations to update winter Remediation and Mitigation Trackers (trackers). USG organizations are permitted 31 days to complete the trackers.
- **March**: USG Cybersecurity collects, compiles and analyzes the updated winter trackers.
- **August**: USG Cybersecurity requests USG organizations to update summer trackers. USG organizations are permitted 31 days to complete the trackers.
- **September**: USG Cybersecurity collects, compiles and analyzes the updated summer trackers.
- **October**: The winter and summer analysis of the trackers are merged into the annual report(s) respective to what is being tracked (i.e., Audit, MFA FSA….), which shall be made available to respective USG CIOs, CISOs and USO senior staff.

Risk management is a broad area requiring top-level management attention and USG-wide participation. Cybersecurity policies, standards and guidelines are intended to reduce business risk throughout USG organizations. USG organizations have the responsibility of providing cybersecurity to protect USG's data. USG organizations are required to conduct reviews of their cybersecurity programs twice annually and submit the results to USG Cybersecurity. These data will be used to prepare the annual enterprise cybersecurity risk and maturity report. Components of the CPR are as follows:

1. **Personnel: Goal(s**) – Track and quantify dedicated and trained information cybersecurity professionals designated as USG organizational cybersecurity contacts. Advance succession planning in support of Continuity of Operations Planning (COOP).
2. **Governance & Strategic Planning: Goal(s) –** Develop a cybersecurity strategy or strategies. Each strategy is supported by one or more measurable objectives.
3. **Policy and Compliance: Goal(s) –** Develop a full life cycle policy development process, refreshment and retirement methodology based on current best practices.
4. **Risk Management: Goal(s) –** Establish risk management planning processes for identifying, assessing and responding to risks associated with USG organizations' information assets. Verify that all IT or business processes owners have appropriately documented cybersecurity characteristics of their systems.
5. **Cybersecurity Incident Response: Goal(s) –** Track and quantify the number of USG organizations with a formal incident management capability.
6. **Continuity of Operations Planning: Goal(s) –** Ensure the USG organizations' COOP includes collaboration with emergency operations, planning strategies and initiatives.
7. **Awareness and Training: Goal(s) –** Ensure each organization has a cybersecurity awareness program that is completed biannually by each employee and individuals who through formal, informal, contract or other types of agreements interact with USG organizational information and information systems, products or services.
8. **Data Governance & Privacy: Goal(s) –** Establish the maturity level of the USG organization's data governance framework. Determine information technology management input into the USG organization's data governance activities.

5.10.2 Remediation and Mitigation Tracker

The Remediation and Mitigation Tracker tool provides a mechanism to track the managing department and point of contact (POC) information; summarizes the issues from the final audit/assessment; identifies the specific requirements to address an issue; records a scheduled completion date; and tracks the status of the remediation effort. Components of the tracker are represented in steps as follows:

1. Issue(s). Describe the issue(s) identified during audit engagement or annual program review, independent evaluations by internal audit or external audit, or any other work done by or on behalf of the USG. Sensitive descriptions are not necessary, but sufficient data must be provided to permit oversight and tracking. When it is necessary to provide more sensitive data, the tracker should note the sensitive nature and be protected accordingly.
2. Rating. Section 16.3.8 in the BOR *BPM*, Exception Ratings are assigned to each engagement observation contained in reports issued by Audit.
3. Impact. Enter an objective condition achieved through the application of specific safeguards or through the regulation of specific activities. The objective condition is testable, compliance is measurable, and the activities required to achieve the control are accountable. Controls are assigned according to impact pertaining to compliance. Impact Codes indicate the consequences of a noncompliant control, which are expressed as high, medium or low, with high indicating greatest impact.
4. POC per Issue. Enter the role of the responsible party resolving the audit issue (e.g., CIO, network director, etc.).
5. Resource Requirements.
    - People Resources Required. Enter the estimated funding for workforce costs required to resolve the issue. This value will be added downward and across with process and technology to generate the total estimated costs.
    - Process Resources Required. Enter the estimated funding for process costs required to resolve the issue. This value will be added downward and across with people and technology to automatically generate the total estimated costs.
    - Technology Resources Required. Enter the estimated funding for technology costs required to resolve the issue. This value will be added downward and across with people and process to automatically generate the total estimated costs.
6. Milestones. Identify and enter the specific requirements to address an identified issue. Note that the initial milestones and completion dates should not be altered. If there are changes to any milestone, note them in Column 8, “Milestone Changes.”
7. Scheduled Completion Date. Enter the scheduled completion date for resolving the issue. If an issue is resolved before or after the originally scheduled completion date, the actual completion date is noted in Column 9 and 10, “Status” and “Comments,” respectively.
8. Milestone Changes. Enter changes to the completion dates and reasons for the changes.
9. Status. Using the pull-down tab, select one of the available options to characterize the status remediating the issue. Options available are “completed”, “on track”, “scheduled”, “delayed” or “at risk”.

10. Comments. Enter additional information to include details for tracking this issue. Comments may include sources of funding, obstacles and challenges to resolve the issue (e.g., lack of personnel or expertise, development of new system to replace insecure legacy system), or reasons for scheduling changes or changes to status.

Section 5.11 Minimum Security Standards for USG Networked Devices

The following minimum cybersecurity standards are required for devices connected to the USG PeachNet™ network.

5.11.1 Software Patch Updates

Networked devices must run software for which security patches are made available in a timely fashion. They must have all currently available security patches installed. Exceptions may be granted for patches that compromise the usability of critical applications.

5.11.2 Anti-Virus, Anti-Spam, and Anti-Phishing Software

Anti-virus, anti-spam and anti-phishing software must be running and up-to-date on every level of the device, including clients, file servers, mail servers and other types of networked devices.

5.11.3 Host-Based Firewall or Host-Based Intrusion Prevention Software

Host-based firewall or hosted-based intrusion prevention software for any particular type of device must be running and configured, on every level of device, including clients, file servers, mail servers and other types of networked devices. While the use of hardware firewalls is encouraged, they do not necessarily obviate the need for host-based firewalls or host-based intrusion prevention.

5.11.4 Passwords

USG electronic communications systems, products or services must identify users and authenticate and authorize access by means of user ID, passwords, or other secure authentication processes (e.g., biometrics or Smart Cards). Password length and strength must meet the Section 5.12 Password Security. In addition, shared-access systems, products, or services must enforce these standards whenever possible and appropriate and require that users change any pre-assigned passwords immediately upon initial access to the account. All default passwords for access to network accessible devices must be modified. Passwords used by system administrators for their personal access to a service or device must not be the same as those used for privileged access to any service or device.

5.11.5 Encrypted Authentication

Unencrypted device authentication mechanisms are only as secure as the network upon which they are used. Traffic across the USG network may be surreptitiously monitored, rendering these authentication mechanisms vulnerable to compromise. Therefore, all networked devices must use only encrypted authentication mechanisms unless otherwise authorized by USG Cybersecurity. In particular, historically insecure services such as Telnet, FTP, SNMP, POP and IMAP must be replaced by their encrypted equivalents. Encryption, or equally effective measures, is required for all personal, sensitive or confidential information, as defined in Section 5.7, that is stored on portable electronic storage media (including, but not limited to, CDs/DVDs, external/mobile storage and USB drives) and on portable computing devices (including, but not limited to laptop and notebook computers). This standard does not apply to mainframe and server tapes.

5.11.6 Physical Security

Unauthorized physical access to an unattended device can result in harmful or fraudulent modification of data, fraudulent email use or any number of other potentially dangerous situations. In light of this, where possible and appropriate, devices must be configured to lock and require a user to re-authenticate if left unattended for more than twenty (20) minutes.

5.11.7 Unnecessary Services

Principles of least function (disabling all unnecessary services): Service(s) not necessary for the intended purpose or operation of the device shall not be running.

5.11.8 Integrity and Segmentation

Utilizing the principle of least privilege, USG organizations shall ensure access to data and devices is limited to authorized individuals, processes, and devices, and is managed consistent with the assessed risk of unauthorized access by demonstrating that network integrity is protected and implementing network segregation, network segmentation where appropriate.

5.12 Password Security

5.12.1 User Access Controls

USG organizations must establish policies and procedures that ensure necessary user access controls are in place for controlling the actions, functions, applications, and operations of legitimate users. The aim is to protect the confidentiality, integrity and availability of all USG information resources.

The guiding principles in developing these standards and procedures are:

1. Users will have access to the resources needed to accomplish their duties.
2. User access applies the principles of least privilege and resource categorization as necessary tools to achieve the desired purpose.
3. User access controls will balance security and USG mission needs.

All users, whether internal, external or temporary, and their activity on all IT systems, products or services should be uniquely identifiable. User identification should be enabled through appropriate authentication mechanisms. User access rights to all systems and data must be in line with defined and documented business needs, and job requirements must be attached to user identification. User access rights should be requested by user management, approved by system owners and implemented by the appropriate local security administrator. User identification and access rights should be maintained in a central repository. Each USG organization should deploy cost-effective technical and procedural measures to establish user identification, implement authentication, and enforce access rights. These measures should be reviewed periodically and kept current.

5.12.2 USG Password Authentication Standard

Purpose

Passwords are an important aspect of information and information technology security. They are often the only means for authenticating users and the front line of protection for user accounts. Failure to use a strong password or using a poorly chosen password when accessing USG information assets may result in the compromise of those assets. It is the responsibility of every USG organization to implement

authentication mechanisms such as passwords to access sensitive data, and the responsibility of the user to appropriately select and protect their passwords.

