

# NASA

National Aeronautics and Space Administration

Office of Inspector General

Office of Audits

# NASA'S MANAGEMENT OF REIMBURSABLE AGREEMENTS

May 29, 2018

Report No. IG-18-018





## **Office of Inspector General**

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# RESULTS IN BRIEF

## NASA's Management of Reimbursable Agreements

NASA Office of Inspector General  
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IG-18-018 (A-17-014-00)

### WHY WE PERFORMED THIS AUDIT

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To advance its science, spaceflight, and aeronautics missions, NASA regularly enters into reimbursable agreements with academic, government, industry, international, and nonprofit entities. Under these agreements, NASA commits to provide goods, services, or facilities the Agency is not fully utilizing, enabling partners to access NASA's technical capabilities and unique resources. In fiscal year 2017, about 13 percent of NASA's spending authority, or \$2.3 billion, came from funds collected through reimbursable agreements. In fiscal years 2018 and 2019, reimbursable agreements are anticipated to generate \$2.8 billion and \$2.1 billion, respectively.

As reimbursable agreements have accounted for an increasingly larger percentage of NASA's overall funding authority, the challenges for successfully managing and reporting on these agreements has similarly increased. Currently, NASA relies on two electronic data systems to manage its reimbursable agreements – the Partnership Agreement Maker (PAM) for domestic agreements and the System for International External Relations Agreements (SIERA). Over the last 7 years, the NASA Office of Inspector General, the Government Accountability Office, and an independent accounting firm have each issued reports identifying deficiencies in NASA's management of reimbursable agreements, including incomplete and inaccurate agreement information, insufficient polices, failure to identify costs incurred, and an inability to separate reimbursable billings and collections. Since 2013, members of Congress also have expressed concern regarding the Agency's management of reimbursable agreements.

In light of their significance to NASA's budget, prior audit concerns, and congressional interest, we initiated this audit to examine the Agency's management of reimbursable agreements. To complete this audit, we reviewed a sample of 115 domestic reimbursable agreements and 25 international agreements. We also visited six NASA Centers, reviewed relevant public laws and Agency policies, and interviewed Agency personnel.

### WHAT WE FOUND

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NASA has made improvements in the way it manages reimbursable agreements, but still cannot provide Congress and other stakeholders with fully accurate and complete information on their use. Specifically, half of the PAM and SIERA records we sampled contained substantial errors, such as incorrectly listing reimbursable agreement values and waived costs (i.e., costs incurred for which the partner does not reimburse NASA). For example, while PAM listed the total estimated value for the 115 domestic agreements we sampled as \$11.7 billion, we found the correct value to be closer to \$7.8 billion – an overstatement of nearly \$4 billion, or 51 percent. Additionally, our calculation of the estimated waived costs for the sampled agreements was only \$10.8 million, or 6.5 percent, of the Agency's reported total in PAM – an overstatement of \$154.7 million. We were unable to make similar comparisons for agreements with international partners because SIERA does not capture estimated dollar values and waived costs. Nevertheless, in our judgment the data in PAM and SIERA is neither accurate enough to comply with congressional reporting requirements nor meaningful enough given its high error rate to provide helpful information to the Agency and its stakeholders.

The inaccuracies in PAM and SIERA data result from changing expectations for how the databases would be used and the lack of an effective data validation process. Both databases were initially designed as repositories for creating agreement records and storing documents, and were not intended to track and report agreement values and related activities. In addition, data entry is manual and thus the database contains many errors. Furthermore, although NASA implemented a process to validate PAM data in 2014, the process was not effective until further modifications were implemented in October 2017.

We also found a significant number of inaccurate links between PAM and SIERA and NASA's core financial system. For reimbursable agreements, NASA must be able to accumulate, process, and present accurate agreement data that cohesively incorporates both financial and nonfinancial information to trace reimbursable revenue back to corresponding agreements. Such integrated information can provide management and outside stakeholders insight into the size of the agreements, their progress (i.e., costs incurred), remaining obligations, and Federal Government contributions, including waived costs (which are tracked only in PAM). In a 2014 audit report, we found nonfinancial information for reimbursable agreements was not readily associable, and in response to our recommendations NASA modified its financial system to incorporate PAM and SIERA identifiers. However, 3 years later NASA is still struggling to consistently implement this process.

Finally, we identified internal control concerns that could indicate additional problems with agreement approval and execution processes. While NASA has taken actions to improve its management of reimbursable agreements by publishing an agreement handbook and establishing policies for vetting potential partners and mitigating conflicts of interest, we identified additional issues where NASA could further strengthen its process controls in these areas.

## WHAT WE RECOMMENDED

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To increase the accuracy, transparency, accountability, and oversight of NASA's reimbursable agreements, we recommended NASA's Chief Financial Officer, Associate Administrator for International and Interagency Relations, and Associate Administrator for Mission Support Directorate jointly (1) revise current processes to ensure information in PAM and SIERA is up to date and accurate, (2) reassess current data recording processes to minimize duplication and ensure consistency, (3) expand and update access rights to include responsible agreement personnel, (4) reexamine the agreement closeout process, (5) revise the information objectives for the estimated waived dollars field, (6) identify common data structures to meet congressional reporting requirements and managerial oversight, (7) strengthen practices to ensure accurate PAM and SIERA identification numbers are entered into the Agency's core financial system, (8) foster periodic and timely communication among agreement process participants, (9) reassess current process and improve communication of ethical concerns to avoid conflicts of interest, (10) share due diligence review best practices across the Agency, and (11) update procedures to reflect policy and process revisions resulting from the above actions.

In response to a draft of this report, NASA management concurred or partially concurred with our recommendations and described its planned actions. We consider management's comments responsive; therefore, the recommendations are resolved and will be closed upon verification and completion of the proposed corrective actions.

