

CERT[®] Resilience Management Model, Version 1.2

Asset Definition and Management (ADM)

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ASSET DEFINITION AND MANAGEMENT

Engineering



Purpose

The purpose of Asset Definition and Management is to identify, document, and manage organizational assets during their life cycle to ensure sustained productivity to support organizational services.

Introductory Notes

Mission success for an organization relies on the success of each service in achieving its mission. In turn, mission assurance for services depends on the availability, productivity, and ultimately the resilience of high-value assets that the service relies upon—people to perform and monitor the service, information to fuel the service, technology to support the automation of the service, and facilities in which to operate the service. Whenever any high-value asset is affected by disruptive events (by the realization of operational risk), the assurance of the mission is less certain and predictable. An organization must be able to identify its high-value assets, document them, and establish their value in order to develop strategies for protecting and sustaining assets commensurate with their value to services.

The Asset Definition and Management process area seeks to establish organizational assets as the focus of the operational resilience management system. High-value organizational assets are identified and profiled (establishing ownership, a common definition, and value), and the relationship between the assets and the organizational services they support is established. The organization also defines and manages the process for keeping the asset inventory current and ensures that changes to the inventory do not result in gaps in strategies for protecting and sustaining assets.

The Asset Definition and Management process area is a higher order competency that establishes the inventory of high-value organizational assets of all types. The resilience aspects of these assets (and their related services) are addressed in asset-specific process areas as noted in “Related Process Areas” below.

The Asset Definition and Management process area has three specific goals: to inventory assets, associate the assets with services, and manage the assets. To meet these goals, the organization must engage in the following practices:

- Establish a means to identify and document assets.
- Establish ownership and custodianship for the assets.
- Link assets to the services they support.
- Establish resilience requirements (including those for protecting and sustaining) for assets and associated services. *(This is addressed in the Resilience Requirements Definition and Resilience Requirements Management process areas.)*
- Provide change management processes for assets as they change and as the inventory of assets changes.

- Establish risk management processes to identify, analyze, and mitigate risks to high-value assets. *(This is addressed in the Risk Management process area.)*
- Establish continuity processes to develop, test, and implement service continuity and restoration plans for high-value assets. *(This is addressed in the Service Continuity process area.)*
- Monitor the extent to which high-value assets are adequately protected and sustained, and develop and implement adjustments as necessary. *(This is addressed in the Monitoring process area.)*

Related Process Areas

The identification, documentation, analysis, and management of asset-level resilience requirements are addressed in the Resilience Requirements Development and Resilience Requirements Management process areas.

The identification, assessment, and mitigation of risks to high-value assets are addressed in the Risk Management process area.

The development, implementation, and management of strategies for protecting people are addressed in the People Management process area.

The development, implementation, and management of strategies for protecting information assets are addressed in the Knowledge and Information Management process area.

The development, implementation, and management of strategies for protecting technology assets are addressed in the Technology Management process area.

The development, implementation, and management of strategies for protecting facility assets are addressed in the Environmental Control process area.

The development and implementation of service continuity plans for high-value assets and their related services are performed in the Service Continuity process area. Service continuity plans describe strategies for sustaining high-value assets and services.

The identification and prioritization of high-value organizational services are performed in the Enterprise Focus process area.

Summary of Specific Goals and Practices

| Goals | Practices |
|--|--|
| ADM:SG1 Establish Organizational Assets | ADM:SG1.SP1 Inventory Assets |
| | ADM:SG1.SP2 Establish a Common Understanding |
| | ADM:SG1.SP3 Establish Ownership and Custodianship |
| ADM:SG2 Establish the Relationship Between Assets and Services | ADM:SG2.SP1 Associate Assets with Services |
| | ADM:SG2.SP2 Analyze Asset-Service Dependencies |
| ADM:SG3 Manage Assets | ADM:SG3.SP1 Identify Change Criteria |
| | ADM:SG3.SP2 Maintain Changes to Assets and Inventory |

Specific Practices by Goal

ADM:SG1 Establish Organizational Assets

Organizational assets (people, information, technology, and facilities) are identified and the authority and responsibility for these assets are established.

The assets of the organization must be identified, prioritized, documented, and inventoried.

The highest-level concept in the operational resilience management system is a service. Services are defined as the limited number of activities that the organization carries out in the performance of a duty or in the production of a product. Services are the prime resource that the organization uses to accomplish its mission. Each service has a mission that must be accomplished in order to support the organization's strategic objectives. Failure to accomplish the mission of a service is a potentially serious impediment to accomplishing the organization's mission.

An important aspect of services is that they are "fueled" by assets—the raw materials that services need to operate.

A service cannot accomplish its mission unless there are

- **people** to operate and monitor the service
- **information** and data to feed the process and to be produced by the service
- **technology** to automate and support the service
- **facilities** in which to perform the service

These assets may or may not be directly owned by the organization. For example, outsourcing of call center functions may mean that the organization does not control the people, information, technology, or facilities that enable the service; however, the organization retains responsibility for the ownership and resilience of the assets. In order to properly determine resilience requirements (and to implement appropriate strategies for protecting and sustaining assets), the organization must define these assets from a service perspective and establish ownership and responsibility for their resilience.

ADM:SG1.SP1 Inventory Assets

Organizational assets are identified and inventoried.