Scope

This security standard applies to USG organizations. This standard also applies to all users (employees, contractors, vendors, and other parties) of USG and state information technology systems or data are expected to understand and abide by the standard.

Standard

Passwords shall be the minimum acceptable mechanism for authenticating users and controlling access to USG organizations' information systems, products or services unless specifically designated as a public access resource. All users (students, employees, contractors and vendors) with access to USG information and information systems, products or services shall take the appropriate steps to select and secure their passwords.

Enforcement

Individual USG organizations are responsible for developing internal procedures to facilitate compliance with these USG security policies and standards. The standards are designed to comply with applicable laws and regulations. However, if there is a conflict, applicable laws and regulations will take precedence. USG organizations may establish more stringent policies, standards and procedures consistent with this USG standard. Violations of this standard could result in serious security incidents involving sensitive state, federal, sensitive or privacy data. Violators may be subject to disciplinary actions including termination and/or criminal prosecution. The standards will guide periodic security reviews, as well as audits by USG Internal Audit & Compliance and the state Department of Audits and Accounts (DOAA).

5.12.3 USG Password Security and Composition Requirement

Purpose

This section establishes a standard for protecting passwords and the frequency of change for such passwords to mitigate compromise of sensitive information.

Scope

This security standard applies to all USG organizations. This standard also applies to all USG users, including employees, contractors, vendors and other parties.

Guidelines

1. All passwords shall be treated as sensitive, confidential information and shall not be shared with anyone including, but not limited to, administrative assistants, system administrators and helpdesk personnel.
2. Passwords shall not be stored in clear text.
3. Users shall not write passwords down or store them anywhere in their office or publicly. They shall not store passwords in a file on any computer system, including smart devices, without encryption.
4. Refresh shall:
    a. Administrative-level passwords shall be changed every ninety (90) days.

b. User-level passwords shall be changed every one-hundred-eighty (180) days.

c. System-level (system-to-system or non-interactive services account) passwords shall be changed after a significant event (i.e. administrator departure, suspicion or actual compromise event.)

5. User accounts that have system-level privileges granted through group memberships or programs shall have a unique password from other accounts held by that user.
6. Passwords shall not be inserted into email messages or other forms of electronic communication unless encrypted.
7. If an account or password is suspected of being compromised, the incident must be reported to the appropriate authorities in accordance with local incident response procedures.
8. Temporary or "first use" passwords (e.g., new accounts or guests) must be changed the first time the authorized user accesses the system and have a limited life of inactivity before being disabled.
9. Access to all USG information systems, products, or services used to process, store or transfer data with a security categorization of MODERATE or higher, as defined in Section 5.6.3 of this manual, shall require the use of strong passwords or other strong authentication mechanisms. Strong passwords shall be constructed with the following characteristics:
   - Be at least ten characters in length.
   - Must contain characters from at least two of the following four types of characters:
     - English upper case (A-Z).
     - English lower case (a-z).
     - Numbers (0-9).
     - Non-alphanumeric special characters ($, %, ^, …).
   - Must not contain the user's name or part of the user's name.
   - Must not contain easily accessible or guessable personal information about the user or user's family, such as birthdays, children's names, addresses, etc.
   - Note 1: A six-character password is acceptable if "account lockout" is enabled and set to lock or disable the account after five unsuccessful or failed login attempts. Six-character passwords must adhere to all of the characteristics noted above.
   - Note 2: Organizations may mix different characteristics regarding length and mandatory characters to obtain the same password strength. For example, a password of 11 characters containing two upper case letters, two lower case letters, two numbers and no special characters would be permissible.
10. Password history must be enabled and configured to disallow usage of the same password for a set length of change cycles greater than four (4) times. Users and administrators must not be allowed to use the same password that has been used in the past four (4) changes. Users and administrators who have changed their user password or system password must not be allowed to change passwords immediately. This will prevent users and administrators from changing their passwords several times to get back to their old passwords.

Enforcement

Individual USG organizations are responsible for developing internal procedures to facilitate compliance with these USG security policies and standards. The standards are designed to comply with applicable laws and regulations; however, if there is a conflict, applicable laws and regulations will take precedence. USG organizations may establish more stringent policies, standards and procedures consistent with this USG standard. Violations of this standard could result in serious security incidents involving sensitive state, federal, sensitive or privacy data. Violators may be subject to disciplinary actions including termination and/or criminal prosecution. The standards will guide periodic security reviews, as well as audits by USG Internal Audit & Compliance and the state Department of Audits and Accounts (DOAA).

Section 5.13 Domain Name System Management

Guidelines for interpretation and administration of domain name security are provided in Domain Name System (DNS) Management.

Purpose

The primary security goals for DNS are data integrity and source authentication. Both are needed to ensure the authenticity of domain name information and maintain the integrity of domain name information in transit.

Background

If DNS data are not properly managed, attackers can gain information that can be used to compromise other services. For example:

1. Foot-printing and unrestricted zone transfers.
2. Denial-of-service are schemes attackers use to deny availability to services.
3. Data modification and redirection.

Scope

This standard covers internal and external DNS architecture.

5.13.1 DNS Security

Roles and responsibilities of staff managing and securing the DNS architecture must be documented. USG organizations shall determine system categorization in accordance with USG *IT Handbook*, Section 5.6 and apply appropriate administrative and technical controls as defined by risk assessment outcomes. USG organizations shall create and maintain documented operational processes managing the DNS infrastructure.

DNS Internal Security Requirements

1. USG organizations must have at a minimum one internal DNS system.
2. DNS systems must be physically and logically secured.
3. Internal hosts must resolve to an internal DNS server.
4. All servers and network equipment should have a static IP address that is assigned in DNS.
5. All internal applications should resolve to the internal DNS server.

DNS External Security Requirements

1. External DNS must be located in a demilitarized zone (DMZ) or similar architecture.

2. External DNS must be protected with firewall equipment or intrusion prevention system (IPS).
3. Internet or external queries on the domain must be forwarded to an external DNS.
4. DNS systems must be physically and logically secured.

Section 5.14 Information Protection Management

Data are managed consistent with the organization's risk strategy to reduce cybersecurity risks, protect individuals' privacy, increase manageability and enable the implementation of privacy principles (e.g., individual participation, data quality, data minimization). The loss of data privacy can, for example, result in identity theft. Identity theft is defined as a fraud committed or attempted using the identifying information of another person without authority. The risk to USG organizations and their faculty, staff, students, and other applicable constituents from identity theft and accompanying data loss is of significant concern to the USG. USG organizations should make reasonable efforts to detect, prevent, and mitigate identity theft.

5.14.1 Purpose

The USG adopts this standard and enacts this program in an effort to detect, prevent and mitigate identity theft, and to help protect USG organizations and their faculty, staff, students and other applicable constituents from damages related to the loss or misuse of identifying information due to identity theft. Personal identifying information, as defined in Section 5.7, is any name or number that may be used, alone or in conjunction with any other information, to identify a specific person, including but not limited to: name, address, telephone number, Social Security number (SSN), date of birth, government-issued driver's license or identification number, alien registration number, government passport number, employer or taxpayer identification number, student identification number, computer Internet Protocol address or routing code and credit card number or other credit card information.

Under this standard, the program's protection process will:

1. Identify patterns, practices or specific activities (red flags) that could indicate the existence of identity theft with regard to new or existing covered accounts. A covered account is defined as:
    - Any account that involves or is designated to permit multiple payments or transactions; or,
    - Any other account maintained by a USG organization for which there is a reasonably foreseeable risk of identity theft to students, faculty, staff or other applicable constituents, or for which there is a reasonably foreseeable risk to the safety or soundness of the USG organization from identity theft, including financial, operational, compliance, reputation or litigation risks.
2. Detect red flags that are incorporated in the program. A red flag is a pattern, practice or specific activity that indicates the possible existence of identity theft.
3. Respond appropriately to any red flags that are detected under this program to prevent and mitigate identity theft.
4. To improve the protection process, ensure periodic updating of the program, including reviewing the covered accounts and the identified red flags that are part of this program.
5. Promote compliance with state and federal laws and regulations regarding information protection/identity theft protection.

The program shall, as appropriate, incorporate existing USG and institutional policies and guidelines such as anti-fraud programs and cybersecurity programs that control reasonably foreseeable risks.

5.14.2 Identifying Red Flags

The following examples of red flags are potential indicators of fraud or identity theft. The risk factors for identifying relevant red flags include the types of covered accounts offered or maintained, the methods provided to open or access covered accounts, and previous experience with identity theft. Any time a red flag or a situation closely resembling a red flag is apparent, it should be investigated for verification.

Alerts, Notifications, or Warnings from a Credit or Consumer Reporting Agency Examples of these red flags include:

1. A report of fraud or active duty alert in a credit or consumer report.
2. A notice of credit freeze from a credit or consumer reporting agency in response to a request for a credit or consumer report.
3. A notice of address discrepancy in response to a credit or consumer report request.
4. A credit or consumer report having a pattern of activity inconsistent with the history and usual pattern of activity of an applicant, such as:
    - A recent and significant increase in the volume of inquiries.
    - An unusual number of recently established credit relationships.
    - A material-change in the use of credit, especially with respect to recently established credit relationships.
    - An account that was closed for cause or identified for abuse of account privileges by a financial institution or creditor.

Suspicious Documents

Examples of these red flags include:

1. Documents provided for identification appear to have been altered, forged or are inauthentic.
2. The photograph or physical description on the identification document is not consistent with the appearance of the individual presenting the identification.
3. Other information on the identification is not consistent with information provided by the person opening a new covered account or individual presenting the identification.
4. Other information on the identification is not consistent with readily accessible information that is on file with the USG organization, such as a signature card or a recent check.
5. An application appears to have been altered or forged or gives the appearance of having been destroyed and reassembled.