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# Acronyms

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C.F.R.	Code of Federal Regulations
CMO	Center Management and Operations
EUL	Enhanced Use Lease
FY	Fiscal Year
GAO	Government Accountability Office
JPL	Jet Propulsion Laboratory
NAII	NASA Advisory Implementing Instruction
NOAA	National Oceanic and Atmospheric Administration
NPD	NASA Policy Directive
NPR	NASA Procedural Requirements
OCFO	Office of Chief Financial Officer
OIG	Office of Inspector General
PAM	Partnership Agreement Maker
SAA	Space Act Agreement
SAAM	Space Act Agreement Maker
SAP	Systems Applications Products
SIERA	System for International External Relations Agreements
U.S.C.	U.S. Code
WBS	Work Breakdown Structure

# INTRODUCTION

To advance NASA’s wide-ranging science, spaceflight, and aeronautics missions, the Agency regularly uses reimbursable agreements to partner with academic, government, industry, international, and nonprofit entities. Under a reimbursable agreement, NASA provides partners with goods, services, or facilities that are not being fully utilized by the Agency, enabling the partners to gain access to NASA technical capabilities, knowledge, and unique resources without having to make their own investments. In fiscal years (FY) 2016 and 2017, about 13 percent of NASA’s spending authority for both years – \$2.2 billion and \$2.3 billion, respectively – came from funds collected through reimbursable agreements. In FYs 2018 and 2019, reimbursable agreements are anticipated to generate \$2.8 billion and \$2.1 billion, respectively.

Since the end of the Space Shuttle Program in 2011, which freed up a greater number of Agency resources to be made available to outside entities, reimbursable agreements have accounted for a larger percentage of NASA’s overall funding authority, making risk management of these agreements increasingly important. However, over the last few years, audits and reviews by the NASA Office of Inspector General (OIG), the Government Accountability Office (GAO), and an independent accounting firm have identified several control deficiencies and recommended improvements to NASA’s partnership agreement processes, including specific recommendations for reimbursable agreements.<sup>1</sup>

In light of their significance to NASA’s budget, prior audit concerns, and congressional interest, we initiated this audit to examine the effectiveness of NASA’s management of unclassified reimbursable agreements. See Appendix A for details on the audit’s scope and methodology.

## Background

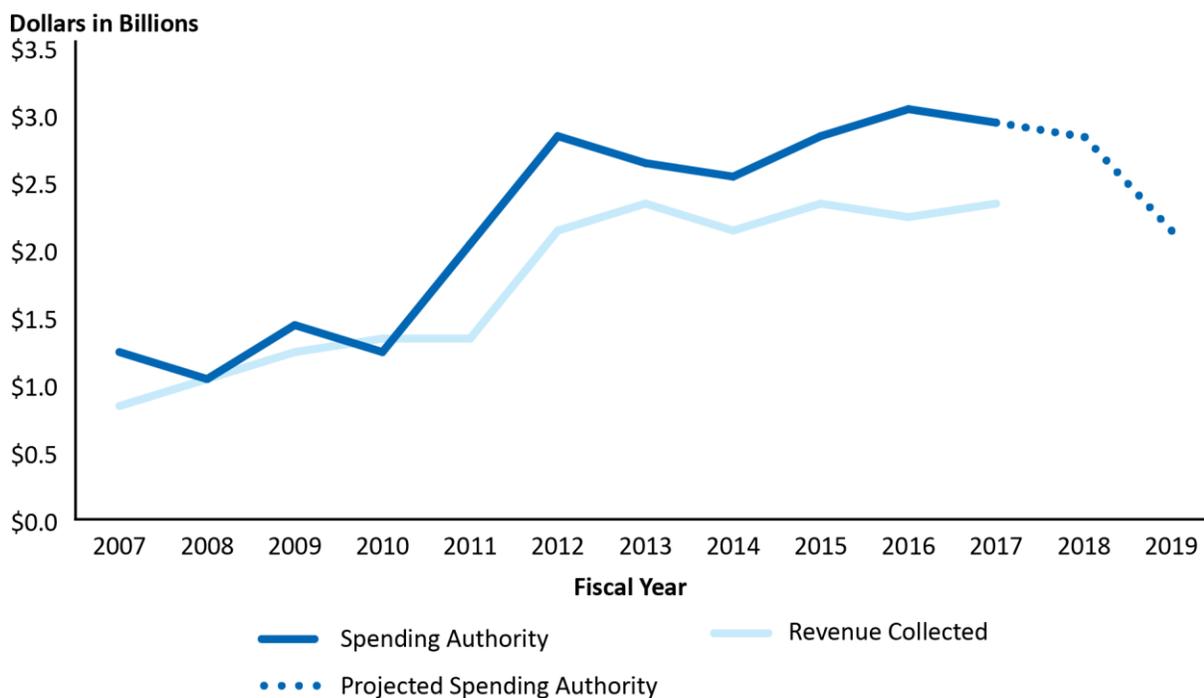
Reimbursable agreements cover a broad range of partnerships, from short-lived collaborations valued at a few thousand dollars to partnerships that span decades valued in the billions of dollars. For example, the Defense Advanced Research Projects Agency paid NASA \$464,000 to conduct a 6-month independent technical evaluation of cost estimates for a satellite program. On the other end of the spectrum, since 1975 NASA has partnered with the National Oceanic and Atmospheric Administration (NOAA) to develop, build, and launch a network of weather satellites for NOAA known as the Geostationary Operational Environmental Satellite Program. NASA’s reimbursable agreements with NOAA exceed \$6 billion and will last through the end of the program in 2025.

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<sup>1</sup> NASA OIG, GAO, and an independent public accounting firm have issued five reports over the past 7 years identifying deficiencies in NASA’s reimbursable agreement process: NASA OIG, “NASA’s Use of Space Act Agreements” (IG-14-020, June 5, 2014); GAO, “Federal Acquisition: Use of ‘Other Transaction’ Agreements Limited and Mostly for Research and Development Activities” (GAO-16-209, January 7, 2016); GAO, “Key Controls NASA Employs to Guide Use and Management of Funded Space Act Agreements Are Generally Sufficient, but Some Could Be Strengthened and Clarified” (GAO-12-230R, November 17, 2011); GAO, “Training Necessary to Address Data Reliability Issues in NASA Agreement Database and to Minimize Potential Competition with Commercial Sector” (GAO-11-552R, May 26, 2011); and Grant Thornton LLP, “NASA Reimbursable Current Process” (November 30, 2011).

Between 2010 and 2017, the value of NASA’s reimbursable agreements more than doubled from \$1.2 billion to \$3 billion and have been a significant source of funding for NASA. This funding, shown as “spending authority” in Figure 1, is separate from and in addition to the funding provided to NASA through annual congressional appropriations to pay its employees and conduct its programs. NASA is given authority to spend these funds with the expectation that the funding will be reimbursed or offset by payments from those Government or nongovernment entities receiving the services. As shown in Figure 1, the revenue collected from reimbursable agreements has exceeded \$2 billion each fiscal year from 2014 to 2017. Based on an annual survey of Centers’ anticipated reimbursable agreements, NASA estimates the value of reimbursable agreements during FYs 2018 and 2019 will be about \$2.8 billion and \$2.1 billion, respectively.