Success at achieving the organization's mission relies upon critical dependencies between organizational goals and objectives, services, and associated high-value assets. Lack of performance of these assets (due to disruptive events, realized risk, or other issues) impedes mission assurance of associated services and can translate into failure to achieve organizational goals and objectives. Thus, ensuring the operational resilience of high-value assets is paramount to organizational success.

The first step in establishing the operational resilience of assets is to identify and define the assets. Because assets derive their value and importance through their association with services, the organization must first identify and establish which services are of high value. This provides

structure and guidance for developing an inventory of high-value assets for which resilience requirements have to be established and satisfied. Inventorying these assets is also essential to ensuring that changes are made in resilience requirements as operational and environmental changes occur.

Establishing criteria for determining the value of services and associated assets is performed in the Risk Management process area. Identifying and prioritizing high-value organizational services are performed in the Enterprise Focus process area.

Each type of asset for a specific service must be identified and inventoried. The following are descriptions of the four asset types.

People are those who are vital to the expected operation and performance of the service. They execute the process and monitor it to ensure that it is achieving its mission, and make corrections to the process when necessary to bring it back on track. People may be internal or external to the organization.

Information is any information or data, on any media including paper or electronic form, that is vital to the intended operation of the service. Information may also be the output or by-product of the execution of a service. Information can be as small as a bit or a byte, a record or a file, or as large as a database. (The organization must determine how granularly to define information with respect to its purpose in a service.) Because of confidentiality and privacy concerns, information must also be categorized as to its organizational sensitivity. Categorization provides another level of important description to an information asset that may affect strategies to protect and sustain it. Examples of information include Social Security numbers, a vendor database, intellectual property, and institutional knowledge.

Technology describes any technology component or asset that supports or automates a service and facilitates its ability to accomplish its mission. Technology has many layers, some that are specific to a service (such as an application system) and others that are shared by the organization (such as the enterprise-wide network infrastructure) to support more than one service. Organizations must describe technology assets in terms that facilitate development and satisfaction of resilience requirements. In some organizations, this may be at the application system level; in others, it might be more granular, such as at the server or personal computer level. Examples of technology assets include software, hardware, and firmware, including physical interconnections between these assets such as cabling.

Facilities are any physical plant assets that the organization relies upon to execute a service. Facilities are the places where services are executed and can be owned and controlled by the organization or by external business partners. Facilities are also often shared such that more than one service is executed in and dependent upon them. (For example, a headquarters office building has a substantial number of services being executed inside of it.) Facilities provide the physical space for the actions of people, the use and storage of information, and the operations of

technology components. Thus, resilience planning for facilities must integrate tightly with planning for the other assets. Examples of facilities include office buildings, data centers, and other real estate where services are performed.

Organizations may use many practical methods to inventory these assets. Human resources databases identify and describe the roles of vital staff. Fixed asset catalogs often describe all levels of technology components. Facilities and real estate databases have information about high-value physical plant assets. However, bear in mind that internal databases may not cover people, technology, and facilities that are not under the direct control of the organization. In contrast to people, technology, and facilities, less tangible assets such as information and intellectual property may not be identified and regularly inventoried because they are often difficult to describe and bound. For example, a staff member may have information that is critical to the effective operation of a service that has not been documented or is not known to other staff members. This must be resolved in order to properly define security and continuity requirements for these assets.

Typical work products

1. Asset inventory (of all high-value assets of each type)
2. Asset repository or database(s)

Subpractices

1. Identify and inventory vital staff.
2. Identify and inventory high-value information assets.
3. Identify and inventory high-value technology components.
4. Identify and inventory high-value facilities.
5. Develop and maintain asset database(s) for all high-value assets.

All information relevant to the asset should be contained with the asset in its entry in the appropriate asset database(s). Operational access to and integrity of the inventory information is the main factor, whether or not there is one or more than one master repository or database for all assets.

ADM:SG1.SP2 Establish a Common Understanding

A common and consistent definition of assets is established and communicated.

Proper description of organizational assets is essential to ensuring a common understanding of these assets between owners and custodians. *(The difference between owners and custodians is explained in ADM:SG1.SP3.)* A consistent description aids in developing resilience requirements and ensuring satisfaction of these requirements. It defines the boundaries and extent of the asset, which is useful for defining ownership and responsibility for the resilience of the asset. In addition, an asset's description can be easily communicated within and outside of the

organization to facilitate communication of resilience requirements to internal constituencies and external business partners.

At a minimum, all high-value assets (as identified in ADM:SG1.SP1) should be defined to the extent possible. Differences in the level of description are expected from asset to asset, and an organization must decide how much information is useful in facilitating requirements definition and satisfaction. The description of the asset should detail why it is considered to be of high value to the organization. There are some common elements that should be collected, at a minimum, for each asset.

These are examples of information that should be collected and documented for assets:

- asset type (people, information, technology, or facilities)
- categorization of asset by sensitivity (generally for information assets only)
- asset location (typically where the custodian is managing the asset)
- asset owners and custodians (particularly where this is external to the organization)
- the format or form of the asset (particularly for information assets that might exist on paper and electronically)
- location where backups or duplicates of this asset exist (particularly for information assets)
- the services that are dependent on the asset (*See ADM:SG2.*)
- the value of the asset in either qualitative or quantitative terms

An organization may also choose to document the asset's resilience requirements as part of the asset profile so that there is a common source for communicating and updating these requirements and so that their association with an asset is established. In addition, strategies to protect and sustain an asset may be documented as part of the asset profile. (*Resilience requirements for assets are developed and documented in the Resilience Requirements Development process area.*)

There are additional considerations for describing each type of asset.