Suspicious Personal Identifying Information Examples of these red flags include:

1. Personal identifying information provided is inconsistent when compared against other sources of information used by the organization, such as:
2. The address does not match any address in the consumer report; or,
    - The SSN has not been issued or is listed as deceased by the Social Security Administration.

- Personal identifying information provided by the individual is not consistent with other personal identifying information provided by that individual, such as a lack of correlation between the SSN range and date of birth.

3. Personal identifying information provided is associated with known fraudulent activity, such as the address or telephone number on an application is the same as one provided on a fraudulent application.
4. Personal identifying information provided is of a type commonly associated with fraudulent activity, such as:
    - The address on an application is fictitious, a mail drop, or a prison; or,
    - The phone number is invalid or is associated with a pager or answering service.
5. The Social Security number provided is the same as that submitted by another person opening an account.
6. The address or telephone number provided is the same as or similar to the address or telephone number submitted by that of another person.
7. The individual opening the covered account fails to provide all required personal identifying information on an application or in response to notification that the application is incomplete.
8. Personal identifying information provided is not consistent with personal identifying information that is on file with the USG organization.
9. When answering security questions (mother's maiden name, pet's name, etc.), the person opening that covered account cannot provide authenticating information beyond what would generally be available from a wallet or consumer report.

Unusual Use of, or Suspicious Activity Related to, a Covered Account

Examples of these red flags include:

1. Shortly following the notice of a change of address for a covered account, a request is received for a new, additional, or replacement card, or for the addition of authorized users on the account.
2. A covered account is used in a manner that is not consistent with established patterns of activity on the account, such as:
    - Nonpayment when there is no history of late or missed payments; or,
    - A material-change in purchasing or usage patterns.
3. A covered account that has been inactive for a reasonably lengthy period of time is used, taking into consideration the type of account, the expected pattern of usage and other relevant factors.
4. Mail sent to the individual is returned repeatedly as undeliverable although transactions continue to be conducted in connection with the individual's covered account.
5. The USG organization is notified that the individual is not receiving paper account statements.
6. The USG organization is notified of unauthorized charges or transactions in connection with an individual's covered account.

7. The USG organization receives notice from customers, victims of identity theft, law enforcement authorities, or other persons regarding possible identity theft in connection with its covered accounts.
8. The USG organization is notified by an employee or student, a victim of identity theft, a law enforcement authority, or any other person that it has opened a fraudulent account for a person engaged in identity theft.
9. There is a breach in the USG entity's computer security system.

5.14.3 Detecting Red Flags

Student Enrollment

In order to detect red flags associated with the enrollment of a student, the USG organization will take the following steps to obtain and verify the identity of the individual opening the account:

1. Require certain identifying information such as name, date of birth, academic records, home address or other identification; and,
2. Verify the student's identity at the time of issuance of the student identification card through review of a driver's license or other government-issued photo identification.

Existing Accounts

In order to detect red flags associated with an existing account, the USG organization will take the following steps to monitor transactions on an account:

1. Verify the identification of students if they request information;
2. Verify the validity of requests to change billing addresses by mail or email, and provide the student a reasonable means of promptly reporting incorrect billing address changes; and,
3. Verify changes in banking information given for billing and payment purposes.

Consumer/Credit Report Requests

In order to detect red flags for an employment or volunteer position for which a credit or background report is sought, the USG organization will take the following steps to assist in identifying address discrepancies:

1. Require written verification from any applicant that the address provided by the applicant is accurate at the time the request for the credit report is made to the consumer reporting agency; and,
2. In the event that notice of an address discrepancy is received, verify that the credit report pertains to the applicant for whom the requested report was made and report to the consumer reporting agency an address for the applicant that has reasonably been confirmed is accurate.

5.14.4 Responding to Red Flags

Once a red flag or potential red flag is detected, the USG organization must act quickly with consideration of the risk posed by the red flag. The USG organization should quickly gather all related documentation, write a description of the situation and present this information to the program administrator for determination. The program administrator will complete additional authentication to determine whether the attempted transaction was fraudulent or authentic. The USG organization may take any of the following steps deemed appropriate:

1. Submit a ticket with USG Service Desk at helpdesk@usg.edu.
2. Inform the senior business officer.
3. Continue to monitor the covered account for evidence of identity theft.
4. Determine if a response is warranted under the particular circumstances.
5. Notify law enforcement.
6. Contact the student or applicant for whom a credit report was run.
7. Change any passwords or other security devices that permit access to covered accounts.
8. Determine not to open a new covered account.
9. Cancel the transaction.
10. Provide the student with a new student identification number.
11. Close and reopen the account.

5.14.5 Protecting Personal Information

To mitigate theft of personal information, USG organizations may take the following steps with respect to its internal operating procedures:

1. Lock file cabinets, desk drawers, overhead cabinets and any other storage space containing documents with covered account information when not in use.
2. Lock storage rooms containing documents with covered account information and record retention areas at the end of each workday or when unsupervised.
3. Clear desks, workstations, work areas, printers, fax machines and common shared work areas of all documents containing covered account information when not in use.
4. Destroy documents or computer files containing covered account information in a secure manner. Note: Records may only be destroyed in accordance with the state's records retention guideline.
5. Ensure that office computers with access to covered account information are password protected.
6. Ensure that the endpoint is secure.
7. Avoid the use of social security numbers (SSN).
8. Use encryption devices or protocols when transmitting covered account or protected information.
9. Evaluate the effectiveness of the steps above and implement the principle of continuous improvement.

USG personnel are encouraged to use common sense judgment in securing covered account information to the proper extent. Furthermore, this section should be read in conjunction with the Family Education Rights and Privacy Act (FERPA), the Georgia Open Records Act, and other applicable laws and policies. If an employee is uncertain of the sensitivity of a particular piece of information, he/she should contact his/her supervisor or USG Cybersecurity for advice.

Section 5.15 Email Use and Protection

5.15.1 Purpose

USG email is provided as a tool to assist and facilitate state business, communications with students, faculty, and its representatives to conduct official business on behalf of the USG. This section establishes a standard for the appropriate use and protection of USG email systems.

5.15.2 Requirements

1. Access to email shall be governed by the USG organization's authorization and access control and password protection policies and standards.
2. Email passwords shall be encrypted and not be stored or passed in clear text.
3. Email systems shall be protected from viruses, interception and other malicious intentions.
4. Use of USG email systems for the creation or distribution of any disruptive or offensive messages is prohibited.
5. Mass mailings about viruses or other malware warnings shall not be distributed by general users, and shall be validated, approved and distributed by the appropriate security administrator(s).
6. All email monitoring must be reviewed and approved by USG Cybersecurity and/or USG Legal Affairs.
7. Unauthorized email forwarding is prohibited. Email forwarding must be approved by the email account user or the USG organization's executive management.

Section 6 Data Privacy

Section Control

Table 6.1: Revision History

Date	Name	Description of Change
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.
07/09/2020	Rename Section 6 to "Data Privacy"	Align with NIST Privacy Framework and NIST CSF Framework.
07/09/2020	Add Section 6.3 Data Privacy Risks	Provide IT Handbook portion of USG data privacy program.

Table 6.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date	Revision Date(s)
6.1	USG Data Privacy Standard	June 2013	May 2014	May 2014	July 2020
6.2	USG Web Privacy Standard	June 2013	May 2014	May 2014	July 2020
6.3	Data Privacy Risks	July 2020	August 2020	TBD	N/A

Introduction

This section outlines data privacy requirements for USG organizations. The USG is committed to protecting privacy. Personal information will only be disclosed to third parties when allowed by law or with the consent of the data subject.

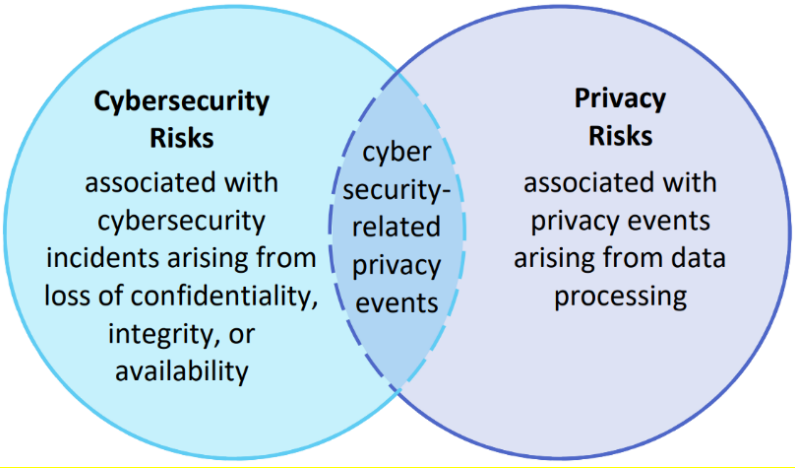

Figure 5: Risk Relationship Diagram – Cybersecurity and Privacy [4]

Since its adoption, the National Institute of Standards and Technology (NIST) Cybersecurity Framework (CSF) has helped USG organizations to communicate and manage cybersecurity risk. While managing cybersecurity risk contributes to managing privacy risk, it is not enough, as privacy risks can also arise by

[4] NIST Privacy Framework: A Tool for Improving Privacy through Enterprise Risk Management, Version 1.0, January 116, 2020

means unrelated to cybersecurity incidents, as illustrated by **Figure 5**. Having a general understanding of the different origins of cybersecurity and privacy risks is important for determining the most effective solutions to address the risks. The scope of this section concerns “Privacy Risks” functions that are technology-related systems, products, or services.