**Figure 1: NASA Reimbursable Funding and Collection, FYs 2007 through 2019**



Source: NASA OIG analysis of Agency data.

## Authority to Enter into Reimbursable Agreements

NASA can enter into reimbursable agreements under several different legal authorities. Economy Act agreements allow NASA to partner with other Federal agencies when it has the capability or expertise to provide supplies or services that are not economically available within the requesting agency.<sup>2</sup> For example, the National Institute of Standards and Technology used NASA’s expertise in reflective optics to help develop a new lens for a neutron microscope. The Enhanced Use Lease (EUL) Authority allows

<sup>2</sup> 31 U.S. Code (U.S.C.) § 1535, “Agency Agreements” (2009), also known as the Economy Act, provides authority available to Federal agencies for requesting and performing interagency reimbursable work. The requesting agency must determine that the reimbursable goods or services cannot be provided by contract as conveniently or cheaply by a commercial enterprise.

public or private entities to use underutilized NASA real property.<sup>3</sup> For example, NASA has a number of leases with companies such as Google and Virgin America at Ames Research Center's (Ames) "Research Park." The Commercial Space Launch Act helps commercial companies such as the Space Exploration Technologies Corporation (SpaceX), The Boeing Company, and United Launch Alliance use NASA launch facilities.<sup>4</sup> Other less common authorities include the Commercial Space Competitiveness Act, Intergovernmental Personnel Act, and Federal National Historic Preservation Act.<sup>5</sup>

However, NASA's prevailing policy is to use what is known as the "other transactions" authority provided by the National Aeronautics and Space Act of 1958 (Space Act) with non-Federal partners.<sup>6</sup> Commonly referred to as Space Act Agreements (SAA), this authority includes reimbursable agreements, as well as nonreimbursable, funded, and international commercial reimbursable agreements.<sup>7</sup> Nonreimbursable agreements involve NASA and one or more partners working together in a mutually beneficial activity where each party bears the cost of its participation and no funds are exchanged. Funded agreements involve transferring appropriated funds to a domestic partner to accomplish a goal consistent with NASA's mission and are only to be used when Agency objectives cannot be achieved through any other agreement instrument, such as a contract under Federal Acquisition Regulation.<sup>8</sup> International commercial reimbursable agreements allow foreign entities to use NASA facilities, goods, and services consistent with U.S. law and policy, and generally contain similar terms and conditions to domestic reimbursable agreements. The Space Act also authorizes NASA to grant leaseholds, permits, and licenses in real property (e.g., land, buildings, and other structures) as well as host-tenant agreements.<sup>9</sup>

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<sup>3</sup> Pub. L. No. 110-161, "Consolidated Appropriations Act, 2008" (December 26, 2007), expanded NASA's ability to use EUL agreements. EUL agreements are made with a public or private entity for the use of NASA-owned and underutilized real property that allows the Agency to use the proceeds in certain ways. The consideration paid by the public or private entity shall be at fair market value.

<sup>4</sup> 51 U.S.C. §§ 50901-50923, "Commercial Space Launch Activities" (2010), facilitated "the strengthening and expansion of the United States space transportation infrastructure, including the enhancement of United States launch sites and launch-site support facilities, and development of reentry sites, with government, state, and private sector involvement, to support the full range of United States space-related activities."

<sup>5</sup> Pub. L. No. 114-90, "Commercial Space Competitiveness Act" (November 25, 2015), authorized NASA to allow non-Federal entities to use the Agency's space-related facilities on a reimbursable basis. Pub. L. No. 91-648, "Intergovernmental Personnel Act of 1970" (January 5, 1971), permitted Federal agencies to enter into agreements governing the assignment of personnel to or from state and local governments, institutions of higher learning, Indian Tribal Governments, and other eligible organizations on a temporary basis. 54 U.S.C. § 306121-306122, "Federal Agency Historic Preservation Responsibilities" (1998), authorized Federal agencies to lease historic property and retain the resulting proceeds for the preservation of an agency's historic properties.

<sup>6</sup> 51 U.S.C. § 20113(e), "National Aeronautics and Space Act of 1958" (2010).

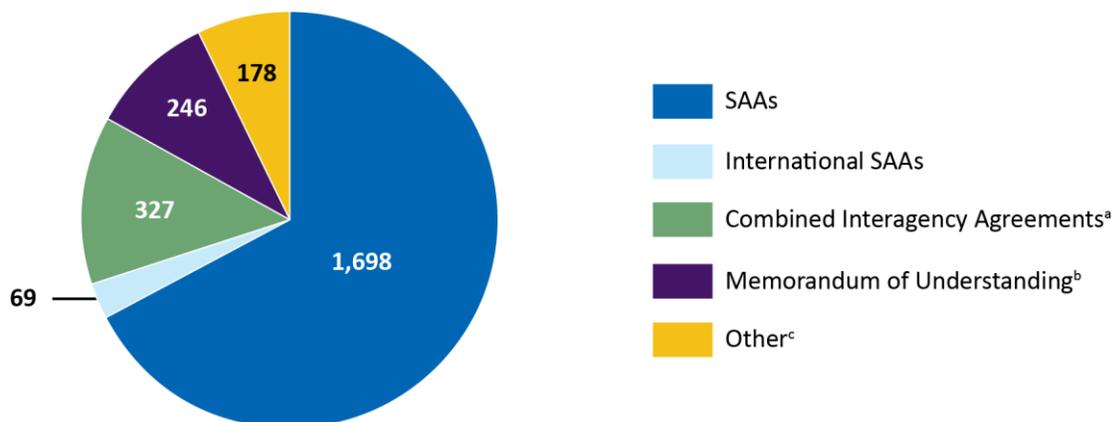
<sup>7</sup> NASA Policy Directive (NPD) 1050.1I, "Authority to Enter into Space Act Agreements (Revalidated 10/30/14)," December 23, 2008, provides detailed definitions of each agreement type.

<sup>8</sup> 48 Code of Federal Regulations (C.F.R.) Chapter 1, Federal Acquisition Regulation is used to acquire by contract supplies or services by and for the use of the Federal Government.

