NASA Procedural Requirements

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Subject: NASA Information Technology Program and Project Management Requirements (Updated with Change 2)

Responsible Office: Office of the Chief Information Officer

| TOC | ChangeLog | Preface | Chapter1 | Chapter2 | Chapter3 | Chapter4 | Chapter5 | AppendixA | AppendixB | AppendixC | AppendixD | AppenidxE | ALL |

Chapter 4. Service Line Management

4.1 IT Service Line Components

a. According to NPD 7120.4, a NASA program is a strategic investment by a Mission Directorate or Mission Support Office that has a defined architecture and/or technical approach, requirements, funding level, and a management structure that initiates and directs one or more projects. A program defines a strategic direction that the Agency has identified as critical.

b. To support its diverse efforts, NASA invests in IT service lines, which are IT-specific program management structures, to deliver a complex set of IT developmental, enhancement, and operational services and capabilities. The IT service lines manage IT investments through projects, initiatives, and activities.

4.1.1 IT Project

a. An IT project is a specific investment having defined requirements, a life cycle cost, a beginning, and an end. An IT project has a management structure and is planned, executed, and controlled according to a formal methodology and governed through a defined series of life cycle reviews. An IT project yields a new or revised product, system, or service that directly addresses NASA's strategic goals.

b. An IT project may have dependencies on other service lines, projects, initiatives, activities, and organizations.

4.1.2 Initiative

a. An initiative is an effort intended to achieve stated objectives, such as improving performance, reducing costs, or analyzing capabilities. An initiative does not yield a new or revised product, system, or service. Initiatives consume resources and may have associated cost. An initiative has a beginning date and end date but has no required reviews.

b. An initiative may have defined requirements, use cases, or user stories.

c. An initiative may have dependencies on, and interfaces to, other initiatives, service lines, projects, activities, or organizations.

d. The Service Line Deputy Director will evaluate performance measures and monitor any dependencies, risks, and issues that may arise within an initiative.

4.1.3 Activity

a. An activity is an ongoing and repetitive effort that operates, monitors, evaluates, and modifies existing IT products, systems, and services through a service line's pre-approved list of standard changes. Activities consume resources and have a cost.

b. Some types of activities have special considerations.

(1) Product management, which is the integration of people, data, processes, and systems to create, maintain, and evolve a product, system, or service through its life cycle, is one type of activity within an IT service line. Product managers continuously evaluate the performance of the product, system, or service to identify opportunities for improvement or to enhance customer/user adoption. Product management and project management work together to implement new products, systems, or services, to implement significant changes, and to decommission them when they no longer provide the expected value to NASA.

(2) Continuous delivery is a specific type of activity that includes the production and release of software or data on a near continuous basis using short increments that is supported by a deployment pipeline to ensure visibility into the delivery system, rapid feedback on issues or problems, and continual automated deployment. This type of activity should be approved by the project's KDP DA at the time the service is established to assure the appropriate process and technical controls are in place for the safe and secure operation of the continuous delivery pipeline.

c. The Service Line Deputy Director will monitor and evaluate performance measures, dependencies, risks, and issues throughout the life of the activity.

d. The Service Line Deputy Director shall establish a change control process for the activities within the service line. The change control process must conform to NASA OCIO published change management policies and procedures, describe how changes are reviewed, approved, and implemented, and address the following types of changes referenced in Section 4.2.

4.2 Service Line Change Control

a. The Service Line Deputy Director shall establish a change control process for its IT activities that describes how the pre-approved list of standard changes is reviewed and updated on a periodic basis.

b. The Service Line Deputy Director shall create, update, maintain, and communicate to stakeholders a pre-approved list of "standard changes" that will be managed through the activity's change control process.

c. The Service Line Deputy Director shall evaluate "normal change" requests against a set of NASA OCIO published criteria to determine whether they can be managed through the activities' change control process or as an initiative or whether they must be managed as a project.

d. The Service Line Deputy Director shall establish and communicate to stakeholders the process for emergency changes.

e. Authorized changes made by product, system, or service's end-users in accordance with the system design, security controls, operational procedures, and end-user license agreement or terms of service are considered routine operations within an activity. Examples may include: data updates within the database or system, production of ad hoc reports, authorized end-user configuration changes, and authorized configuration changes within a low-code/no-code platform.

