

National Aeronautics and Space Administration
Headquarters
Washington, DC 20546-0001



April 5, 2012

Reply to Attn of: Office of the Chief Engineer

TO: Distribution
FROM: Chief Engineer
SUBJECT: Call for Nominations for the 2013 NASA Systems Engineering
Technical Excellence Award

The Office of the Chief Engineer (OCE) is pleased to announce the call for nominations for the fourth annual NASA Systems Engineering (SE) Technical Excellence Award. Systems engineering is a core competency of NASA's highly skilled workforce. Our organizations and personnel are increasingly employing well-defined, proven processes and practices to develop, manage and integrate increasingly complex systems. The successful application of these principles is a challenge that requires not only technical expertise of SE knowledge, but their logical and artful implementation. Knowing when, where and how to design, develop, and operate a system is the essence of successful systems engineering. This award showcases the best examples of Systems Engineering practices throughout the Agency.

The NASA Systems Engineering Technical Excellence Award is comprised of two categories, recognizing the following: (1) excellence in the application of SE practices resulting *in program or project success or lower level system success*, and (2) the development of new *techniques or methodologies* that advances the state of the art of systems engineering. Distinguished team(s) will be selected in each of the two categories who by their achievements in systems engineering have clearly demonstrated unique benefits in enhancing NASA's mission. This award is intended to identify successful systems engineering that highlights contributions based on proven performance of a completed activity. The award is open to NASA teams located at NASA Headquarters, Centers, and JPL (to the extent specified in the JPL contract with NASA). Awardees in each category will receive a Medallion and Certificate. The NASA Systems Engineering Community website <https://nen.nasa.gov/web/se> contains information about the award. Enclosures to this letter contain eligibility information, evaluation criteria, and the award nomination form.

The point of contact in my office is Joe Smith, at (202) 358-0192. It is requested that a center POC be identified to facilitate the award nomination process. The name and contact information for the center POCs and panel members should be forwarded to Mr. Smith by 27 April.


Michael G. Ryschkewitsch

2 Enclosures

Distribution

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SSC/EA00/Mr. Galloway

NASA Systems Engineering Working Group (SEWG)

ARC/RE/Ms. Scheller
DFRC/R/Mr. Arteaga
GRC/D000/Ms. Grantier
GSFC/5920/Ms. Douglas-Bradshaw
JPL/3101/Mr. Diehl
JSC/EA/Mr. Walters
JSC/C1/Mr. Brady
KSC/NE/Mr. Hamaker

LaRC/D2/Ms. Applin
MSFC/EE/Ms. Cox
SSC/EA/Mr. Schuyler

Systems Engineering Technical Excellence Award

NASA Systems Engineering: "System engineering at NASA requires the application of a systematic, disciplined engineering approach that is quantifiable, recursive, iterative, and repeatable for the development, operation, maintenance, and disposal of systems integrated into a whole throughout the life cycle of a project or program. The emphasis of systems engineering is on safely achieving stakeholder functional, physical, and operational performance requirements in the intended use environments over the system's planned life with cost and schedule constraints."

Program/Project, Activity Award

The primary selection criteria for the Systems Engineering "Program/Project" Activity Award will be the demonstration of verifiable contributions utilizing the practice of Systems Engineering. Program or project success should have exceeded stakeholder's expectations, with evidence provided by their nominators in written form to the Selection Committee. Examples for the basis of selection are activities utilizing exceptional leadership qualities in the effective application of known SE best practices on highly complex systems. A key element of this award is to recognize the implementation of systems engineering innovation and creativity in the management of complexity, and the final results of their application.

Examples of relevant SE best practices include, but are not limited to:

- Control of the system technical baseline through event-based technical reviews.
- Leveraged use of technical authority and independent subject matter expert (peer) participation in technical reviews.
- Comprehensive linkage of technical baseline products to program management mechanisms (configuration management, earned value management, risk management, etc.).
- Use of total life cycle (including sustainment) technical planning to coordinate and manage a program's technical effort across multiple organizations (across acquirer and supplier domains).
- Elements such as risk assessment and mitigation, continuous management of technical baselines throughout development, and clear demonstration of a government/industry integrated project team.

For a complete list of SE best practices, see NPR 7123.1A, NASA Systems Engineering Processes and Requirements.

Techniques/Methodologies Activity Award

The Systems Engineering "Techniques/Methodologies" Activity Award acknowledges the superior achievement of a team for an endeavor which has set new standards of excellence at NASA and has advanced the field of systems engineering. Examples for the basis of selection are activities utilizing research and development of new systems engineering techniques or methodologies that elevate SE understanding, leadership development, or the development of new or modified systems engineering best practices. The selection committee is looking to see that techniques or methodologies have been verified, shown to be valid, and are effective across multiple systems.