<sup>9</sup> A host-tenant agreement is an agreement between NASA and a non-NASA entity that provides for the use of NASA facilities; institutional services; or provision of support services including but not limited to security, automated data processing personnel, or other support to the non-NASA customer. A host-tenant agreement is a type of interagency agreement that establishes the formal relationship between NASA and the non-NASA party.

As shown in Figure 2, the majority of NASA’s reimbursable activities are SAAs. Specifically, during FY 2016 NASA had 2,449 active reimbursable agreements with U.S. entities – 1,698 (69 percent) of which utilized Space Act provisions – with a combined value of \$13.4 billion.<sup>10</sup> Furthermore, all 69 international agreements active during FY 2016 were made under the Space Act.

**Figure 2: Active Reimbursable Agreements by Type during FY 2016**



Source: NASA OIG analysis of Agency data.

<sup>a</sup> Combined Interagency Agreements include agreements made with Federal partners that cite a combination of Space Act and Economy Act or other authorities.

<sup>b</sup> The Memorandum of Understanding group includes (1) agreements with partners that establish respective commitments and responsibilities in a mutually beneficial activity and (2) agreements with commercial entities that establish terms of service.

<sup>c</sup> “Other” includes (1) facility-related agreements, such as EUL, host-tenant, land lease, and use permit; (2) commercial space launch activities; and (3) technology transfer or cooperative research and development agreements to transfer Federally owned or originated technology to non-Federal entities that improves access to science and technology.

## Management of Reimbursable Agreements

Reimbursable agreements are managed by NASA Centers and Headquarters’ Mission Directorates and other offices under four broad processes that involve agreement initiation, approval, execution, and closeout.<sup>11</sup> While documentation is maintained by the initiating organization, electronic data on the agreements reside among four NASA systems:

- *Partnership Agreement Maker (PAM)* is the official repository for all unclassified domestic agreements. In 2016, NASA upgraded from the previous Space Act Agreement Maker (SAAM) to PAM, enabling Centers to customize and incorporate their individual agreement routing processes and store a copy of the final approved estimated price report (total estimated costs for the work or services) and the agreement. PAM requires agreement personnel to add data on key fields for each agreement, such as partner name and type, description summary,

<sup>10</sup> We classified an agreement as “active” if the agreement was in place, work was being performed, and payments were made or intended to be made during FY 2016. This differs from the Headquarters Partnership Office definition of “active,” which means that the period of performance established for the agreement has not expired.

<sup>11</sup> NASA’s Mission Directorates include Aeronautics Research, Human Exploration and Operations, Science, and Space Technology, as well as Mission Support, which provides institutional support to enable accomplishment of NASA mission objectives.

execution date, expiration date, and estimated value. These key fields generate information for public facing webpages and reports. All NASA personnel have read access to agreement data in PAM, but not access to the actual agreements. Personnel who have been granted elevated system privileges have data creation and modification rights, and agreement viewing rights for their respective Centers. Select Headquarters personnel have Agency-wide read only access or broader administrator-level access.

- *System for International External Relations Agreements (SIERA)*, the official repository for all unclassified international agreements, is an older system that serves primarily as a storage location for signed agreements. While SIERA captures key agreement information similar to that in PAM, it does not maintain the approved estimated price report or capture agreement values. Currently, only Headquarters Office of International and Interagency Relations staff have access to SIERA.
- *Meta Data Manager system* assigns and maintains an individual agreement's project number and work breakdown structure (WBS) code. NASA's WBS is a hierarchical structure that subdivides a project's work content into manageable segments to facilitate planning and control cost, schedule, and technical content.<sup>12</sup> For each Agency project, a project team's WBS must use NASA's numbering scheme and must correlate exactly to the corresponding financial accounting structure within NASA's financial system.
- *Systems Applications Products (SAP)* is NASA's core financial system. In addition to collecting financial data by project WBS, SAP also maintains information such as the sales order number and cross references to the PAM record number – a feature added in FY 2014.

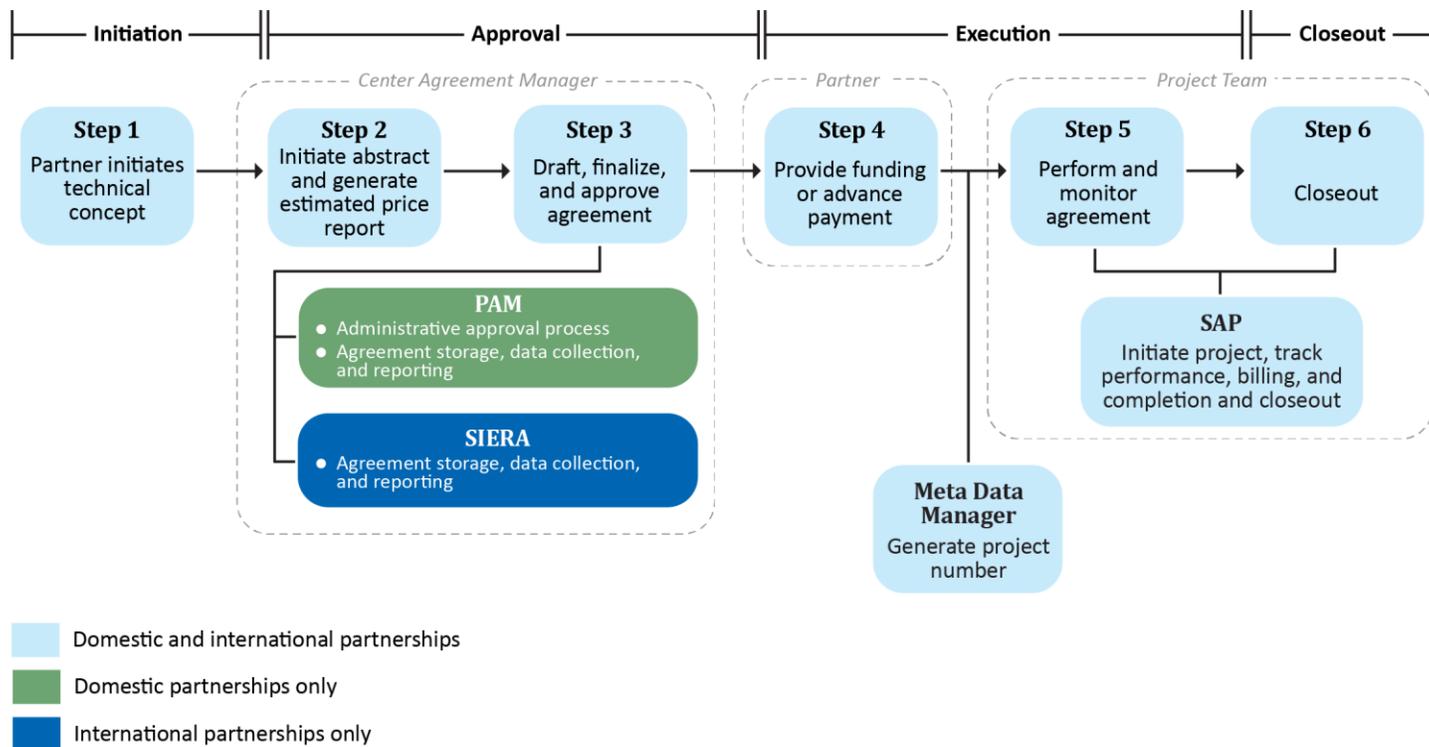
Each reimbursable agreement and agreement modification has a unique record identifier – a PAM number for domestic agreements or a SIERA number for international agreements. In addition, each agreement project has a unique project number provided by the Meta Data Manager system. SAP maintains the project's corresponding sales order number that cross references the PAM or SIERA numbers.