Section 6.1 USG Data Privacy Standard

6.1.1 Purpose

This section defines general data privacy requirements for all USG organizations.

6.1.2 Standard

All USG organizations shall enact and maintain permanent data privacy processes and procedures in adherence with this standard, which includes, but is not limited to, the following principles:

1. Personally identifiable information (PII) may only be obtained through lawful means or with the consent of the data subject.
2. The purposes for which personally identifiable data are collected must be specified at or prior to the time of collection, and any subsequent use of the data shall be limited to and consistent with the fulfillment of those purposes previously specified.
3. Personal data may not be disclosed, made available, or otherwise used for a purpose other than those specified, except with the consent of the subject of the data, or as allowed by statute or regulation.
4. Personal data collected must be relevant to the purpose for which it is needed.
5. The general means by which personal data is protected against loss, unauthorized access, use, modification or disclosure must be posted, unless the disclosure of those general means would compromise legitimate USG entity objectives or law enforcement purposes.

6.1.3 Applicability and Compliance

Each USG organization must implement the data privacy standard by:

1. Designating a position responsible for the implementation of and adherence to the standard.
2. Posting the standard prominently in offices and on the intranet website, if site exits.
3. Distributing the standard to each employee and contractor who has access to personal data.
4. Complying with the USG Data Privacy Standard and all other State and Federal laws pertaining to data privacy.
5. Using appropriate means to successfully implement and adhere to the standard.

Section 6.2 USG Web Privacy Standard

By accessing any website of any USG organization, users agree to abide by this web privacy standard, as well as the USG *IT Handbook*.

6.2.1 Information Collection and Use

The USG may collect some information (analytic data) about how visitors’ access and use a website affiliated with the USG.EDU domain and its contents. The information collected on any such website is

limited to non-personally identifiable information and may include information such as the computer IP/MAC addresses and browser information used to access the website. These data are used to improve website content and website management for users. Cookies may be used to facilitate the navigation of this site, but these cookies will not contain any personally-identifiable information. Other USG websites may have different privacy practices. If applicable, consult the privacy statement on each website.

Section 6.3 Data Privacy Risks

The Privacy Framework approach to privacy risk is to consider privacy events as potential problems USG organizations could experience arising from system, product, or service operations with data, whether in digital or non-digital form, through a complete life cycle from data collection through disposal.

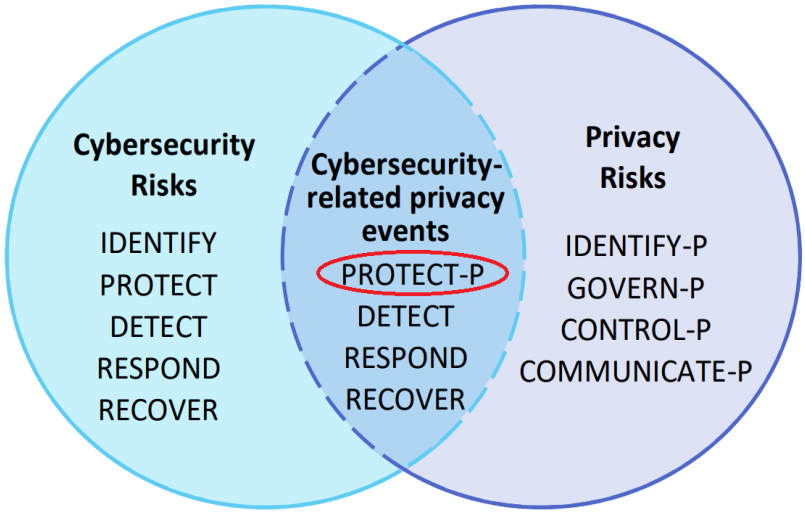

Figure 6: Using NIST Frameworks to Manage Cybersecurity and Privacy Risks [5]

The *USG IT Handbook* was adapted to align with the CSF. The CSF, although intended to cover all types of cybersecurity incidents, can be leveraged to further support the management of risks associated with cybersecurity-related privacy events. The Protect-P function, circled in red (**Figure 6),** is specifically focused on managing risks associated with cybersecurity-related privacy events (e.g., *privacy breaches*) and is integrated into the *USG IT Handbook.* USG organizations shall use all five of the CSF functions in conjunction with Identify-P, Govern-P, and Control-P, to collectively address technical data privacy and cybersecurity risks. The "Privacy Risk" functions that are business-related are referenced in the *USG Business Procedures Manual (BPM), Sec 12: Data Privacy*. The Communicate-P function is entirely located within the BPM. For additional guidance, reference the *USG IT Handbook Crosswalk* and the *NIST Privacy Framework: A Tool for Improving Privacy Through Enterprise Risk Management*.

6.3.1 IDENTIFY-P

To address "Inventory and Mapping" requirements, USG organizations shall develop the organizational understanding to manage privacy risk for individuals arising from data processing by ensuring data processing by systems, products or services is understood and informs the leadership of privacy risk. To demonstrate this understanding, USG organizations shall ensure:

[5] NIST Privacy Framework: A Tool for Improving Privacy through Enterprise Risk Management, Version 1.0, January 116, 2020

1. Owners or operators (e.g., the organization and/or third parties such as service providers, partners, customers and developers) and their roles with respect to the systems, products, services and components (e.g., internal or external) that process data are inventoried;
2. The data processing environment is identified (e.g., geographic location, internal, cloud or third parties); and,
3. Data processing is mapped, illustrating the data actions and associated data elements for systems, products and services, including components; roles of the component owners/operators; and interactions of individuals or third parties with the systems, products and services.

To address the "Business Environment" requirements, USG organizations must ensure mission, objectives, stakeholders and activities are understood and prioritized; this information is used to inform privacy roles, responsibilities and risk management decisions, which includes verifying systems, products and services that support organizational priorities are identified and key requirements communicated.

6.3.2 GOVERN-P

USG organizations shall develop and implement the organizational governance structure to enable an ongoing understanding of the organization's risk management priorities that are informed by privacy risk. To address the "Governance Policies, Processes, and Procedures" requirements, the documentation to manage and monitor the organization's regulatory, legal, risk, environmental and operational requirements are understood and inform the management of privacy risk. USG organizations can accomplish this by ensuring the roles and responsibilities for the workforce are established with respect to data privacy.

6.3.3 CONTROL-P

USG Organizations shall develop and implement appropriate activities to enable organizations or individuals to manage data with enough granularity to manage privacy risks. To address the "Data Processing Management" requirements, data are managed consistent with the organization's risk strategy to protect individuals' privacy, increase manageability and enable the implementation of privacy principles (e.g., individual participation, data quality, data minimization). This is accomplished by ensuring the technical measures implemented to manage data processing are tested and assessed.

Section 7 Facilities

Section Control

Table 7.1: Revision History

Date	Name	Description of Change
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.

Table 7.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date

Introduction

Protection for IT equipment and personnel requires well-designed and well-managed physical facilities. The process of managing this physical environment includes defining the physical site requirements, selecting the appropriate facilities, and designing effective processes for monitoring environmental factors and managing physical access. Effective management of the physical environment reduces business interruptions from damage to IT equipment and personnel.

Section 8 Bring Your Own Device (BYOD) Standard

Section Control

Table 8.1: Revision History

Date	Name	Description of Change
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.

Table 8.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date	Revision Date(s)
8.1	Purpose	October 2013	October 2013	October 2014	
8.2	Applicability	October 2013	October 2013	October 2014	January 2014
8.3	Standards	October 2013	October 2013	October 2014	
8.4	Standard Non-Compliance	October 2013	October 2013	October 2014	
8.5	Appendix A: Employee Declaration	October 2013	October 2013	October 2014	

Introduction

This section establishes the standards and procedures for end users who are connecting a personally-owned device to a USG network for business purposes.

Section 8.1 Purpose

The purpose of this standard is to empower USG staff to innovate and work on USG business more effectively inside and outside the office. Based on research at other enterprises, greater productivity and employee satisfaction should result from establishing a prudent BYOD standard that empowers employees to work on personally-owned devices while protecting the confidentiality, integrity and availability of USG data. This standard intends to balance the use of personally-owned devices while preventing USG data from being deliberately or inadvertently stored insecurely on a device or carried over an insecure network where it could potentially be accessed by unauthorized resources. Such a breach could result in loss of information, damage to critical applications, financial loss and damage to the USG's public image. Therefore, all users employing a personally-owned device connected to a USG network, and/or capable of backing up, storing, or otherwise accessing USG data of any type, must adhere to USG-defined policies, standards and processes.

Section 8.2 Applicability

This standard applies to all USG employees, including full- and part-time staff, consultants and other agents who use a personally-owned device to access, store, backup or relocate any USG or client-specific data. Such access to these data is a privilege, not a right, and forms the basis of a trust the USG has built with its clients, vendor partners and other constituents. Consequently, USG employment does not automatically guarantee the initial or ongoing ability to use these devices to gain access to USG

networks and information. This standard applies to any hardware and related software that is not owned or supplied by the USG but could be used to access USG resources. This includes devices that employees have acquired for personal use, but also wish to use in the business environment. It includes any personally-owned device capable of inputting, processing, storing and outputting USG data. This standard is complementary to any previously implemented policies and standards covering acceptable use, data access, data storage, data movement and processing, and connectivity of devices to any element of the enterprise network. Always consult the USG Information Technology Handbook for up-to-date standards and guidance.

