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NASA Procedural Requirements

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05, 2013**COMPLIANCE IS MANDATORY**[Printable Format \(PDF\)](#)

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Subject: NASA Research and Technology Program and Project Management Requirements

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Appendix A. Definition of Terms

Agency Program Management Council (Agency PMC). The senior management group, chaired by the NASA Associate Administrator or designee, responsible for reviewing formulation performance, recommending approval, and overseeing implementation of programs and specified projects according to Agency commitments, priorities, and policies.

Approval. Authorization by a required management official to proceed with a proposed course of action. (When multiple approvals are required, all must be obtained in order to proceed.) Approvals must be documented.

Center Director. Person responsible for establishing, developing, and maintaining the institutional capabilities (processes and procedures, human capital, facilities, and infrastructure) required for the execution of programs and projects, including the system of checks and balances to ensure the technical and scientific integrity of programs and projects assigned to the Center.

Center Management Council (CMC). The council at a Center that performs oversight of programs and projects by evaluating all program and project work executed at that Center.

Component Facilities. Complexes that are geographically separated from the NASA Center or institution to which it is assigned.

Critical Technology Elements. Elements of a TD Project, which are absolutely essential in meeting overall technology requirements.

Cross-Program Research. Collective management of R&T Portfolio Projects taken from various Agency programs within the MD or MSO.

Cross-Program Research Plan. The document that establishes the Cross-Program Research's baseline for implementation, signed by the MDAA or MSOD and the Research Director.

Customer/Beneficiary. The intended beneficiary or user of the R&T results (i.e., knowledge, technology). Typically, a customer is a space flight project or the aeronautics community. Customers may also be other NASA-focused R&T projects where further development occurs to meet a specific mission requirement or industrial partners that NASA supplies with the results of the R&T to maintain a national aerospace capability.

Decision Authority. The Agency's responsible individual who authorizes the transition of a program/project to the next life-cycle phase.

Design Reference Missions. An array of hypothetical mission scenarios developed by potential customers or users of a mission to help guide mission design.

Earned Value Management (EVM). A tool for measuring and assessing project performance through the integration

of technical scope with schedule and cost objectives during the execution of the project. EVM provides quantification of technical progress, enabling management to gain insight into project status and project completion costs and schedules. Two essential characteristics of successful EVM are EVM system data integrity and carefully targeted monthly EVM data analyses (i.e., risky WBS elements).

Evaluation. The continual, independent (i.e., outside the advocacy chain of the program/project) evaluation of the performance of a program or project and incorporation of the evaluation findings to ensure adequacy of planning and execution according to plan.

Formulation. The identification of how the program or project supports the Agency's strategic needs, goals, and objectives, the assessment of feasibility, technology and concepts, risk assessment, team-building, development of operations concepts and acquisition strategies, establishment of high-level requirements and success criteria, the preparation of plans, budgets and schedules essential to the success of a program or project, margins, and the establishment of control systems to ensure performance to plan and alignment with current Agency strategies.

Formulation Authorization Document (FAD). The document issued by the MDAA (or MSOD) to authorize the formulation of a program or project whose goals will fulfill part of the Agency's Strategic Plan, Mission Directorate Strategies, or Mission Support Office Functional Leadership Plans. In addition, a FAD or equivalent is used to authorize the formulation of a project.

Gap Analysis. An assessment of related technology development activities in other NASA programs, other Government agencies, and the commercial sector to eliminate unnecessary duplication of effort.

Gate Products. Appropriate supporting materials submitted to the DA at a KDP. These materials may include: the governing PMC review recommendation; the Independent Assessment (IA) report; the Program Lead's recommendation, Project Lead's recommendation; Cost Estimation reports; the CMC's recommendation; and any agreement(s) ready for signature (i.e., FAD, Program Plan, PCA, TD Project Plan, R&T Portfolio Project Plan, Selection Document, or updates).