4.3 Service Line Management Approach

Each Service Line Deputy Director shall follow the IT service line life cycle described in Section 4.5, Service Line Life Cycle Phases, and as shown in Figure 4, IT Service Line Life Cycle

4.4 Service Line Baseline

a. The service line baseline is an agreed-to set of requirements/scope, costs, and schedules with controlled changes occurring through a formal rebaseline process.

b. The service line baseline spans a minimum of two years and is documented in the Service Line Plan.

c. The Service Line KDP DA shall determine if the initial service line baseline at the KDP-1 is approved.

d. Changes to the initial service line baseline are presented at future KDPs (i.e. KDP-2, KDP-n) and become the "current" service line baseline.

e. The service line's performance is measured against the service line baseline during the Implementation/Operations Phase.

4.4.1 Service Line Rebaseline

a. A service line rebaseline changes scope/requirements, schedule, budget, or any combination of these factors.

b. The Service Line Deputy Director shall rebaseline when one or any combination of the following exists:

(1) Addition, change, or deletion of service line objectives or service line level requirements resulting from internal or external management decisions.

(2) Changes to an approved Service Line Compliance Matrix (Appendix C).

(3) Changes in service line funding level or availability of funds (e.g., extended continuing resolution).

(4) Changes in acquisition strategy.

(5) The current baseline is no longer useful as a management tool for realistic performance measurement (cost, schedule, or scope/requirements) as variances have exceeded the approved limits.

(6) The service line has been interrupted or put on hold.

(7) The NASA Deputy CIO for Strategy, who is the Service Line KDP DA, requests a rebaseline.

c. The Service Line Deputy Director shall present a rebaseline proposal to the Service Line KDP DA during a service line KDP Review.

d. If the outcome of the KDP Review is to terminate the service line, then refer to section 3.13 Termination Review.

e. The Service Line Deputy Director shall update the Service Line Plan to reflect the approved cost, schedule, and scope.

f. The Service Line Deputy Director shall communicate the rebaseline to all impacted stakeholders.

4.4.2 Service Line Replan

a. Changes that do not alter the service line's baseline may be executed as a replan and require the approval of the Service Line Director.

b. Any one or combination of the following situations would invoke a replan:

(1) Editorial changes to investment goals.

(2) Additional service line details are realized that do not affect the baseline.

(3) A service line's project, initiative, or activity has been interrupted or put on hold.

(4) The Service Line Director requests a replan.

c. The Service Line Deputy Director shall update the Service Line Plan to reflect replanned elements.

4.5 Service Line Life Cycle Phases

a. All IT service lines have a NASA life cycle that is divided into two phases: Formulation and Implementation/Operations, as depicted in Figure 4, IT Service Line Life Cycle.