Section 8.3 Standards

8.3.1 Prior Approval

1. Employees using personally-owned devices, software, and/or related components to access USG data will ensure such devices employ some sort of device access protection such as, but not limited to, passcode, facial recognition, card swipe, etc. Within the USO, this approval authority is delegated to the first vice chancellor or above in the employee's chain of command in consultation with the USG CIO. USG organizations will establish and document local policies consistent with this prior approval standard.
2. USG organizations will establish consistent, documented, and repeatable processes that are consistent with this prior approval standard and can be considered auditable.

8.3.2 Security

1. Employees using prior-approved personally-owned devices and related software shall make every attempt to keep these devices and related software protected.
2. Employees using prior-approved personally-owned devices and related software accessing sensitive data will, in addition to device access protection, ensure that the sensitive data is protected using data encryption or USG-provided mobile device management, or the equivalent.
3. Determination of equivalent measures is reserved to the USG CISO, ISOs of the USG organizations, and/or other delegated designees. USG organizations will need to document evidence of compliance.
4. Passwords and/or other sensitive data will not be stored unencrypted on mobile devices.
5. Managers will implement a documented process by which employees acknowledge and confirm to have all USG-sensitive data permanently erased from their personally-owned devices once their use is no longer required, as defined in Section 8.2.
6. Employees agree to and accept that their access to USG networks may be monitored in order to identify unusual usage patterns or other suspicious activity. This monitoring is necessary in order to identify accounts/computers that may have been compromised by external parties.
7. Employees will immediately report to their managers any incident or suspected incidents of unauthorized data access, data or device loss and/or disclosure of system or USG organization resources as it relates to personally-owned devices.
8. Managers will immediately report such incidents to the USG CISO or the organization's ISO as appropriate.

8.3.3 USG Intellectual Property

1. The principal storage location of state-owned data is a state-owned or contracted resource.
2. Sensitive state-owned data may not be stored on external cloud-based personal accounts.

8.3.4 Device and Application Support

1. Personally-owned devices and software are not eligible for support from USG departments.
2. Employees will make no modifications to personally-owned hardware or software that circumvents established USG security protocols in a significant way (e.g., replacing or overriding the operating system or "jail-breaking").

Section 8.4 Standard Non-Compliance

Failure to comply with the USG BYOD standard may, at the full discretion of the USG organization, result in the suspension of any or all technology use and connectivity privileges, disciplinary action, and/or possible termination of employment.

Section 8.5 Employee Declaration Template

I, _____, have read and understand the USG BYOD standard and any augmenting USG organization standards, and consent to adhere to the standards and procedures outlined therein. I, [ ] approve of the use of personal devices by this employee.

Employee Signature	Date
Supervisor Signature	Date
Approval Authority Signature	Date

Section 9 Data Governance and Management Structure

Relocated to Section 12 of the Business Procedures Manual.

Section 10 Learning Management System (LMS)

Section Control

Table 10.1: Revision History

Date	Name	Description of Change
05/02/2016	PDF, structure and format	Initial redesign referenced in a new structure and format.

Table 10.2: Compliance

Section Number	Section Name	Compilation Date	Published Date	Compliance Date
10.1	Applicability	June 2013	March 2015	March 2016
10.2	Service Description	January 2014	March 2015	March 2016
10.3	Participation Model	June 2013	March 2015	March 2016
10.4	Governance	June 2013	March 2015	March 2016
10.5	Resource Model	June 2013	March 2015	March 2016

Introduction

This section establishes the standards and procedures for end users of the USG Learning Management System (LMS).

Section 10.1 Applicability

This standard applies to all USG units. This standard is complementary to any previously implemented policies and standards covering acceptable use of and access to any element of the enterprise network. Always consult the USG Information Technology Handbook for up-to-date standards and guidance.

Section 10.2 Service Description

Services provided as part of the GeorgiaVIEW LMS are detailed in the Service Level Agreement (SLA). The SLA covers:

1. Agreement Overview
2. Goals & Objectives
3. Stakeholders
4. GeorgiaVIEW Community
5. Learning Management System Environment
    - GeorgiaVIEW Desire2Learn License
    - GeorgiaVIEW D2L Production Environment
    - GeorgiaVIEW D2L Test Environment
    - GeorgiaVIEW D2L Functional Development Environment

- GeorgiaVIEW Dependent Infrastructure Hardware and Services
- Disaster Recovery
- GeorgiaVIEW Desire2Learn Application System Component Failure Contingencies

6. Learning Management System Integrations
    - Student Information System Batch Integration
    - D2L External Authentication (if selected)
    - 3rd Party Integrations (existing through implementation)
7. Learning Management System Performance and Escalations
8. Cybersecurity
9. Learning Management System Support
    - Customer Support
    - Service Request
    - ITS Customer Support/Service Request Process
    - User Support
    - User Support Process
10. Learning Management System Service Availability

Section 10.3 Participation Model

The system standard for the LMS is Desire2Learn (D2L). USG institutions or units desiring to use state resources to support a different system require the written approval of the Chancellor. Such requests will be routed through the USG CIO, vice chancellor for academic affairs, and the executive vice chancellor and chief academic officer to the chancellor. As noted in the task force recommendation, all institutions should have one LMS for all of their faculty and students, regardless of academic discipline. The students of the USG were very clear that they strongly prefer a unified LMS platform on their respective campus. The downsides from allowing multiple LMS platforms on a single campus strongly outweigh the potential benefits of this kind of flexibility at an institution.

Section 10.4 Governance

10.4.1 Business Owner

The business owner of the learning management system is USG academic affairs. The business owner will make all functional decisions regarding the LMS and appoint an LMS executive committee.

10.4.2 LMS Executive Committee

The LMS executive committee will provide strategic oversight of the USG learning management system. This committee will:

1. Provide a prioritized recommendation for the addition or reduction of LMS functionality to the USG VC/ CIO, VC/AA, and the vice chancellor and chief financial officer no later than 1 December of each year;
2. Review system availability and customer satisfaction of the LMS system annually and provide recommendations to the USG CIO and vice chancellor of academic affairs; and,

3. Perform such tasks as assigned by USG academic affairs.

Section 10.5 Resource Model

10.5.1 General Description

The USG Enterprise LMS program (GeorgiaVIEW) lowers institutional costs considerably while increasing access and stability of LMS applications across all institutions. The key financial principles of the system-wide LMS deployment are:

1. The LMS is funded through revenue chargeback to the institutions.
2. The revenue chargeback is based on the institutional FTE.
3. The revenue chargeback is the sum of what institutions were being charged for the previous LMS (Blackboard Vista 8) plus the funding increase the institutions received in the LMS budget line starting in FY2013. This ensures that the LMS chargeback is cost-neutral to institutions.
4. To preserve the economies of scale, all institutions are required to participate in this effort, and should use D2L as their LMS exclusively. However, as noted in Section 9.3, if an institution wishes to offer an independent and local LMS program, they must formally petition the chancellor. If approved, the institution remains responsible for their portion and payment of the USG LMS program costs. Otherwise, other USG institutions would be penalized as institutions entered or departed the program.

10.5.2 Licensing and Hosting Costs

The base license and hosting costs, for all institutions except the Georgia Institute of Technology, are included in funds allocated to institutions. These funds include resources provided to cover the previous LMS costs and additional funds provided to cover the differential cost of the current system. The total of these two different funding sources covers the LMS licensing and hosting costs. The Georgia Institute of Technology was granted a waiver to continue on its current LMS and thus is responsible for its own hosting and licensing costs. This waiver will be reviewed periodically by USG academic affairs to consider the utility of continuing the waiver. Augusta University and Georgia Southern University were granted temporary waivers to provision additional LMS hosting services. These waivers will be reviewed periodically by the USG CIO to consider the utility of continuing the waiver.

10.5.3 Annual Escalator

The contract annual escalator is CPI-based. This escalator, from 2012 until 2016, is included in the state funds allocated to the institution. As such, there are no annual escalators in the D2L Software as a Service (SaaS) service.

License Escalator

The D2L license cost is FTE-based. While there are allowances in the contract for modest FTE growth, FTE growth beyond contract limits will result in increased charges that are allocated on an annual basis as part of the normal fiscal model. The increased charges, should they ever occur, will be institution FTE-based.

Hosting Escalator

The D2L hosting model is consumption-based using storage as the demonstrative metric. While there are allowances in the equipment planning to cover the hosting costs for five (5) years, storage growth

beyond these planning limits will result in increased charges that are allocated on an annual basis as part of the normal fiscal model. The increased charges will be institution storage consumption-based.

10.5.4 Equipment Refresh

Equipment refresh is based on a five (5) year cycle. A small portion of the institution charges is saved in an LMS reserve account annually so that equipment may be purchased as needed.

10.5.5 Change Management

Major Upgrades

Major upgrades to the LMS will occur annually during the December holiday break. System Upgrade Initiatives

Additional functionality identified by the LMS executive committee and approved for funding by the chancellor will be implemented normally during the December holiday break.

Institution Upgrade Initiatives

By acting as a consortium, institutions can realize additional savings by purchasing additional functionality in the LMS.