Governing Program Management Council (Governing PMC). The senior management group responsible for providing management oversight of specific programs and projects. Each council has the responsibility of periodically evaluating the cost, schedule, risk, and performance of programs or projects under its purview. The evaluation focuses on whether the program or project is meeting its commitments to the Agency and is following appropriate management processes. The governing PMC is either the Agency PMC or Mission Directorate PMC (or MSO equivalent).

Implementation. The execution of approved plans for the development and operation of the program/project, and the use of control systems to ensure performance to approved plans and continued alignment with the Agency's strategic needs, goals, and objectives.

Independent Assessment or Review. A specific assessment or review that is conducted by an entity that is outside the advocacy chain of the program or project. These are of three types: relevance, quality and performance that are a result of the White House policy entitled the Research and Development (R&D) Investment Criteria, as described at http://www.whitehouse.gov/omb/part/fy2007/2007_guidance_final.pdf. An independent assessment for relevance determines that the program is relevant to national priorities, agency missions, relevant fields, and "customer" needs, and can justify its claim on taxpayer resources. An independent assessment for quality determines that a program will maximize the quality of the R&D they fund through the use of a clearly stated, defensible method for awarding a significant majority of their funding. Programs must assess and report on the quality of current and past R&D. Lastly, an independent assessment for performance determines that a program or project has met its high priority, multi-year R&D objectives with annual performance outputs, and milestones that show how one or more outcomes will be reached.

Institutional Requirements. Infrastructure and workforce needed to support programs and projects. Specifically, the human resources, real property, facilities, aircraft, personal property, equipment, information technology resources, and administrative and program support services (e.g., environmental management) required to support programs and projects.

Investment. A resource and financial commitment by the Agency, MD, MSO, or Center.

Key Decision Point (KDP). The event at which the Decision Authority determines the readiness of a program/project to progress to the next phase of the life cycle (or to the next KDP).

Key Performance Parameter (KPP). Measurable engineering parameters that would be readily understood and used by engineers concerned with the ultimate application of the results from the Technology Development Project. For each KPP, both a goal and a threshold will be specified. The goal is a performance level that the Technology Development Project is striving for, and the threshold is the minimum performance level that users agree is acceptable for the end item deliverable. Typically, the threshold KPP values are set beyond the current state-of-the-art to warrant investment in the Technology Development Project. KPPs include information that enables an assessment of the advancement of the maturity of the technology throughout the development process. The

definition of a KPP includes defining the appropriate environment and the component, subsystem, or system within which the KPP measurements are to be made.

Life-Cycle Cost (LCC). The total of the direct, indirect, recurring, nonrecurring, and other related expenses incurred, or estimated to be incurred, in the design, development, verification, production, operation, maintenance, support, and disposal of a project. The LCC of a project or system can also be defined as the total cost of ownership over the project or system's life cycle from formulation through implementation. It includes all design, development, deployment, operation and maintenance, and disposal costs.

Metric. A measurement taken over a period of time that communicates vital information about the status or performance of a system, process, or activity. A metric should drive appropriate action.

Mission Directorate Program Management Council (MD PMC). The senior management group, chaired by an MDAA or designee, responsible for reviewing project formulation performance, recommending approval, and overseeing implementation of specified projects according to Agency commitments, priorities, and policies.

Principal Investigator (PI). A person who conceives an investigation and is responsible for carrying it out and reporting its results. In some cases, PIs from industry and academia act as managers (Project Managers) for smaller development efforts with NASA personnel providing oversight.

Program. 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.

Program Commitment Agreement (PCA). The contract between the Associate Administrator and the cognizant MDAA or MSOD that authorizes transition from formulation to implementation of a program

Program Lead. A generic term that represents the position in charge of the program. A Program Lead could be designated as a Program Manager, Program Director, or some other term, as defined in the program's governing document. A Program Lead is responsible for the formulation and implementation of the R&T program, per the governing document with the sponsoring MDAA or MSOD.

Program Plan. The document that establishes the program's baseline for implementation, signed by the MDAA or MSOD, Center Director(s), and Program Manager.