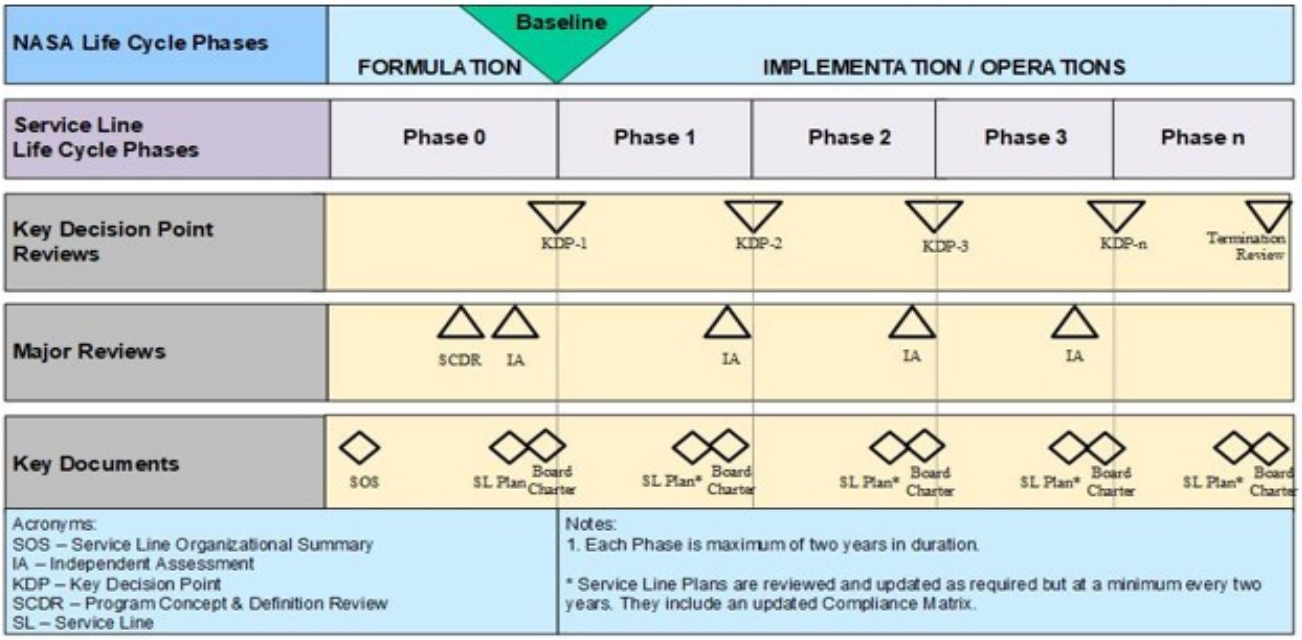

Figure 4. IT Service Line Life Cycle

Figure 4. IT Service Line Life-Cycle

(1) Service Line Formulation Phase identifies how the service line will support and align with the NASA Information Technology Strategic Plan; develops the Service Line Plan, including resources, scope/requirements, budget, and schedule; and identifies the evaluation strategies used to monitor service line performance.

(2) Service Line Implementation/Operations is execution of the approved service line and the use of controls to ensure performance and continued alignment with the NASA Information Technology Strategic Plan.

b. The Implementation/Operations Phase is further separated into service line life cycle phases (1, 2, 3, etc.). The number of phases is dependent on the duration of the service line.

c. The transition from one phase to another phase is approved by the subsequent KDP review (i.e., KDP-1, KDP-2...KDP-n).

d. Service Line KDP reviews provide an opportunity to organize, assess, and communicate critical data and information among the service line and the customers and stakeholders. Service Line KDP reviews provide an opportunity to improve service line performance by inviting independent experts to provide an evaluation of the approach.

(1) The KDP DA and the Service Line Deputy Director shall convene service line KDP reviews at a minimum of every two years.

(2) The Service Line Deputy Director shall document the results of the KDP reviews in the Service Line Plan.

4.5.1 Service Line Formulation

a. The Service Line Director shall prepare the Service Line Organizational Summary that authorizes the Service Line Deputy Director to initiate the planning of a new service line. The NASA Deputy CIO for Strategy shall determine if the Service Line Organizational Summary is approved.

b. The Service Line Deputy Director, with the oversight of the Service Line Director, shall prepare:

(1) The preliminary Service Line Plan that contains the details of the approved organizational summary and establishes the service line's baseline for Implementation/Operations. The NASA Deputy CIO for Strategy shall determine if the Service Line Plan is approved.

(2) The Service Line Board Charter that formally establishes the service line board and sets forth its authority, responsibilities, membership, and general operating procedures. The service line board assists the service line in supporting NASA's IT requirements for: providing consistent service and performance; facilitating collaboration

across the Agency; and maintaining the confidentiality, integrity, and availability of NASA's IT resources. The Deputy CIO for Operations is the approval authority for the Service Line Board Charter.

c. The Service Line Deputy Director shall complete the Service Line Concept and Definition Review (SCDR) to show that the service line is in place and stable, addresses critical NASA needs, has adequately completed formulation activities, and has an acceptable plan for Implementation/Operations. The SCDR only occurs once in the life cycle of an IT service line, during Formulation.

d. The Deputy Service Line Director shall document compliance with this NPR by appending a completed full Compliance Matrix (see Appendix C) to the service line Service Line Plan Attachment for KDP DA approval.

e. During the service line Formulation Phase, the Service Line Deputy Director shall meet the following SCDR success criteria by filing the following documentation in the records repository accessible by the Agency OCIO:

(1) Final Service Line Organizational Summary.