Appendix A: References

- Board of Regents, University System of Georgia - Policies https://www.usg.edu/policies
    - Policy Manual - Section 10
    - Business Procedures Manual
    - Data Privacy Policy and Legal Notice
    - Ethics & Compliance Program
    - Records Management and Archives - Records Retention Schedule
- Federal Regulation & Legislation https://www.govinfo.gov/ | https://www.cnss.gov/ | https://www.whitehouse.gov/omb/
    - Committee on National Security Systems Instruction 1253, *Security Categorization and Control Selection for National Security Systems*, March 2014.
    - Committee on National Security Systems Instruction 4009, *Committee on National Security Systems (CNSS) Glossary*, April 2015.
    - Executive Order 13800, *Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure*, May 2017.
    - Federal Information Policy, 44 U.S.C, Sec 3502 (8)
    - Federal Information Security Modernization Act (P.L. 113-283), December 2014.
    - Freedom of Information Act (FOIA), 5 U.S.C. § 552, As Amended by Public Law No. 104-231, 110 Stat. 3048
    - Electronic Freedom of Information Act Amendments of 1996.
    - Office of Management and Budget Circular A-130, Managing Information as a Strategic Resource, July 2016.
    - Office of Management and Budget Circular No. A-123, *Management's Responsibility for Enterprise Risk Management and Internal Control*, July 2016.
    - Office of Management and Budget Memorandum M-13-13, *Open Data Policy-Managing Information as an Asset*, May 2013.
    - Office of Management and Budget Memorandum M-17-25*, Reporting Guidance for Executive Order on Strengthening the Cybersecurity of Federal Networks and Critical Infrastructure*, May 2017.
    - Office of Management and Budget Memorandum M-19-03*, Strengthening the Cybersecurity of Federal Agencies by enhancing the High Value Asset Program*, December 2018.
    - Privacy Act (P.L. 93-579), December 1974.
    - Title 32 Code of Federal Regulations, Sec. 2002.4, Definitions. 2018 Ed.
    - Title 40 U.S. Code, Sec. 11331, *Responsibilities for Federal information systems standards*. 2017 Ed.
    - Title 44 U.S. Code, Sec. 3301, Definition of records. 2017 Ed.
    - Title 44 U.S. Code, Sec. 3502, Definitions. 2017 Ed.

- Title 44 U.S. Code, Sec. 3552, Definitions. 2017 Ed.
- Title 44 U.S. Code, Sec. 3554, Federal agency responsibilities. 2017 Ed.
- Title 44 U.S. Code, Sec. 3601, Definitions. 2017 Ed.

- Industry Standards and Best Practices https://iso.org/ | https://technet.microsoft.com/ | https://www.archives.gov/cui
  - ISO 27005 Information Security Risk Management (ISRM)
  - Microsoft Securing DNS
  - National Archives and Records Administration, Controlled Unclassified Information (CUI) Registry.
- NIST Computer Security Resource Center - FIPS https://csrc.nist.gov/publications/fips
  - FIPS Publication 199, *Standards for Security Categorization for Federal Information Systems*, February 2004.
  - FIPS Publication 200, *Minimum Security Requirements for Federal Information Systems*, March 2016.
- NIST Computer Security Resource Center - Glossary https://csrc.nist.gov/glossary
- NIST Computer Security Resource Center - SP https://csrc.nist.gov/publications/sp
  - SP 800-16 *IT Security Training Requirements*, April 1998.
  - SP 800-18 Rev. 1 *Guide for Developing Security Plans for Federal Information Systems*, February 2006.
  - SP 800-28 Ver. 2 *Guidelines on Active Content and Mobile Code*, March 2008.
  - SP 800-30 Rev. 1 *Guide for Conducting Risk Assessments*, September 2012.
  - SP 800-34 Rev. 1 *Contingency Planning Guide for Federal Information Systems*
  - SP 800-37 Rev. 1 *Guide for Applying the Risk Management Framework…*
  - SP 800-50 *Building an IT Security Awareness and Training Program*, October 2003.
  - SP 800-53 Rev. 4 *Security and Privacy Controls for Federal Information Systems and Organizations*, April 2013.
  - SP 800-53A *Assessing Security and Privacy Controls: Building Effective Security Assessment Plans*, July 2008.
  - SP 800-55 *Performance Measurement Guide for Information Security*, December 2014.
  - SP 800-60 Vol 1&2 Rev. 1 *Guide for Mapping Types of Information and Information Systems to Security Categories*, August 2008.
  - SP 800-61 Rev. 2 *Computer Security Incident Handling Guide*, August 2012.
  - SP 800-81-2 *Secure Domain Name System (DNS) Deployment Guide*, September 2013.
  - SP 800-83 Rev. 1 *Guide to Malware Incident Prevention and Handling*, July 2013.
  - SP 800-92 *Guide to Computer Security Log Management*, September 2006.

- SP 800-122 *Guide to Protecting the Confidentiality of Personally Identifiable Information (PII)*, April 2010.

- NIST Frameworks
  - Cybersecurity Framework https://www.nist.gov/cyberframework
  - Privacy Framework https://www.nist.gov/privacy-framework
- NIST Interagency/Internal Report - IR https://csrc.nist.gov/publications/nistir
  - NISTIR 8259 *Baseline for Securable IoT Devices*, May 2020.
- Official Code of Georgia Annotated http://www.lexisnexis.com/hottopics/gacode/default.asp
  - O.C.G.A. § 10-1-910
  - O.C.G.A. § 16-9-150

Appendix B: Glossary

Abuse	Activity that violates an organization's Acceptable Use Policy (AUP).
Access Control	The process of permitting or restricting access to applications at a granular level, such as per-user, per-group, and per-resources. (Source: SP 800-113)
Architecture	A set of related physical and logical representations (i.e., views) of a system or a solution. The architecture conveys information about system/solution elements, interconnections, relationships, and behavior at different levels of abstractions and with different scopes. Refer to security architecture. (Source: SP 800-160)
Assurance	Measure of confidence that the security features, practices, procedures, and architecture of an information system accurately mediates and enforces the security policy. (Source: SP 800-39)
Attack	An attempt to gain unauthorized access to system services, resources, or information, or an attempt to compromise system integrity, availability, or confidentiality. (Source: SP 800-82 Rev. 2)
Authentication	A process of attempting to verify the digital identity of a system user or processes. (Source: SP 800-47)
Availability	Ensures timely and reliable access to and use of information. (Source: SP 800-137; 44 U.S.C., Sec. 3542)
Awareness	Awareness is not training. The purpose of awareness presentations is simply to focus attention on security. Awareness presentations are intended to allow individuals to recognize IT security concerns and respond accordingly. In awareness activities, the learner is the recipient of information, whereas the learner in a training environment has a more active role. Awareness relies on reaching broad audiences with attractive packaging techniques. Training is more formal, having a goal of building knowledge and skills to facilitate the job performance. (Source: SP 800-50)
Awareness, Training, and Education Controls	Include (1) awareness programs which set the stage for training by changing organizational attitudes to realize the importance of security and the adverse consequences of its failure, (2) training which teaches people the skills that will enable them to perform their jobs more effectively, and (3) education which is targeted for IT security professionals and focuses on developing the ability and vision to perform complex, multi-disciplinary activities. (Source: SP 800-16)

Baseline	Formally approved version of a configuration item, regardless of media, formally designated and fixed at a specific time during the configuration item's life cycle. Note: The engineering process generates many artifacts that are maintained as a baseline over the course of the engineering effort and after its completion. The configuration control processes of the engineering effort manage baselined artifacts. Examples include stakeholder requirements baseline, system requirements baseline, architecture/design baseline, and configuration baseline. (Source: SP 800-160)
Benign Policy Violation	Activity that violates organizational Acceptable Use Policy (AUP) but is not a threat and requires no action.
Bring Your Own Device (BYOD)	Refers to employees taking their own personal device to work in order to interface to the USG organization's network resources.
Brute Force Attack	In cryptography, an attack that involves trying all possible combinations to find a match. A method of accessing an obstructed device through attempting multiple combinations of numeric/alphanumeric passwords. (Source: SP 800-72)
Business Case	A description of a requested project or initiative that explains the goals, benefits, and cost of the request.
Business Continuity Plan	The documentation of a predetermined set of instructions or procedures that describe how an organization's mission/business processes will be sustained during and after a significant disruption. (Source: SP 800-34 Rev.1)
Business Impact Analysis	An analysis of an information system's requirements, functions, and interdependencies used to characterize system contingency requirements and priorities in the event of a significant disruption. (Source: SP 800-34 Rev. 1)
Certificate	A data structure that contains an entity's identifier(s), the entity's public key (including an indication of the associated set of domain parameters) and possibly other information, along with a signature on that data set that is generated by a trusted party, i.e. a certificate authority, thereby binding the public key to the included identifier(s). (Source: SP 800-56A Rev. 2)
Certificate Authority	A trusted entity that issues and revokes public key certificates. (Source: SP 800-63-2)
Chain of Custody	A process that tracks the movement of evidence through its collection, safeguarding, and analysis lifecycle by documenting each person who handled the evidence, the date/time it was collected or transferred, and the purpose for the transfer. (Source: 800-72)

Chief Information Officer (CIO)	Organization official responsible for: 1) providing advice and other assistance to organization senior leadership to ensure that information systems are acquired and information resources are managed in a manner that is consistent with laws, executive orders, directives, policies, regulations, and priorities established by the organization presidents, chancellor, or the Board of Regents; 2) developing, maintaining, and facilitating the implementation of a sound and integrated information system architecture; and 3) promoting the effective and efficient design and operation of all major information resources management processes, including improvements to work processes. (Source: SP 800-53)
Chief Information Security Officer (CISO)	Organization official responsible for: 1) developing and maintaining a cybersecurity organization and architecture in support of cybersecurity across the USG and between USG institutions; and 2) maintaining cybersecurity implementation guidelines that the USO, all USG institutions, and the GPLS shall follow in the development of their individualized cybersecurity plans. (Source: BOR Policy Manual)
Classified Information	Information that has been determined: (i) pursuant to Executive Order 12958 as amended by Executive Order 13526, or any predecessor Order, to be classified national security information; or (ii) pursuant to the Atomic Energy Act of 1954, as amended, to be Restricted Data (RD). (Source: SP 800-53 Rev. 4)
Common Control	A security control that is inherited by one or more organizational information systems. See Security Control Inheritance. (Source: SP 800-137)
Compliance Date	The date by which the USG organization is expected to comply with the policy or standard.
Compromise	The unauthorized disclosure, modification or use of sensitive data (e.g., keying material and other security-related information). (Source: SP 800-133)
Confidential Data	Data for which restrictions on the accessibility and dissemination of information are in effect. This includes information whose improper use or disclosure could adversely affect the ability of the institution to accomplish its mission, records about individuals requesting protection under the Family Educational Rights and Privacy Act of 1974 (FERPA), or data not releasable under the Georgia Open Records Act or the Georgia Open Meetings Act.