People

In describing people, be sure to describe a role where possible, rather than the actual persons who perform the role. If a particular person or persons in the organization are vital to the successful operation of a service because of their detailed knowledge and experience, this should be noted in the description of the asset. This may affect the resilience requirements of the asset when defined.

Information Assets

Because information is an intangible asset, it must be accurately described. Some organizations find media conventions such as record, file, and database to be natural limiters of the description of an information asset. Information asset descriptions should also address the level of sensitivity of the asset based on the organization's categorization scheme. This will aid in ensuring that confidentiality and privacy sensitivities are considered in the development and satisfaction of resilience requirements.

Technology and Facilities Assets

Organizations often view technology components and facilities as shared enterprise assets. This should be considered when defining these assets and when developing resilience requirements. In addition, because technology and facilities are tangible assets, the current value of the asset should be included in the definition. This will provide additional data on the value of the asset to the organization and serve as a guide for comparing value versus cost of activities to protect and sustain assets.

Typical work products

1. Asset profiles (for all high-value assets of each type)
2. Updated asset database(s) (including asset profiles)

Subpractices

1. Create an asset profile for each high-value asset (or similar work product) and document a common description.

Be sure to address the entire range of information that should be collected for each type of asset, including at a minimum the owner and the custodian(s) of the asset. Also, include the resilience requirements of the asset as established or acquired by the organization. (*Refer to the Resilience Requirements Development process area for more information.*)

2. Describe and document the “acceptable use” of the asset. Ensure alignment between acceptable uses and resilience requirements.
3. Categorize information assets as to their level of sensitivity.
4. Update the asset database(s) with asset profile information.

All information relevant to the asset (collected from the asset profile) should be contained with the asset in its entry in the appropriate asset database.

ADM:SG1.SP3 Establish Ownership and Custodianship

Authority and responsibility for assets are established.

High-value assets have owners and custodians. Asset owners are the persons or organizational units, internal or external to the organization, that have primary responsibility for the viability, productivity, and resilience of the asset. For example, an information asset such as customer data may be owned by the “customer relations department” or the “customer relationship manager.” It is the owner’s responsibility to ensure that the appropriate levels of confidentiality, integrity, and availability requirements are defined and satisfied to keep the asset productive and viable for use in services.

Asset custodians are persons or organizational units, internal or external to the organization, that are responsible for implementing and managing controls to satisfy the resilience requirements of high-value assets while they are in their care. For example, the customer data in the above example may be stored on a server that is maintained by the IT department. In essence, the IT department takes custodial control of the customer data asset when the asset is in its domain. The IT department must commit to

taking actions commensurate with satisfying the owner's requirements to protect and sustain the asset. However, in all cases, owners are responsible for ensuring that their assets are properly protected and sustained, regardless of the actions (or inactions) of custodians.

In practice, custodianship brings many challenges for asset owners in ensuring that the resilience requirements of their assets are being satisfied. In some cases, custodians of assets must resolve conflicting requirements obtained from more than one asset owner. This can occur in cases where a server contains more than one information asset from different owners with unique and sometimes competing requirements. In addition, custodianship may occur outside of organizational boundaries, as is commonly seen in outsourcing arrangements. In such a case, asset owners must clearly communicate the resilience requirements of their assets to external custodians and must expend additional effort in monitoring the satisfaction of those requirements.

The owner of each high-value asset is established in order to define responsibility and accountability for the asset's resilience and its contributions to services. Accordingly, owners are responsible for developing and validating the resilience requirements for high-value assets that they own. They are also responsible for the implementation of proper controls to meet resilience requirements, even if they assign this responsibility to a custodian of the asset.

The identification, documentation, analysis, and management of asset-level resilience requirements are addressed in the Resilience Requirements Development and Resilience Requirements Management process areas.

Ownership of assets typically varies depending on the asset type.

- **People** are part of the organizational unit or line of business where their job responsibilities and accountabilities are managed. This organizational unit or line of business is considered the "owner" of these resources in that it has authority and accountability for their work assignments and their training, deployment, and performance.
- **Information assets** are generally owned by a person, organizational unit, or line of business where the asset originates (i.e., where the service is owned which the asset supports) or where responsibility for the asset's confidentiality, integrity, and availability has been established.
- **Technology and facilities assets** tend to be shared by the enterprise, and therefore it may be difficult to establish a single owner.
- **Technology assets** are most often owned by IT but could be owned by an organizational unit or line of business that manages its technology support structure separately from IT or the enterprise.
- **Facilities** may be owned by a central group (such as facilities management) or may be owned by an organizational unit or line of business.

In some cases, the organization may group a set of assets together into a service and identify an owner of the service. This aggregation often is more

practical when there are many assets in an organization and protection and sustainment strategies at the asset level would not be practical.

The organization should also, as appropriate, identify relevant custodians for high-value assets. Custodians take custodial care of assets under the direction of owners and are usually responsible for satisfying the asset's resilience requirements on an operational basis. Identifying the custodians of high-value assets also helps to identify the operational environment of the assets where risks may emerge and where continuity plans would have to be implemented.