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<sup>12</sup> NASA, "NASA Work Breakdown Structure (WBS) Handbook" (SP-2016-3404/Rev1, October 2016).

As shown in Figure 3, a reimbursable agreement’s life cycle involves four major processes: initiation, approval, execution, and closeout.<sup>13</sup>

**Figure 3: Life Cycle of Reimbursable Agreement**



Source: NASA OIG analysis of Agency documentation.

### ***Initiation***

Generally, a reimbursable agreement’s technical concept is initiated by a prospective partner contacting Center personnel and suggesting the utilization of NASA’s unique goods, services, facilities, or proprietary concepts. For example, Glenn Research Center (Glenn) has the unique capability of casting aerogel onto fabric in a molded pattern and was requested by a partner to develop aerogel fabric samples and determine its suitability for use as an insulative textile in garments.<sup>14</sup> In another example, a potential partner came to NASA with a proposal to test proprietary material that has the potential to be used in aircraft and planetary reentry vehicles. Initiation of the technical concept can be done either formally through an unsolicited proposal or informally through professional seminars or conferences. After both parties have communicated and defined requirements and assessed NASA’s capabilities to perform the work, NASA agreement personnel initiate an internal review processes to pursue the partnership opportunity. Large-scale agreements, such as those with NOAA, require greater Agency oversight and generally are arranged by Headquarters officials.

<sup>13</sup> NASA also has process steps for annual budgeting of reimbursable agreements, which we chose not to include for the purpose of this process discussion.

<sup>14</sup> Aerogels are created by removing the liquid from the gel and replacing it with air. They are among the lightest solid materials known to man and considered one of the finest insulation materials available.

## *Approval*

Following initiation, a variety of NASA officials become involved in negotiating, amending, executing, terminating, and overseeing domestic and international agreements. For domestic agreements, these responsibilities fall to Mission Directorate Associate Administrators, Center Directors, and the NASA Management Office at the Jet Propulsion Laboratory (JPL), among others. The Associate Administrator for International and Interagency Relations is responsible for overseeing the negotiation, execution, amendment, and termination of international agreements, but those responsibilities may be delegated to Center officials.<sup>15</sup>

At the Center level, when deciding whether to pursue a domestic or foreign partnership opportunity, NASA agreement personnel are required to perform due diligence to ensure that the prospective partner is not listed as an excluded party for purposes of conducting business with the Federal Government; verify that a prospective partner has the financial, technical, and other capabilities necessary to successfully meet their responsibilities under the agreement; and ensure the fairness, transparency, and competitiveness of the proposed partnership.

Prior to committing to any agreements that have the potential to significantly impact NASA financially or operationally, the initiating Center or Headquarters office is required to submit an abstract to the Headquarters Partnership Office through the PAM system. The abstract should include key information such as proposed activity description, agreement duration, partnership responsibilities, NASA financial and resource commitments, funding sources for waived costs, applicable data rights, affected NASA organizations, and description of how it supports NASA missions. In addition, NASA's Partnership Council – chaired by the Deputy Administrator and composed of Center Directors and other senior officials – decides issues that require a high degree of integration across NASA, are high profile, or require changes in Agency partnership policy. The Council also helps to ensure Agency partnerships are aligned with internal and external policy. Once a prospective partnership is approved by the Headquarters Partnership Office or the Partnership Council, Center personnel draft the agreement and prepare a price report reflecting estimated full costs for the agreement.

In general, NASA policy requires the Agency to estimate and charge partners for the full costs incurred for all work performed. Full costs include civil servant labor; benefits; procurements; travel; direct costs such as supplies, materials, and contracts; and Center support costs, such as an administrative rate captured as Center Management and Operations (CMO). CMO costs are estimated and charged based on an Agency-wide CMO rate or a Center specific administrative estimated rate, while direct costs are charged as incurred.

Agreement personnel are required to justify any waivers or price adjustments to the estimated full cost. Waived costs are those incurred to perform the work but for which the partner does not reimburse NASA. Under Agency policy, NASA may choose to waive costs under a reimbursable agreement when it determines there is sufficient Agency benefit to be gained from performing the work for the partner without full reimbursement. These waived costs are paid by NASA using appropriated funds. As a result, NASA may only consider cost waivers where appropriated funds can be used for the activity.

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<sup>15</sup> NASA Procedural Requirements (NPR) 9090.1A, "Reimbursable Agreements," February 25, 2013.

Domestic agreements are finalized after Center stakeholders, including the Center Chief Financial Officer and the Center Office of Chief Counsel, have reviewed and approved Center-negotiated reimbursable agreements and estimated price reports.<sup>16</sup> At Headquarters, the Director for the Office of Budget Management and System Support and the Headquarters Office of General Counsel assume responsibility for agreements involving Headquarters or the NASA Management Office. Although the agreement routing and approval process can be conducted in PAM, the only requirement is that a signed copy of the agreement and corresponding estimated price report and other associated documents (e.g., annexes, task orders, or modifications) be uploaded to PAM within 5 business days of finalization.<sup>17</sup>

International agreements are processed by officials in the Headquarters Office of International and Interagency Relations who serve as the agreement manager. After the Center prepares and submits an estimated price report, the Office of International and Interagency Relations agreement manager is responsible for drafting, coordinating, and negotiating the agreement. After completion, a copy of the signed agreement is stored in the SIERA database. Unlike PAM, SIERA does not have the capability to initiate and finalize agreements. Moreover, as mentioned previously, only staff in the Office of International and Interagency Relations have access to SIERA.