(2) Preliminary Service Line Plan.

(3) Preliminary Compliance Matrix.

(4) Final SCDR presentation charts.

f. The KDP DA shall make a decision on the readiness to proceed to KDP-1.

g. The IA evaluates the proposed baseline presented in the Service Line Plan.

(1) The IA Chair shall evaluate:

(a) The service line's relevancy to the NASA Information Technology Strategic Plan goals/objectives.

(b) Schedule.

(c) Cost estimates.

(d) Risk assessment and mitigation plans.

(2) The IA Chair shall present the findings in a final IA presentation at KDP-1.

h. The service line KDP is a business review of the service line's performance to determine if the service line can proceed to the next life cycle phase. KDP-1 transitions the service line from Formulation to Implementation/Operations and baselines the service line.

(1) At the end of the Formulation Phase, the Service Line Deputy Director shall meet the following KDP-1 success criteria by filing the following documentation in the records repository accessible by the Agency OCIO:

(a) Final Service Line Plan.

(b) Final Compliance Matrix.

(c) Final KDP-1 Presentation charts.

(d) Final Service Line Board Charter.

(2) The KDP DA shall make a decision on the readiness to proceed to the Implementation/Operations Phase.

4.5.2 Service Line Implementation/Operations

a. During service line Implementation/Operations, the service line provides NASA with IT developmental, enhancement, and operational capabilities managed through projects, initiatives, and activities. The effectiveness of each service line is evaluated throughout its life cycle utilizing major service line reviews.

b. During service line Implementation/Operations, the Service Line Deputy Director shall:

(1) Execute the Service Line Plan and maintain a change log.

(2) Monitor and evaluate performance measures, dependencies, risks, and issues throughout the life of the service line and component projects, initiatives, and activities.

c. During Implementation/Operations, the IA examines the service line's continuing relevance to the NASA IT Strategic Plan, the progress to date against the approved baseline, and the updated Service Line Plan.

d. The IA Chair shall evaluate the following:

(1) The service line's relevancy to the NASA Information Technology Strategic Plan goals/objectives and the adequacy of requirements flow-down from these.

(2) Adequacy of technical approach.

(3) Adequacy of the integrated cost and schedule estimates and funding strategy (i.e., budget adequacy and schedule adequacy).

(4) Adequacy and availability of resources.

(5) Adequacy of risk management approach and risk identification/mitigation per OCIO Risk Management Plan.

(6) The adequacy and fit for the service line's selected project methodology and product, system, or service development methodology.

(7) The service line components, as detailed in the Service Line Plan, including technical and management approach, performance measures, schedules, cost estimates, and risk assessments.

(8) Progress against the service line's baseline.

(9) Other criteria identified by the KDP DA.

e. The IA Chair shall present the findings in a final IA presentation at KDP-2-n.

f. KDP-2 and subsequent KDPs approve continued implementation/operations of the service line and establish a new baseline.

g. The Service Line Deputy Director shall meet the following KDP-2-n success criteria by filing the following documentation in the records repository accessible by the Agency OCIO:

(1) Updated Service Line Plan.

(2) Updated Compliance Matrix.

(3) Updated Service Line Board Charter.

(4) Final KDP-2-n Presentation charts.

h. The KDP DA shall decide on the readiness to proceed to the next service line life cycle phase or terminate the service line. If the KDP DA determines the service line will terminate, then the service line follows the Termination Review criteria in section 3.13.

| TOC | ChangeLog | Preface | Chapter1 | Chapter2 | Chapter3 | Chapter4 | Chapter5 | AppendixA | AppendixB | AppendixC | AppendixD | AppenidxE | ALL |

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