Typical work products

1. Owner identification
2. Custodian identification
3. Updated asset profiles (including owner and custodian)
4. Updated asset database(s) (including owner and custodian)

Subpractices

1. Document and describe the owner of each asset on the asset profile (or similar work product).
2. Group assets that are collectively needed to perform a specific service, and identify service owners, if necessary.
3. Document and describe the physical location of the asset and the custodian of the asset.

ADM:SG2 Establish the Relationship Between Assets and Services

The relationship between assets and the services they support is established and examined.

The relationship between assets and the services they support must be understood in order to effectively develop, implement, and manage resilience strategies that support the accomplishment of the service's mission. Associating assets to services helps the organization to determine where critical dependencies exist, to validate resilience requirements, and to develop and implement commensurate resilience strategies.

ADM:SG2.SP1 Associate Assets with Services

Assets are associated with the service or services they support.

To provide a service-focused review of operational resilience, the assets collected in the development of the asset inventory must be associated with the services they support. This helps the organization view resilience from a service perspective and to identify critical dependencies that are essential to determining effective strategies for protecting and sustaining assets.

Establishing criteria for determining the relative value of services and associated assets is performed in the Risk Management process area. Identifying and prioritizing high-value organizational services are performed in the Enterprise Focus process area.

Typical work products

1. List of high-value services and associated assets
2. Updated asset profiles (including service information)
3. Updated asset database (including service information)

Subpractices

1. Identify high-value services.

A list of high-value services is created in the Enterprise Focus process area. Assets can be associated with services in this practice, but it is best to have a validated list of services to which assets are associated. *(Refer to the Enterprise Focus process area for more information.)*

2. Assign assets in the asset database(s) to one or more services.
3. Update asset profiles to establish and document associations of assets to services.

If an asset is connected to more than one service, be sure this is noted as part of the asset profile.

4. Update the asset database(s) with asset-to-service association information.

All information relevant to the asset (collected from the asset profile) should be contained with the asset in its entry in the asset database.

ADM:SG2.SP2 Analyze Asset-Service Dependencies

Instances where assets support more than one service are identified and analyzed.

Because services traverse the organization, and because there are shared assets and resources that many services depend upon, it is important to identify these dependencies to ensure that they are addressed during the development of resilience requirements and in the development of strategies to protect and sustain assets and their related services.

When dependencies result in a shared environment for an asset, consideration must be given to the effects that this situation will have on the satisfaction of resilience requirements at the service level. For example, if resilience requirements are set for a facility and more than one service is performed in that facility, the requirements for protecting and sustaining the facility must be sufficient to meet the needs of both services that share the facility. By identifying these potential conflicts early, an organization can actively mitigate them (by revising requirements or other actions) before they become an exposure that affects the operational resilience of the affected services.

Typical work products

1. List of potential conflicts due to asset dependencies
2. Mitigation actions and resolutions

Subpractices

1. Identify asset dependencies and potential conflicts.
2. Develop mitigation plans to reduce the effects of dependencies that could affect the operational resilience of associated services.
3. Implement actions to reduce or eliminate conflict.

This practice may require the organization to revisit existing resilience requirements and revise them where necessary. It may also necessitate changes in current strategies for protecting and sustaining existing assets. *(Refer to the Resilience Requirements Management process area for more information about managing change to resilience requirements. Refer to the Controls Management and the Service Continuity process areas for managing changes to strategies for protecting and sustaining services and their supporting assets.)*

ADM:SG3 Manage Assets

The life cycle of assets is managed.

Changes to high-value assets may require commensurate changes in resilience requirements and the strategies that organizations deploy to ensure that these assets are adequately protected and sustained. In fact, managing changes to the operational environment (i.e., through keeping accurate inventories of assets and services and their requirements) is an essential activity for managing and controlling operational resilience. The organization must actively monitor for changes that significantly alter assets, identify new assets, or call for the retirement of assets for which there is no longer a need or whose relative value has been reduced. The objective of this goal is to ensure that the organization's scope for operational resilience management remains known and controllable.

ADM:SG3.SP1 Identify Change Criteria

The criteria that would indicate changes in an asset or its association with a service are established and maintained.

(This practice is complementary to specific practice RRM:SG1.SP3 in Resilience Requirements Management.)

In order to identify changes to high-value assets that could affect their productivity and resilience, the organization must have a set of criteria that are consistently applied. These criteria must cover all assets—people, technology, information, and facilities.

These are examples of triggers that can affect high-value assets:

- changes in organizational structure and staff—termination or transfer of staff between organizational units or changes in roles and responsibilities
- changes in technology infrastructure and configuration
- real estate transactions that add, alter, or change existing facilities
- creation or alteration of information
- changes in services affecting the assets on which they rely
- contracts that the organization enters into that would identify new assets
- acquisition of assets such as technology or facilities

Owners of high-value assets must have knowledge of these criteria and be able to apply them in order to identify changes that must be managed.

Typical work products

1. Asset inventory baseline
2. Asset change criteria

Subpractices

1. Establish an asset inventory baseline from which changes will be managed.
2. Develop and document criteria for establishing when a change in asset inventory must be considered.