- **Award Eligibility Criteria**

The activity shall have:

- Been accepted as complete by the stakeholder prior to nomination.
- Met or exceeded stakeholder needs as evidenced by a supporting letter from the stakeholder.
- Improved upon budget, schedule, and/or performance when compared to original budget, schedule, and/or performance goals.
- Applied systems engineering best practices to unique, complex systems. (For Programs or Projects)
- Advanced the state of the art and/or practice of systems engineering beyond its current bounds. (For Techniques/Methodologies)
- Indicated the program or project size (in dollars) in the submitted write up.
- Been completed during or after 2000 with emphasis placed on activities after 2005.

Other Criteria include, but are not limited to the:

- Positive impact on NASA's mission.
- Advancement of the image of the Systems Engineering profession.
- Utilization of special management team actions to overcome the complexity or unusual conditions, issues and barriers.
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- **Award Evaluation Criteria**

Evaluators will utilize the categories below to rate each of the proposed SE activities. These ratings will be aggregated, and reviewed by the award panel. The activity determined to best satisfy all of the evaluation categories will be recommended to the Awarding Official as the recipient of the award. The opinions of the judges are subjective; however, each proposal will be reviewed by multiple judges in order to minimize disparity. The following categories will be used for rating.

- **Evaluation Categories:**

1. Stakeholder Satisfaction
 - Improved upon:
 - Budget
 - Schedule
 - Performance
2. SE Leadership Qualities, Processes and Requirements Applications
 - Leadership Qualities
 - Innovative SE Techniques in:
 - System Design
 - Product Realization
 - Technical Management
3. System Complexity
 - Number of subsystems, elements, or techniques/methodologies scope and function
 - Number of interfaces
4. Overall Quality
- 5.

- **Nomination Process (See Attached Form)**

All Centers and HQ organizations will nominate up to two candidates in each Activity category based on the award eligibility criteria, and submit their selection to the Agency's evaluation committee. Nominations are for a team only. Individual nominations will not be accepted.

Applicants shall provide a stand-alone package containing supporting evidence for those elements identified within the attached nomination form. **Content without supporting evidence will not be considered for evaluation.** Multi-Center teams will identify the Lead Center to represent their activity in the nomination process and follow the criteria accordingly.

Center POC's will also submit recommendations from their Center as award panel members to participate in the Agency evaluation and selection process. It is recommended, but not mandatory, that the Center's panel members be either their representatives to the Systems Engineering Working Group (SEWG) or the Engineering Management Board (EMB). Please notify NASA Chief Engineer Mike Ryschkewitsch via email at Mike.Ryschkewitsch@nasa.gov and cc joseph.s.smith@nasa.gov with those recommendations at the time of nominations.

Award nomination forms must be sent to Joseph S. Smith at NASA Headquarters 300 E Street SW, Washington D.C. 20546-0001 or via email and received by June 12, 2012.

Systems Engineering Working Group (SEWG) representatives at each Center are available for assistance and can be found by logging in at <http://nen.nasa.gov/portal/site/llis/community/SE/Contacts/>.

- **Award Presentation**

Recipients will be announced on November 1, 2012 and posted on the NASA Systems Engineering Community website <http://nen.nasa.gov/portal/site/llis/community/SE>

**NASA Systems Engineering Activity of the Year Award
2013 Nomination Form**

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| 1. Nominee/Activity: |
| 2. Program Name: |
| 3. Program/Project Manager: |
| 4. Activity Category (select appropriate box) <div style="margin-left: 40px;"><input type="checkbox"/> Program/Project <input type="checkbox"/> Techniques/Methodologies</div> |
| 5. Team Lead/Members: |
| (Use additional sheets if necessary but limit the total number of pages to 10) |
| 6. Description of Activity (Program, Project, or Technique/Methodologies) |
| 7. Stakeholder Satisfaction. Describe how your SE activity met or improved upon budget, schedule and performance. Also, please provide a supporting letter from the stakeholder/s with corroborative evidence describing your contributions to the activity in the following three areas. <ul style="list-style-type: none">• Budget: • Schedule: • Performance: |

8. SE Processes and Requirements Applications. Please describe the leadership qualities and any innovative techniques used in system design, product realization, or technical management processes. Also, please provide a supporting letter from your management with corroborative evidence describing those same areas.

9. System Complexity: Please characterize the complexity of the SE activity under consideration in terms of subsystems, elements, interfaces, or product.

- Number of subsystems, elements, or technique/methodology scope and function
- Number of interfaces

10. Additional comments. Provide any additional information that may be of value in evaluating the qualifications of your SE activity for this award.

11. Applicant Signature

Date

12. Supervisor Signature

Date