### *Execution*

After an agreement is finalized and signed, a Federal partner issues a funding document to NASA for the agreed-upon work, while non-Federal partners submit advance payment for the full amount or an agreed-upon payment schedule. Once a funding document or advance payment is received, the Center's Office of Chief Financial Officer (OCFO) personnel will

- create a customer record in NASA's SAP,
- request a project WBS code in the Meta Data Manager system,
- establish the project WBS in SAP,
- create a sales order number in SAP, and
- distribute funding to the project WBS.

Like any other NASA project, costs incurred while performing work under a reimbursable agreement are tracked in SAP using a project's unique WBS code, which is also linked to the corresponding sales order number. Starting in 2016, NASA began using SAP to associate PAM numbers within sales order records.

As work progresses and costs are accumulated against a project's WBS code, SAP creates a monthly "bill" to draw down the non-Federal entity's advance payment amount as "costed" or, for a partner Federal agency, generates an Intra-Governmental Payment and Collection form to collect the funds. All reimbursable agreement project billing is monitored and managed via the sales order number in SAP. Project personnel use at least two SAP standard reports to monitor the agreement's progress of drawing down sales order funds. The Center OCFO coordinates the billing and collection of funds through the NASA Shared Service Center while the Agency's annual financial reporting for its reimbursable revenue is based on data extracted from SAP.

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<sup>16</sup> NPR 9090.1A.

<sup>17</sup> NASA Advisory Implementing Instruction (NAII) 1050-1C, "Space Act Agreements Guide," August 11, 2014. Reaffirmed by NAII 1050-1D, September 29, 2017.

## *Closeout*

Center OCFO personnel coordinate with agreement personnel and use a variety of system tools, such as PAM reports showing period of performance and SAP reports showing sales order fund expiration dates, to identify potential agreements for closeout. First, the responsible Center agreement personnel verify with a partner that work is complete. Next, the Center's OCFO identifies any unused payments and refunds the balance to the partner. Finally, OCFO personnel mark the sales order as complete and close the WBS code in the Meta Data Manager system.<sup>18</sup>

## **Stakeholder Interests**

Beginning in 2013, Congress expressed renewed interest in NASA's use of SAAs, including reimbursable agreements. In particular, Congressman Frank Wolf, at the time Chairman of the Subcommittee on Commerce, Justice, Science, and Related Agencies, Committee on Appropriations, which funds NASA, expressed concern that NASA did not maintain a public list of domestic agreements and might be sharing "sensitive technologies" with foreign governments.<sup>19</sup> Then in February 2013, Congressman Wolf said Congress needed more information to assess whether NASA was using SAAs in an appropriate manner, including correctly justifying the use of an SAA rather than a Federal Acquisition Regulation-based contract, appropriately following clear conflict of interest policies, and accurately valuing the Agency's contributions to unfunded SAAs to ensure a fair exchange of services.<sup>20</sup> Consequently, in July 2013 the Appropriations Committee directed NASA to develop a public database of active SAAs and report on the feasibility of including the estimated value of NASA's contributions associated with unfunded agreements.<sup>21</sup> The database was to include a description of the signatories, duration, purpose, and terms of each agreement and the dollar value associated with all funded agreements. Notably, the type of reportable agreements was expanded to include not just funded agreements but also reimbursable and nonreimbursable agreements.

In response to this requirement, since 2014 NASA has published separate listings of domestic and international agreements on a quarterly basis.<sup>22</sup> For each agreement, the domestic listing provides the PAM identification number, partner name, title, execution and expiration dates, type of agreement, and associated Center. It also provides the estimated dollar value for funded and nonreimbursable agreements, which represent NASA's contributions to the agreements. No dollar value is presented for reimbursable agreements because this information is not congressionally mandated. The international agreement listing shows similar information but does not include a SIERA reference number or dollar value.

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<sup>18</sup> The Headquarters Director for the Office of Budget Management and System Support performs these functions for Headquarters-generated agreements.

<sup>19</sup> Letter from Congressman Frank R. Wolf to NASA Administrator Charles F. Bolden, January 14, 2013. Wolf represented Virginia's 10th congressional district from January 1981 until his retirement in 2015.

<sup>20</sup> Congressman Wolf letter to Administrator Bolden, February 26, 2013.

<sup>21</sup> House of Representatives Report 113-171, "Report Accompanying Commerce, Justice, Science, And Related Agencies Appropriations Bill, H.R. 2787," July 23, 2013.

<sup>22</sup> Available at <https://www.nasa.gov/partnerships/about.html> (last accessed March 23, 2018).

In March 2017, via the NASA Transition Authorization Act of 2017, Congress required NASA to publicly disclose details on each SAA, including agreement description and associated value, an estimate of committed NASA resources, and the expected benefits, to NASA no later than 60 days after an agreement is signed.<sup>23</sup> The Act also required annual reporting on the use of the Space Act authority, including reimbursable, nonreimbursable, and funded agreements authorized during the previous fiscal year. In addition, the Act required NASA to report on anticipated agreements for the coming fiscal year. As of December 2017, NASA has published a list of 70 agreements the Agency entered into after July 2017 with the same information as the quarterly reports published since 2014 plus a field for expected benefit(s) to Agency objectives and links to the signed agreements. Although NASA reported no international agreements during this time period, the report template used the same reporting format as the domestic agreement database along with a column for estimated dollar value for committed NASA resources.

Congress provided in the explanation accompanying NASA's appropriation bill for FY 2018, a requirement that the Agency submit a report listing reimbursements each NASA Center has received from government or private sector partners since FY 2015.<sup>24</sup> The requirement became law when the President signed the bill in March 2018.<sup>25</sup>

To meet the collective requirements, NASA relies on PAM and SIERA – since they collect the majority of an agreement's administrative (nonfinancial) information – in combination with SAP, which maintains financial (actual cost and billing) information.

## Prior Evaluations

Over the last 7 years, NASA OIG, GAO, and an independent accounting firm have identified several deficiencies in NASA's management of reimbursable agreements, including incomplete and inaccurate recording of agreement information, insufficient policy and guidance, failure to identify costs incurred, and the inability to separate reimbursable billings and collections.