Ensure that these criteria are commensurate with the organization's risk tolerances.

ADM:SG3.SP2 Maintain Changes to Assets and Inventory

Changes to assets are managed as conditions dictate.

(This practice is complementary to specific practice RRM:SG1.SP3 in Resilience Requirements Management.)

Organizational and operational conditions are continually changing. These changes result in daily changes to the high-value assets that help the organization's services achieve their missions. For example, the following are common organizational events that would affect high-value assets:

- staff changes, including the addition of new staff members (either internally or externally), the transfer of existing staff members from one organizational unit to another, and the termination of staff members
- changes to information such as the creation, alteration, or deletion of paper and electronic records, files, and databases
- technology refresh, such as the addition of new technical components, changes to existing technical components, and the elimination or retirement of existing technology
- facilities changes, such as the addition of new facilities (whether owned by the organization or an external business partner), alteration of existing facilities, and the retirement of a facility

Besides the addition of new assets, this practice also addresses changes to the description or composition of an asset. For example, if an asset takes an additional form (such as when a paper asset is imaged or an electronic asset is printed), this must be documented as part of the asset description to ensure that current protection and sustainment strategies align properly and provide coverage across a range of asset media. Assets may also change ownership, custodianship, location, or value—all of which must be updated to ensure a current asset profile and inventory.

Changes in assets must be translated to updates of the resilience requirements for those assets. In the case where an asset is eliminated (for example, when a vital staff member leaves the organization), the requirements are eliminated or are transferred to and updated for the asset

that replaces it. Doing this is especially critical when assets are shared between services and have common resilience requirements.

Typical work products

1. Asset change documentation
2. Asset inventory status
3. Updated asset and service resilience requirements
4. Updated asset and service protection strategies and controls
5. Updated strategies and continuity plans for sustaining assets and services

Subpractices

1. Document the asset changes by updating asset profiles and the asset database(s).
2. Maintain a requirement change history with the rationale for performing the changes.
3. Evaluate the impact of asset changes on existing resilience requirements and activities and commitments for protecting and sustaining assets.

Update asset resilience requirements, asset protection strategies, and plans for sustaining assets as necessary.

4. Establish communication channels to ensure custodians are aware of changes in assets.

Update service level agreements (SLAs) with custodians if necessary to reflect commitment to changes.

Elaborated Generic Practices by Goal

Refer to the Generic Goals and Practices document in Appendix A for general guidance that applies to all process areas. This section provides Elaborations relative to the application of the Generic Goals and Practices to the Asset Definition and Management process area.

ADM:GG1 Achieve Specific Goals

The operational resilience management system supports and enables achievement of the specific goals of the Asset Definition and Management process area by transforming identifiable input work products to produce identifiable output work products.

ADM:GG1.GP1 Perform Specific Practices

Perform the specific practices of the Asset Definition and Management process area to develop work products and provide services to achieve the specific goals of the process area.

Elaboration:

Specific practices ADM:SG1.SP1 through ADM:SG3.SP2 are performed to achieve the goals of the asset definition and management process.

ADM:GG2 Institutionalize a Managed Process

Asset definition and management is institutionalized as a managed process.

ADM:GG2.GP1 Establish Process Governance

Establish and maintain governance over the planning and performance of the asset definition and management process.

Refer to the Enterprise Focus process area for more information about providing sponsorship and oversight to the asset definition and management process.

Subpractices

1. Establish governance over process activities.

Elaboration:

Governance over the asset definition and management process may be exhibited by

- developing and publicizing higher level managers' objectives and requirements
- sponsoring policies, procedures, standards, and guidelines, including the documentation of assets and for establishing asset ownership and custodianship
- making higher level managers aware of applicable compliance obligations related to the process, and regularly reporting on the organization's satisfaction of these obligations to higher level managers
- sponsoring and funding process activities
- aligning asset inventory, asset ownership, and asset-service relationship activities with identified resilience needs and objectives and stakeholder needs and requirements
- sponsoring the development, documentation, and management of asset inventories
- verifying that the process supports strategic resilience objectives and is focused on the assets and services that are of the highest relative value in meeting strategic objectives
- regular reporting from organizational units to higher level managers on process activities and results
- creating dedicated higher level management feedback loops on decisions about the process and recommendations for improving the process
- providing input on identifying, assessing, and managing operational risks to assets, including guidance for resolving asset inventory inconsistencies and other anomalies
- conducting regular internal and external audits and related reporting to audit committees on process effectiveness
- creating formal programs to measure the effectiveness of process activities, and reporting these measurements to higher level managers

2. Develop and publish organizational policy for the process.

Elaboration:

The asset definition and management policy should address

- responsibility, authority, and ownership for performing process activities, including collecting and documenting asset inventory information
- procedures, standards, and guidelines for
 - documenting asset descriptions and relevant information
 - describing and identifying asset owners
 - describing and identifying asset custodians
- the development of criteria to provide guidance on asset inventory updating, reconciliation, and change control
- the association of assets to core organizational services, and the prioritization of assets in the inventory
- methods for measuring adherence to policy, exceptions granted, and policy violations

ADM:GG2.GP2 Plan the Process

Establish and maintain the plan for performing the asset definition and management process.