Program (Project) Team. All participants in program (project) formulation and implementation. This includes all direct reports and others that support meeting program (project) responsibilities.

Project. A specific investment identified in a Program Plan having defined requirements, a life-cycle cost, a beginning, and an end. A project yields new or revised products that directly address NASA's strategic needs.

Project Lead. A generic term that represents the position in charge of the project. A Project Lead could be designated as a Project Manager, Portfolio Manager, Project Principal Investigator, Project Scientist, or some other term, as defined in the project's governing document. A Project Lead is responsible for the formulation and implementation of the R&T project, per the governing document with the Program Lead.

Project Plan. The document that establishes the project's baseline for implementation, signed by the cognizant Program Manager, Center Director, Project Manager, and the MDAA or MSOD.

Project Principal Investigator. Term used by some MDs and MSOs to describe a R&T Portfolio Project Lead.

R&T Misconduct. Fabrication, falsification, or plagiarism in proposing, performing, or reviewing research or technology, or in reporting research or technology results. R&T misconduct does not include honest error or differences of opinion.

R&T Portfolio Project Lead. A generic term that represents the position in charge of the R&T Portfolio Project. An R&T Portfolio Project Lead could be designated as a Portfolio Manager, Project Principal Investigator, or some other term, as defined in the R&T Portfolio Project's governing document.

R&T Portfolio Project. A specific R&T Project identified in an Agency Program Plan as an R&T Portfolio Project. An R&T Portfolio Project may be made up of one or more groups of R&T investigations that address the goals and objectives of the R&T Portfolio Project.

R&T Program. An Agency program that is strictly comprised of R&T projects.

R&T Project. An Agency project managed as either a Technology Development Project or an R&T Portfolio Project.

Real-Year Dollars. Real-year dollars are current fiscal year (FY) dollars adjusted to account for inflation in future years.

Research and Technology (R&T). Basic research, applied research, and technology development.

Research Director. Person responsible for the formulation and implementation of Cross-Program Research.

Safety. Freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

Safety and Mission Assurance Requirements. Requirements defined by the SMA organization related to safety and mission assurance.

Stakeholder. Any party that has an interest in the outcome of a program or project. Stakeholders of a project include customers, beneficiaries, and organizations that will work on or provide support to the program or project.

System. The combination of elements that function together to produce the capability required to meet a need. The elements include all hardware, software, equipment, facilities, personnel, processes, and procedures needed for this purpose.

Systems Engineering. A disciplined approach for the definition, implementation, integration, and operation of a system (product or service). The emphasis is on achieving stakeholder functional, physical, and operational performance requirements in the intended use environments over its planned life within cost and schedule constraints. Systems engineering includes the engineering processes and technical management processes that consider the interface relationships across all elements of the system, other systems, or as a part of a larger system.

Technical Authority. The individual who specifically maintains technical responsibility over establishment of, changes to, and waivers of requirements in a designated area.

Termination Review. A review initiated by the Decision Authority for the purpose of securing a recommendation as to whether to continue or terminate a program or project. Failing to stay within the parameters or levels specified in controlling documents will result in consideration of a termination review.

Terms of Reference (ToR). A document specifying the nature, scope, schedule, and ground rules for an independent review or independent assessment.

Technology Development Project. A specific R&T Project identified in an Agency Program Plan that has defined technical requirements, a life-cycle cost that incorporates a specific beginning and ending and a management structure. A Technology Development Project yields new or revised technology that addresses NASA's strategic needs.

Technology Development Project Lead. A generic term that represents the position in charge of the Technology Development Project. A TD Project Lead could be designated as a Project Manager, Project Principal Investigator, or some other term, as defined in the TD Project's governing document. Waiver. A documented authorization intentionally releasing a program or project from meeting a requirement.

Work Breakdown Structure (WBS). A product-oriented hierarchical division of the hardware, software, services, and data required to produce the program/project's end product(s), structured according to the way the work will be performed, and reflective of the way in which program/project costs, schedule, and technical and risk data are to be accumulated, summarized, and reported.

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