In 2011, GAO issued two reports on NASA's reimbursable agreements. The first found that NASA generally adhered to its controls for entering into reimbursable agreements but identified several instances in which NASA had not completely or accurately recorded reimbursable agreements and one case in which NASA awarded a reimbursable agreement when similar services may have been available in the private sector.<sup>26</sup> In its second report, GAO found that while NASA policy and guidance created internal controls, such as separation of duties and delegation of authority, the Agency did not require specific documentation related to the reasonableness of cost estimates and whether a SAA was the appropriate instrument.<sup>27</sup> The report also found that NASA did not require or offer formal training for individuals responsible for managing funded SAAs.

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<sup>23</sup> Pub. L. No. 115-10, "National Aeronautics and Space Administration Transition Authorization Act of 2017" (March 21, 2017). The NASA Transition Authorization Act of 2017 reporting requirement is applicable to each SAA; specifically, those concluded under the authority in Section 20113(e) of the Act.

<sup>24</sup> House of Representatives Report 115-231, "Report Accompanying Commerce, Justice, Science, And Related Agencies Appropriations Bill, H.R. 3267" (July 17, 2017).

<sup>25</sup> Pub. L. No. 115-141, "Consolidated Appropriations Act, 2018" (March 23, 2018).

<sup>26</sup> GAO-11-552R.

<sup>27</sup> GAO-12-230R.

The same year, NASA hired Grant Thornton LLP, an independent accounting and consulting firm, to assess the Agency's reimbursable agreement process, including identifying any critical issues in the process. Grant Thornton found inconsistent practices among the Centers and Mission Directorates, specifically: (1) failure to consistently load a copy of the final agreement in SAAM, (2) use of estimated price reports in varying formats and in some instances reviews conducted after the agreements were signed, (3) agreements improperly classified as fully or partially reimbursable, and (4) application of different CMO rates and variances in how officials waived CMO costs. In addition, the firm found Centers were not always aware of commitments made by Headquarters offices or Mission Directorates on their behalf. At the Agency level, the report also noted that NASA lacked a central data source that combined agreement parameters, such as total agreement funding, period of performance, and schedule milestones with financial data. The report also cited the difficulty in obtaining comprehensive reports that could consolidate the various pieces of data stored across the funds management, funds accounting, and sales and distribution modules in SAP. One result stemming from this assessment was NASA's decision to use the SAAM (now PAM) number as a common identifier to link nonfinancial and financial information to enable consolidated and comprehensive reporting.

In June 2014, NASA OIG reviewed the Agency's use of SAAs and found that it could improve agreement administration and better ensure equal access to its facilities and capabilities while possibly increasing the number of parties interested in entering into SAAs by expanding its efforts to solicit interest in NASA facilities and resources.<sup>28</sup> In addition, we found that NASA (1) could not identify the costs incurred or effectively measure the benefits derived from nonreimbursable SAAs, (2) had unclear guidance regarding when it is appropriate to use SAAs and the manner in which reimbursable and nonreimbursable SAAs must align with Agency missions, and (3) could not readily separate amounts billed and collected from reimbursable SAAs from proceeds received from other types of reimbursable agreements. We also found little formal guidance relating to the administration of funded agreements in Agency policy and made seven recommendations to increase transparency, accountability, and oversight of NASA's use of SAAs.

In January 2016, GAO reported that NASA had more reimbursable agreements than the other 10 Federal agencies granted "other transactions" authority combined.<sup>29</sup> Specifically, from FYs 2010 to 2014 the number of NASA agreements increased from 2,220 to 3,220. Agency officials attributed the increased use, in part, to changes in programmatic priorities such as the retirement of the Space Shuttle, which freed up a greater number of Agency resources to be made available to outside entities. In addition, GAO indicated that the statutory authorities for four agencies – NASA, the Department of Energy's Advanced Research Projects Agency, Federal Aviation Administration, and Transportation Security Administration – did not include limitations or requirements specifying the types of projects or research that may be the subject of the agencies' reimbursable agreements. As such, NASA used reimbursable agreements for several purposes, including education and outreach support, granting outside entities access to unused or underused NASA facilities, and supporting International Space Station activities. However, GAO stated that the other transaction authority carries risks, because such agreements may be exempt from the Federal Acquisition Regulation and other requirements that are intended to protect taxpayers' interests. The report did not make any recommendations to NASA.

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<sup>28</sup> IG-14-020.

<sup>29</sup> GAO-16-209.

## Recent NASA Improvements

In response to the NASA OIG, GAO, and Grant Thornton reports, NASA updated its internal guidance and implemented several process changes. For example, in February 2013 NASA established financial management requirements for reimbursable agreements related to administrative procedures, determination of full cost, and pricing.<sup>30</sup> In 2014, in response to a Grant Thornton proposal, NASA upgraded the SAAM number, PAM's predecessor, to serve as a common identifier and incorporated additional standardized features for agreement routing, storage, and reporting. In 2016, the OCFO published an end-to-end process narrative outlining the integrated agreement process from budget formulation to close out and implemented initiatives to improve financial reporting, to include PAM references in SAP. In addition, in December 2016 NASA published its "Partnerships Guide" to serve as a comprehensive how-to resource for NASA's partnership personnel.

Furthermore, in July 2017 the Headquarters Partnership Office and Office of the Chief Financial Officer established a "tiger team" study group to evaluate current processes and identify improvements needed for PAM agreements, data quality, and estimated price reports. In the near term, the team is examining (1) reimbursable values recorded in PAM, (2) the use and association of records for umbrella agreements and amendments relative to underlying agreements and where the agreement values are stored, (3) issues regarding double counting of agreement records, and (4) how to better identify active and inactive agreements.<sup>31</sup> The team's long-term goal is to determine what new system tools are needed and create a data entry guide. The team is expecting initial results by the third quarter of FY 2018.

Lastly, Headquarters Partnership Office personnel stated they were developing "Partnerships 101" training for NASA personnel involved in the partnerships process, which they expect to be available on-line during the third quarter of FY 2018.

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<sup>30</sup> NPR 9090.1A.

<sup>31</sup> Umbrella agreements provide a mechanism for NASA and a partner to agree to a series of related or phased activities using a single governing instrument that contains all common terms and conditions and establishes the legal framework for the agreement. Individual tasks are implemented through annexes adopting the terms and conditions of the umbrella agreement.