Elaboration:

The plan for performing the asset definition and management process is created to ensure that an accurate inventory of assets is developed and maintained and can form a foundation for managing operational resilience. Developing and maintaining an asset inventory may be challenging because most organizations have a significant number of assets. Thus, the plan must address how the inventory will be taken and maintained at various levels of the organization. For practicality, most organizations may take inventory at an organizational unit level and have a method or tool to aggregate the inventory at an enterprise level.

Subpractices

1. Define and document the plan for performing the process.

Elaboration:

Special consideration in the plan may have to be given to the organization's approach for taking an initial inventory of assets (developing the asset inventory baseline) and for maintaining the asset inventory. The plan should address who is responsible for creating and maintaining the inventory and how ownership and custodianship are determined (or assigned). The plan should also include provisions for how the inventory is to be reconciled and how inventory duplication is resolved.

2. Define and document the process description.
3. Review the plan with relevant stakeholders and get their agreement.
4. Revise the plan as necessary.

ADM:GG2.GP3 Provide Resources

Provide adequate resources for performing the asset definition and management process, developing the work products, and providing the services of the process.

Subpractices

1. Staff the process.

Elaboration:

The diversity of asset types (people, information, technology, facilities) requires that staff members assigned to the asset definition and management process have appropriate knowledge of the assets being inventoried and the services with which they are associated.

These are examples of staff required to perform the asset definition and management process:

- staff responsible for
 - identifying high-value assets (e.g., people, information, technology, and facilities) and the services with which they are associated
 - developing and maintaining the asset inventory, including asset profiles and the asset database
 - identifying asset dependencies, potential conflicts, and mitigation plans to reduce the effects of dependencies that could affect the operational resilience of associated services
 - managing changes to assets, changes to the asset inventory, and associated changes to requirements, controls, strategies, and plans (This includes communicating changes to affected stakeholders, including asset custodians.)
 - developing process plans and programs and ensuring they are aligned with stakeholder requirements and needs
 - managing external entities that have contractual obligations for asset definition and management activities
- owners and custodians of high-value assets that support the accomplishment of operational resilience management objectives
- internal and external auditors responsible for reporting to appropriate committees on process effectiveness

Refer to the Organizational Training and Awareness process area for information about training staff for resilience roles and responsibilities.

Refer to the Human Resource Management process area for information about acquiring staff to fulfill roles and responsibilities.

2. Fund the process.

Elaboration:

Considerations for funding the asset definition and management process should extend beyond the initial development of the asset inventory to the maintenance of the inventory. Initial costs may be higher if the organization does not have a formal or usable asset baseline to serve as a foundation.

Refer to the Financial Resource Management process area for information about budgeting for, funding, and accounting for asset definition and management.

3. Provide necessary tools, techniques, and methods to perform the process.

Elaboration:

Developing and maintaining the asset inventory may require tools, techniques, and methods that allow for asset documentation and profiling, reporting, and updating on a regular basis. The need for these tools may be greater if the asset inventory is developed across many organizational units and must be aggregated at the enterprise level. Tools should provide for proper and secure change control over the asset database and should limit access to the asset baseline. The asset inventory database should be searchable and expandable to include additional information such as documentation of associated services and the asset's resilience requirements.

These are examples of tools, techniques, and methods to support the asset definition and management process:

- methods for identifying high-value assets
- methods, techniques, and tools for creating asset profiles and baselines
- methods and tools for aggregating local asset inventories into an enterprise inventory
- asset inventory database management system
- methods, techniques, and tools for asset inventory change management and control

ADM:GG2.GP4 Assign Responsibility

Assign responsibility and authority for performing the asset definition and management process, developing the work products, and providing the services of the process.

Elaboration:

Specific practice ADM:SG1.SP2 describes the use of human resources databases to identify roles of vital staff to aid in determining high-value people assets and calls for describing roles rather than actual persons who perform the role. Specific practice ADM:SG3.SP1 discusses the effects of changes in roles. These descriptions of roles specific to the definition and management of high-value people assets should not be confused with assigning the roles, responsibilities, and authorities necessary to perform the asset definition and management process.

Refer to the Human Resource Management process area for more information about establishing resilience as a job responsibility, developing resilience performance goals and objectives, and measuring and assessing performance against these goals and objectives.

Subpractices

1. Assign responsibility and authority for performing the process.

Elaboration:

Responsibility and authority for creating the asset inventory baseline may differ from responsibility and authority for maintaining the asset inventory and performing change control processes.

2. Assign responsibility and authority for performing the specific tasks of the process.

Elaboration:

Responsibility and authority for performing asset definition and management tasks can be formalized by

- defining roles and responsibilities in the process plan
- including process tasks and responsibility for these tasks in specific job descriptions
- developing policy requiring organizational unit managers, line of business managers, project managers, and asset and service owners and custodians to participate in and derive benefit from the process for assets and services under their ownership or custodianship
- including process tasks in staff performance management goals and objectives with requisite measurement of progress against these goals
- developing and implementing contractual instruments (including service level agreements) with external entities to establish responsibility and authority for performing process tasks on outsourced functions
- including process tasks in measuring performance of external entities against contractual instruments

Refer to the External Dependencies Management process area for additional details about managing relationships with external entities.

3. Confirm that people assigned with responsibility and authority understand it and are willing and able to accept it.

ADM:GG2.GP5 Train People

Train the people performing or supporting the asset definition and management process as needed.