Confidentiality	Preserves authorized restrictions on information access and disclosure and includes means for protecting personal privacy and proprietary information. (Source SP 800-137)
Context of Use	The purpose for which PII is collected, stored, used, processed, described, or disseminated.
Continuity of Operations Plan	A predetermined set of instructions or procedures that describe how an organization's mission essential functions will be sustained within 12 hours and for up to 30 days as a result of a disaster event before returning to normal operations. (Source: SP 800-34 Rev. 1)
Controlled Unclassified Information (CUI)	A categorical designation that refers to unclassified information that does not meet the standards for National Security Classification under Executive Order 12958, as amended, but is (i) pertinent to the national interests of the United States or to the important interests of entities outside the federal government, and (ii) under law or policy requires protection from unauthorized disclosure, special handling safeguards, or prescribed limits on exchange or dissemination. (Source: SP 800-53 Rev. 4)
Controls	Controls, also known as safeguards, are proactive measures prescribed to meet the security requirements specified for an information system. 1. Administrative Controls 2. Technical Controls 3. Physical Controls
Critical System	A Critical System is a system whose failure or malfunction will result in not achieving organizational goals and objectives. Criteria are a) contains confidential or sensitive data (i.e. personally identifiable information (PII) and other regulated information), or b) serves a critical and necessary function for daily operations, or c) a combination of both protected data and critical function.
Critical System/Infrastructure	System and/or assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters. (Source: SP 800-30 Rev. 1)
Cybersecurity Incident	Cybersecurity Incident is a violation (breach) or imminent threat of violation of computer security policies, acceptable use policies, or standard computer security practices, which may include, but are not limited to:

- Widespread infections from virus, worms, Trojan horse or other malicious code;
- Unauthorized use of computer accounts and computer systems;
- Unauthorized, intentional or inadvertent disclosure or modification of sensitive/critical data or infrastructure;
- Intentional disruption of critical system functionality;
- Intentional or inadvertent penetration of firewall;
- Compromise of any server, including Web server defacement or database server;
- Exploitation of other weaknesses, known or unknown;
- Child pornography;
- Attempts to obtain information to commit fraud or otherwise prevent critical operations or cause danger to state or system or national security and
- Violations of state or USG security policies or standards that threaten or compromise the security objectives of state or USG data, technology, or communications systems; and,
- Any violation of the "Appropriate Use Policy."

Data Actions	A system/product/service data life cycle operation, including, but not limited to collection, retention, logging, generation, transformation, use, disclosure, sharing, transmission, and disposal. (NIST IR 8062)
Data Element:	The smallest named item of data that conveys meaningful information. (NIST PF)
Data Leak/Leakage	An unauthorized transmission of data from within an organization to an external destination or recipient.
Data Privacy	The practices which ensure that the data shared by customers is only used for its intended purpose.
Data Processing	The collective set of data actions (NIST IR 8062)
Data Processing Ecosystem	The interconnected relationships among entities involved in creating or deploying systems, products or services or any components that process data. (NIST PF)
Data at Rest	Computer files that are used as reference, but are not often, if at all, updated. They may reside on servers, in backup storage or on the user's own hard disk.

Data Subject	Any person whose personal data is being collected, held or processed.
Data Subject Access Request	A DSAR is a petition to an organization by a data subject looking to confirm whether or not the organization is holding personal data about the data subject petitioning, and if so, the data subject has the right to access that data, amend that data, or where permitted by law request for that his/her data be erased.
Data in Transit	Data on the move from origin or source to destination.
Data Integrity	A property whereby data has not been altered in an unauthorized manner since it was created, transmitted or stored. In this Recommendation, the statement that a cryptographic algorithm "provides data integrity" means that the algorithm is used to detect unauthorized alterations. (Source: SP 800-56B Rev.1)
Data Leakage	The unauthorized or unintended transmission of data from within an organization to an external destination or recipient.
Data Loss	The exposure of proprietary, sensitive, or classified information through either data theft or data leakage. (Source: SP 800-137)
Data Loss Prevention	A systems ability to identify, monitor, and protect data in use (e.g. endpoint actions), data in motion (e.g. network actions), and data at rest (e.g. data storage) through deep packet content inspection, contextual security analysis of transaction (attributes of originator, data object, medium, timing, recipient/destination, etc.), within a centralized management framework. Data loss prevention capabilities are designed to detect and prevent the unauthorized use and transmission of protected/classified/CUI information. (Source: CNSSI 4009-2015)
Data Spillage	An accidental or deliberate cybersecurity incident that results in the transfer of classified information onto an information system not authorized to store or process that information. (Source CNSSI 4009-2015)
Data Steward	Data Steward is defined in section 9.2 of the Information Technology Handbook. Examples are the registrar and director of human resources (HR).
De-identified Information	Records that have had enough PII removed or obscured such that the remaining information does not identify an individual and there is no reasonable basis to believe that the information can be used to identify an individual.

Denial of Service	Activity involving an attempt to make a resource unavailable to your network. (Source: SP 800-33)
Disassociated Processing	Or disassociability, enables the processing of data or events without association to individuals or devices beyond the operational requirements of the system (NIST IR 8062)
DNS Spoofing	DNS Spoofing refers to confusing a DNS server into giving out bad information.
Domain	Domain is most often used to refer to a domain zone; it is also used to describe a zone or a domain name.
Domain Name Service (DNS)	DNS refers to the domain name system, which represents a powerful Internet technology for converting domain names to their corresponding IP addresses.
Dwell Time	The time calculated as the number of days an adversary is present on a victim network, from first evidence of compromise to detection.
Endpoint Security	Endpoint Security is an approach to network protection that requires each computing device on a corporate network to comply with certain standards before network access is granted. Simple forms of endpoint security include personal firewalls or anti-virus software that is distributed and then monitored and updated from a server. (Source: SP 800-128)
Endpoint Security Management	Endpoint Security Management is a policy-based approach to network security that requires endpoint devices to comply with specific criteria before they are granted access to network resources.
Endpoint Security Management Systems	Endpoint Security Management Systems, which can be purchased as software or as a dedicated appliance, discover, manage, and control computing devices that request access to the corporate network. Endpoints that do not comply with policy can be controlled by the system to varying degrees. For example, the system may remove local administrative rights or restrict Internet browsing capabilities.
Endpoints	Endpoints can include, but are not limited to, PCs, laptops, smart phones, tablets and specialized equipment such as bar code readers or point of sale (POS) terminals.
Enterprise	An organization with a defined mission/goal and a defined boundary, using information systems to execute that mission, and with responsibility for managing its own risks and performance. An

	enterprise may consist of all or some of the following business aspects: acquisition, program management, financial management (e.g., budgets), human resources, security, and information systems, information and mission management. See Organization. (Source: SP 800-30)
Event	A questionable or suspicious activity that could threaten the security objectives for critical or sensitive data or infrastructure. They may or may not have criminal implications. (Source: SP 800-160)
Exploit Attempt	Activity involving an attempt execute a specific flaw (vulnerability.)
False Positive	Activity that matches the specified criteria but is not an actual threat or vulnerability. (Source: SP 800-115)
General Support System (GSS)	An interconnected set of information resources under the same direct management control that shares common functionality. It normally includes hardware, software, information, data, applications, communications, and people. (Source: SP 800-18 Rev. 1)
Guideline	A guideline is a document that suggests a path or guidance on how to achieve or reach compliance with a policy.
Harm	Any adverse effects that would be experienced by an individual or an organization if the confidentiality of PII were breached.
Host infection, Trojan, or Malware	Activity involving a possible host infection, Trojan infection, or malware intrusion.
Health Information	Any information, whether oral or recorded in any form or medium, that: (1) Is created or received by a healthcare provider, health plan, public health authority, employer, life insurer, school or university, or healthcare clearinghouse; and (2) Relates to the past, present, or future physical or mental health or condition of an individual; the provision of healthcare to an individual; or the past, present, or future payment for the provision of healthcare to an individual. (Source: SP 800-66 Rev. 1)
Human Resource Management	Human Resource Management (HRM) is the area of administrative focus pertaining to an organization's employees. HRM is sometimes referred to simply as HR.
Impact	The magnitude of harm that can be expected to result from the consequences of unauthorized disclosure of information, unauthorized modification of information, unauthorized

	destruction of information, or loss of information or information system availability. (Source: SP 800-34 Rev. 1)
Incident	An occurrence that actually or potentially jeopardizes the confidentiality, integrity, or availability of an information system or the information the system processes, stores, or transmits or that constitutes a violation or imminent threat of violation of security policies, security procedures, or acceptable use policies. (Source: SP 800-53 Rev. 4)
Incident Response Management	Process of detecting, mitigating, and analyzing threats or violations of cybersecurity policies and limiting their effect.
Information Leakage	Intentional or unintentional activity that could result in the transmission of data to unauthorized parties. (Source: SP 800-53 Rev. 4)
Information Security Officer (ISO)	Organization official responsible for: 1) maintaining the cybersecurity of different types of information within the organization that typically involves maintaining computer networks to ensure that sensitive financial or private information is kept secure and cannot be accessed by someone not authorized to do so; 2) that usually reports to a chief information security officer or other member of upper management, such as a vice president in charge of information technology (IT) or cybersecurity.
Information System	A discrete set of information resources organized for the collection, processing, maintenance, use, sharing, dissemination or disposition of information. (Source: SP 800-137)
Institutional Investigation	Activity reported by an institution in accordance with their incident response plans.
Isolated Event	Activity that is isolated or the context is undetermined.
Issues	A problem impacting the successful outcome of a project. Project issues should be tracked through resolution.
Linkable Information	Information about or related to an individual for which there is a possibility of logical association (linkability) with other information about the individual.
Metric	Metric is a numeric indicator(s) used to monitor and measure accomplishment of goals by quantifying the level of implementation and effectiveness. (Source: SP 800-137)