Refer to the Organizational Training and Awareness process area for more information about training the people performing or supporting the process.

Refer to the Human Resource Management process area for more information about creating an inventory of skill sets, establishing a skill set baseline, identifying required skill sets, and measuring and addressing skill deficiencies.

Subpractices

1. Identify process skill needs.

Elaboration:

These are examples of skills required in the asset definition and management process:

- knowledge of the tools, techniques, and methods necessary to identify and inventory high-value assets, including those necessary to perform the process

using the selected methods, techniques, and tools identified in ADM:GG2.GP3 subpractice 3

- knowledge unique to each type of asset that is required to identify and inventory each type
- knowledge necessary to work effectively with asset owners and custodians
- knowledge necessary to elicit and prioritize stakeholder requirements and needs and interpret them to develop effective requirements, plans, and programs for the process

2. Identify process skill gaps based on available resources and their current skill levels.
3. Identify training opportunities to address skill gaps.

Elaboration:

These are examples of training topics:

- profiling, defining, and documenting high-value assets, including any unique considerations by asset type
- managing and controlling changes to asset inventories, asset profiles, and asset databases
- supporting asset owners and custodians in understanding the process and their roles and responsibilities with respect to its activities
- working with external entities that have responsibility for process activities
- using process methods, tools, and techniques, including those identified in ADM:GG2:GP3 subpractice 3

4. Provide training and review the training needs as necessary.

ADM:GG2.GP6 Control Work Products

Place designated work products of the asset definition and management process under appropriate levels of control.

Elaboration:

ADM:SG3.SP2 specifically addresses the change control process over assets and the asset inventory. However, other work products of the asset definition and management process must also be managed and controlled.

The tools, techniques, and methods used to capture and maintain the asset inventory should be employed to perform consistent and structured version control over the inventory to ensure that information is current, accurate, and "official." The tools, techniques, and methods can also be used to securely store the asset inventory, to provide access control over inquiry, modification, and deletion, and to track version changes and updates.

These are examples of asset definition and management work products placed under control:

- asset inventory
- asset database
- asset profiles
- asset owners and custodians
- association of assets to high-value services
- asset dependencies, dependency conflicts, mitigation actions, and resolutions

- asset inventory change control system or method
- asset inventory change criteria
- process plan
- policies and procedures
- contracts with external entities

ADM:GG2.GP7 Identify and Involve Relevant Stakeholders

Identify and involve the relevant stakeholders of the asset definition and management process as planned.

Elaboration:

Several ADM-specific practices address the involvement of owners and custodians as key stakeholders in the asset definition and management process. For example, ADM:SG1.SP3 calls for establishing ownership and custodianship for all high-value assets and making sure owners and custodians understand their responsibilities, as well as their relationship with one another. ADM:SG3.SP1 requires that asset owners have knowledge of asset change criteria, including possible changes in asset ownership and custodianship.

Subpractices

1. Identify process stakeholders and their appropriate involvement.

Elaboration:

These are examples of stakeholders of the asset definition and management process:

- asset owners and custodians
- service owners
- organizational unit and line of business managers responsible for high-value assets and the services they support
- staff responsible for establishing, implementing, and maintaining an internal control system for assets
- external entities responsible for managing high-value assets
- human resources (for people assets)
- information technology staff (for technology assets)
- staff responsible for physical security (for facility assets)
- internal and external auditors

Stakeholders are involved in various tasks in the asset definition and management process, such as

- planning for the process
- creating an asset inventory baseline
- creating asset profiles
- associating assets with services and analyzing asset-service dependencies
- managing changes to assets and to the asset inventory
- reviewing and appraising the effectiveness of process activities
- resolving issues in the process

2. Communicate the list of stakeholders to planners and those responsible for process performance.

3. Involve relevant stakeholders in the process as planned.

ADM:GG2.GP8 Measure and Control the Process

Measure and control the asset definition and management process against the plan for performing the process and take appropriate corrective action.

Refer to the Monitoring process area for more information about the collection, organization, and distribution of data that may be useful for measuring and controlling processes.

Refer to the Measurement and Analysis process area for more information about establishing process metrics and measurement.

Refer to the Enterprise Focus process area for more information about providing process information to managers, identifying issues, and determining appropriate corrective actions.

Subpractices

1. Measure actual performance against the plan for performing the process.
2. Review accomplishments and results of the process against the plan for performing the process.

Elaboration:

These are examples of metrics for the asset definition and management process:

- percentage of organizational assets that have been inventoried, by asset type
- percentage of assets with/without a complete asset profile
- percentage of assets with/without a designated owner
- percentage of assets with/without a designated custodian (if applicable)
- percentage of assets that have designated owners but no custodians (if applicable)
- percentage of assets that have designated custodians but no owners
- percentage of assets that have been inventoried, by service
- percentage of assets that are not associated with one or more services
- elapsed time since the asset inventory was reviewed
- percentage of asset-service dependency conflicts with unimplemented or incomplete mitigation plans
- percentage of asset-service dependency conflicts with no mitigation plans
- number of discrepancies between the current inventory and the previous inventory
- number of changes made to asset profiles in the asset inventory
- number of changes to resilience requirements as a result of asset changes
- number of changes to service continuity plans as a result of asset changes

3. Review activities, status, and results of the process with the immediate level of managers responsible for the process and identify issues.

Elaboration:

Periodic reviews of the asset definition and management process are needed to ensure that

- newly acquired assets are included in the inventory
- assets that have been modified are reflected accurately in the inventory
- assets that have been retired are removed from the inventory
- asset-service mapping is accurate and current

- ownership and custodianship over assets are established and documented
- change control processes are operating appropriately to minimize discrepancies between the organization's asset base and the asset inventory
- access to the asset inventory is being limited to only authorized staff
- status reports are provided to appropriate stakeholders in a timely manner
- asset and service dependency issues are referred to the risk management process when necessary
- actions requiring management involvement are elevated in a timely manner
- the performance of process activities is being monitored and regularly reported
- key measures are within acceptable ranges as demonstrated in governance dashboards or scorecards and financial reports
- administrative, technical, and physical controls are operating as intended
- controls are meeting the stated intent of the resilience requirements
- actions resulting from internal and external audits are being closed in a timely manner

4. Identify and evaluate the effects of significant deviations from the plan for performing the process.

Elaboration:

Discrepancies result when assets are acquired, modified, or retired but not reflected accurately in the asset inventory. Assets form the foundation for operational resilience management because they are the target of strategies required to protect and sustain services. To the extent that the asset definition and management process results in inventory discrepancies, the organization's overall ability to manage operational resilience is impeded.

5. Identify problems in the plan for performing and executing the process.
6. Take corrective action when requirements and objectives are not being satisfied, when issues are identified, or when progress differs significantly from the plan for performing the process.
7. Track corrective action to closure.

ADM:GG2.GP9 Objectively Evaluate Adherence

Objectively evaluate adherence of the asset definition and management process against its process description, standards, and procedures, and address non-compliance.

Elaboration:

These are examples of activities to be reviewed:

- identifying assets and services
- associating assets and services
- identifying asset-service dependencies
- developing asset profiles
- documenting asset descriptions
- identifying asset change criteria
- making changes to the asset inventory
- the alignment of stakeholder requirements with process plans

- assignment of responsibility, accountability, and authority for process activities
- determination of the adequacy of process reports and reviews in informing decision makers regarding the performance of operational resilience management activities and the need to take corrective action, if any
- verification of process controls
- use of process work products for improving strategies to protect and sustain assets and services

These are examples of work products to be reviewed:

- asset profiles
- asset inventory database(s)
- asset-service relationship matrix
- asset inventory change control logs
- process plan and policies
- dependency issues that have been referred to the risk management process
- process methods, techniques, and tools
- contracts with external entities
- metrics for the process (*Refer to ADM:GG2.GP8 subpractice 2.*)

ADM:GG2.GP10 Review Status with Higher Level Managers

Review the activities, status, and results of the asset definition and management process with higher level managers and resolve issues.

Refer to the Enterprise Focus process area for more information about providing sponsorship and oversight to the operational resilience management system.

ADM:GG3 Institutionalize a Defined Process

Asset definition and management is institutionalized as a defined process.

ADM:GG3.GP1 Establish a Defined Process

Establish and maintain the description of a defined asset definition and management process.

Establishing and tailoring process assets, including standard processes, are addressed in the Organizational Process Definition process area.

Establishing process needs and objectives and selecting, improving, and deploying process assets, including standard processes, are addressed in the Organizational Process Focus process area.

Subpractices

1. Select from the organization's set of standard processes those processes that cover the asset definition and management process and best meet the needs of the organizational unit or line of business.

2. Establish the defined process by tailoring the selected processes according to the organization's tailoring guidelines.
3. Ensure that the organization's process objectives are appropriately addressed in the defined process, and ensure that process governance extends to the tailored processes.
4. Document the defined process and the records of the tailoring.
5. Revise the description of the defined process as necessary.

ADM:GG3.GP2 Collect Improvement Information

Collect asset definition and management work products, measures, measurement results, and improvement information derived from planning and performing the process to support future use and improvement of the organization's processes and process assets.

Elaboration:

These are examples of improvement work products and information:

- asset inventory
- conflicts arising from asset-service relationships
- metrics and measurements of the viability of the process (*Refer to ADM:GG2.GP8 subpractice 2.*)
- changes and trends in operating conditions, risk conditions, and the risk environment that affect process results
- lessons learned in post-event review of incidents and disruptions in continuity
- process lessons learned that can be applied to improve operational resilience management performance, such as poorly documented or profiled assets and difficulties in assigning and executing asset ownership and custodianship responsibilities
- the level to which the asset inventory, asset profiles, and the asset database(s) reflect the current status of all assets
- reports on the effectiveness and weaknesses of controls, including issues related to change control on the asset inventory
- asset-service dependency mitigation plans that are not executed and the risks associated with them
- resilience requirements that are not being satisfied or are being exceeded

Establishing the measurement repository and process asset library is addressed in the Organizational Process Definition process area. Updating the measurement repository and process asset library as part of process improvement and deployment is addressed in the Organizational Process Focus process area.

Subpractices

1. Store process and work product measures in the organization's measurement repository.

2. Submit documentation for inclusion in the organization's process asset library.
3. Document lessons learned from the process for inclusion in the organization's process asset library.
4. Propose improvements to the organizational process assets.