Misconfiguration	An incorrect or suboptimal configuration of an information system or system component that may lead to vulnerabilities. (Source: SP 800-128)
Mission Critical System	Reference “Critical System.”
Monitoring	Monitoring is observing and checking for a set standard or configuration. Continual checking, supervising, critically observing or determining the status in order to identify change from the performance level required or expected. (Source: SP 800-160)
Obscured Data/Information	Data/information that has been distorted by cryptographic or other means to hide information (aka masked, obfuscated).
Operations Security	Systematic and proven process by which potential adversaries can be denied information about capabilities and intentions by identifying, controlling, and protecting generally unclassified evidence of planning and execution of sensitive activities.
Performance Goals	Performance Goal is the desired result(s) of implementing the security objective or technique that are measured by the metric.
Performance Measures	Performance Measures are the actions required to accomplish the performance goal validated through the completion and analysis of the institution report.
Personal Health Information (PHI)	Under the US law is any information about health status, provision of health care, or payment for health care that is created or collected by a Covered Entity (or a Business Associate of a Covered Entity) and can be linked to a specific individual.
Personally Identifiable Information	Information that can be used to distinguish or trace an individual’s identity, either alone or when combined with other personal or identifying information that is linked or linkable to a specific individual. (Source: OMB Memorandum M-07-1616) Information which can be used to distinguish or trace the identity of an individual (e.g., name, social security number, biometric records, etc.) alone, or when combined with other personal or identifying information which is linked or linkable to a specific individual (e.g., date and place of birth, mother’s maiden name, etc.). (Source: SP 800-53 Rev. 4) Information that can be used to distinguish or trace an individual’s identity, either alone or when combined with other information that is linked or linkable to a specific individual. (source: OMB Circular A-130)

Policy	Statements, rules or assertions that specify the correct or expected behavior of an entity. For example, an authorization policy might specify the correct access control rules for a software component. (Source: SP 800-95)
Principle of Least Privilege	The Principle of Least Privilege (PoLP) describes minimal user profile or access privileges to information resources based on allowing access to only what is necessary for the users to successfully perform their job requirements. (Source: SP 800-179)
Privacy Breach	The loss of control, compromise, unauthorized disclosure, unauthorized acquisition, or any similar occurrence where (1) a person other than an authorized user accesses or potentially accesses data or (2) an authorized user accesses data for an other than authorized purpose. (OMB M-17-12)
Privacy Risk	The likelihood that individuals will experience problems resulting from data processing, and the impact should they occur. (NIST PF)
Privacy Risk Assessment	A risk management sub-process specifically for identifying and evaluating privacy risk concerns.
Prior Approval	A process by which all users must gain approval prior to working with, utilizing, or implementing a process or procedure.
Problematic Data Actions	A data action that could cause an adverse effect for individuals.
Program	A group of related projects (and services) managed in a coordinated way to obtain benefits and control not available from managing them individually.
Project	A temporary endeavor undertaken to create a unique product, service, or result.
Project Risk	An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives.
Provisioning	The process of preparing systems/products/services to permit and provide for new services to its end-users.
Public Data/Information	Data elements that have no access restrictions and are available to the general public. Also, can be designated as unrestricted data.
Reconnaissance	Activity that attempts to gather information about information systems and network architecture and activity.
Risk Tolerance	The level of risk or degree of uncertainty that is acceptable to organizations. (NIST SP 800-39)

Safeguards	The protective measures prescribed to meet the security requirements (i.e., confidentiality, integrity, and availability) specified for an information system. Safeguards may include security features, management constraints, personnel security, and security of physical structures, areas, and devices. Synonymous with security controls and countermeasures. (Source: FIPS 200)
Schedule	The planned dates for performing schedule activities and the planned dates for meeting the schedule milestones.
Scope	The work that needs to be accomplished to deliver a product, service, or result with the specified features and functions.
Sensitive Data/Information	Data for which users must obtain specific authorization to access, since the data's unauthorized disclosure, alteration or destruction will cause perceivable damage to the USG organization. Example: personally identifiable information, Family Educational Rights and Privacy Act (FERPA), Health Insurance Portability and Accountability Act (HIPPA) data, or data exempt from the Georgia Open Records Act. (Source: SP 800-53 Rev. 4)
Spam	Irrelevant or inappropriate messages sent on the Internet to a large number of recipients. The abuse of electronic messaging systems to indiscriminately send unsolicited bulk messages. (Source: SP 800-53 Rev. 4)
Spillage	Cybersecurity incident that resulted in the transfer of protected information (classified or CUI) onto an information system or directly to a person not authorized as the recipient. (Source: CNSSI-4009)
Split DNS	An architectural design which provides selective answers based upon a predefined condition. For example, a split DNS arrangement might supply private network answers to private users while providing different answers to public users. Internal hosts are directed to an internal domain name server for name resolution, while external hosts are directed to an external domain name server for name resolution
Standard	A standard is a requirement that: 1) supports a policy; and 2) provides for common and repeatable use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context. (Source: NISTIR 8074 Vol. 2)
Suspicious Activity	Anomalous activity that requires further investigation.

System or Application Event	Activity that occurs in the operation system or in a software application, which may or may not require action.
System Owner	Person or organization having responsibility for the development, procurement, integration, modification, operation, and maintenance, and/or final disposition of an information system. (Source: SP 800-161)
Traceable	Information that is sufficient to make a determination about a specific aspect of an individual's activities or status.
Training	Activity involving learning or accessing knowledge-bases or resources to improve a skill or behavior.
Transition Period	A period of time whereby an object moves from one state or level to another.
Truncated Alert	An event that was shortened.
Users or End Users	Users are individuals who use the information processed by an information system. (Source: FIPS 200)
Worm	A computer program that can run independently, can propagate a complete working version of itself onto other hosts on a network, and may consume computer resources destructively. (Source: SP 800-82 Rev. 2)

Appendix C: Acronyms (Common Abbreviations)

AUP	Appropriate Use Policy
AVC	Associate/Assistant Vice Chancellor
BCP	Business Continuity Plan
BOR	Board of Regents
BPM	Business Procedures Manual
BYOD	Bring Your Own Device
CFAA	Computer Fraud and Abuse Act
CIA	Confidentiality, Integrity, Availability
CIO	Chief Information Officer
CISO	Chief Information Security Officer
COOP	Continuity of Operations Plan
CPR	Cybersecurity Program Review
CR	Change Request
CSIRT	Cybersecurity Incident Response Team
DNS	Domain Name Service
DRP	Disaster Recovery Plan
ECPA	Electronic Communication Privacy Act
ERM	Enterprise Risk Management
EVC	Executive Vice Chancellor
FAQ	Frequently Asked Questions
FERPA	Federal Education Rights and Privacy Act
FIPS	Federal Information Processing Standards
FISMA	Federal Information Systems Modernization Act
FSA	Federal Student Aid
FTE	Full Time Equivalent
FTP	File Transport Protocol
GLBA	Gramm-Leach-Bliley Act
GPLS	Georgia Public Library Service
GSS	General Support Systems
HIPAA	Health Insurance Portability and Accountability Act

HRM	Human Resource Management
IMAP	Internet Message Access Protocol
IOC	Indicators of Compromise
IRP	Incident Response Plan
ISO	Information Security Officer
IT	Information Technology
ITIL	Information Technology Information Library
ITS	Information Technology Services
KPI	Key Performance Indicators
LMS	Learning Management Systems
NIST	National Institute of Standards and Technology
O.C.G.A.	Official Code Georgia Annotated
OLA	Operational Level Agreement
OMB	Office of Management and Budget
OPSEC	Operational Security
PHI	Personal Health Information
PII	Personal Identifiable Information
POC	Point of Contact
POLP	Principle of Least Privilege
POP	Post Office Protocol
SACSCOC	Southern Association of Colleges and Schools Commission on Colleges
SLA	Service Level Agreement
SNMP	Simple Network Management Protocol
SP	Special Publication
SSC	Shared Services Center
SSN	Social Security Number
TTP	Techniques, Tactics & Procedures
U.S.C.	United States Code
USG	University System of Georgia
USO	University System Office
VC	Vice Chancellor

VP	Vice President

Appendix D: Index