# NASA UNABLE TO ENSURE RELIABLE AGREEMENT INFORMATION AVAILABLE TO STAKEHOLDERS

Although NASA has improved the way it manages reimbursable agreements over the past 7 years, these improvements have not been fully implemented by all Centers; consequently, the Agency lacks a consistent oversight process to ensure data integrity and transparency for these activities. Moreover, the Agency still cannot provide Congress and other stakeholders accurate and complete information on NASA's use of reimbursable agreements. Specifically, half of the domestic and international agreement data records we sampled contained substantial errors with NASA significantly overstating the value of the domestic agreements. In addition, the waived cost values in PAM did not provide accurate or consistent information. We also found a significant number of inaccurate links between SAP and PAM and SIERA, which precludes NASA from being able to provide stakeholders meaningful information that combines agreement nonfinancial data with associated financial data. Finally, we identified internal control concerns that could indicate additional problems with agreement approval and execution processes. As a result of these shortcomings, NASA is unable to provide Congress and other stakeholders with full and accurate insight into the composition, performance, and projections for the more than \$2 billion in reimbursable agreement funds NASA receives annually from its partners.

## Poor Quality Agreement Data

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PAM and SIERA do not contain accurate and updated information on reimbursable agreements, limiting NASA's ability to use these repositories as management tools or as vehicles to provide complete reimbursable information to meet congressional reporting requirements. As part of the audit, NASA's Partnership Office provided a list of 2,449 domestic reimbursable agreements active in FY 2016 with an aggregated estimated value of \$13.4 billion. From that list, we closely examined 115 agreements – 66 randomly selected and 49 judgmentally selected – with an estimated reimbursable value of \$11.7 billion. In our testing, we attempted to validate the agreements' dollar value and assess the quality of other nonfinancial data. In addition to 115 domestic agreements, we reviewed 25 of NASA's 69 active international agreements in SIERA, provided by the Office of International and Interagency Relations.

## Domestic Agreements

We found 59 of the 115 sampled domestic active FY 2016 agreement records in PAM had errors related to reimbursable estimated value and associated waived costs (see Table 1). Additionally, we found agreement records that were no longer active (i.e., completed agreements that should have been designated as such in the record), never funded, or did not represent an actual agreement, which if included in the reporting process would overstate the number and value of agreements. In total, we

found 66 agreements (57 percent) from our sample did not have the correct estimated value in PAM, did not represent a valid agreement data record, or both. Based on that error rate, we determined that up to 928 agreements active in 2016 could contain incorrect information, including reimbursable values, waived costs, agreement authority, agreement type, or status (see Appendix A for further discussion of our analysis).

**Table 1: PAM Agreement Testing**

	FY 2016 Active Agreements in PAM	Audit Sampling Review		
		Random Sample	Judgmental Sample	Audit Total
<b>Number of Active Agreements</b>	<b>2,449</b>			
Sample agreements reviewed		66	49	<b>115</b>
Sample agreements with value errors		27	32	<b>59</b>
<b>Total Estimated Agreement Value</b>	<b>\$13,382,583,001</b>			
Sample agreement estimated value per PAM		\$565,546,174	\$11,172,235,360	<b>\$11,737,781,534</b>
Sample agreement estimated value per audit analysis		80,582,068	7,694,012,526	<b>7,774,594,594</b>
Overstated (understated) value		484,964,106	3,478,222,834	<b>3,963,186,940</b>
<b>Total Waived Costs</b>	<b>182,108,010</b>			
Sample agreement waived costs per PAM		70,976	165,471,927	<b>165,542,903</b>
Sample agreement waived costs per audit analysis		1,681,450	9,158,532	<b>10,839,983</b>
Overstated (understated) waived costs		(1,610,474)	156,313,395	<b>154,702,920</b>

Source: NASA OIG analysis of Agency data.

### ***Incorrect Reimbursable Value and Waived Costs***

As shown in Table 1, the 115 agreements we reviewed were valued in PAM at \$11.7 billion, or about 88 percent of the total \$13.4 billion in FY 2016 domestic reimbursable agreements, and contained \$165.5 million (91 percent) of the waived costs for active agreements during FY 2016. However, we found that the correct reimbursable dollar value for these sampled agreements was closer to \$7.8 billion – that is, PAM overstated their value by nearly \$4 billion (51 percent).<sup>32</sup> Additionally, our calculation of waived costs for the sampled agreements found only \$10.8 million (6.5 percent), of the PAM reported total – an overstatement of \$154.7 million.

<sup>32</sup> Three agreements accounted for \$3.5 billion of this amount.

Manual data entry errors appears to account for the most significant errors. Specifically, one Ames agreement showed a reimbursable value of \$900 million; however, the actual value was \$900,000. The biggest waived cost error – an approximately \$138.4 million (1,023 percent) overstatement – was due to dollar input and transposition errors relating to a NOAA agreement, as shown in Table 2.<sup>33</sup> The agreement was signed in 2011 and the error likely occurred at that time.

**Table 2: Example of Data Entry Errors for Reimbursable and Waived Costs in a NOAA Agreement**

	Reimbursable Dollars	Waived Dollars	Calculated Full Cost
Value per PAM	\$135,330,000	\$151,960,000	\$287,290,000
Value per agreement	15,196,000	13,533,000	28,729,000
Amount overstated in PAM	120,134,000	138,427,000	258,561,000

Source: NASA OIG analysis of PAM data and agreement information.

Note: This table reflects the errors between the agreement and the PAM data record. In addition, we identified errors due to the reimbursable and waived dollar values not being supported by the estimated price report.

The inaccuracies in PAM data can be attributed to the lack of an effective data validation process. First, input and updates to fields within the databases are made manually and thus are susceptible to data entry errors. Second, once an agreement record is established, agreement and project personnel generally do not revisit the record. Furthermore, although a control process for validating PAM data was implemented in 2014, it had not been effective in catching errors. Specifically, on a quarterly basis the Headquarters Partnership Office sends PAM reports with summary data to Center agreement managers asking them to confirm the values are correct. However, instead of comparing the report data to actual agreement documents or project conditions, managers have been comparing the PAM reports to the PAM data summary fields – the source of the questionable PAM data. In effect, agreement managers are using bad data to validate bad data. During the course of our audit, we brought this to the attention of the Headquarters Partnership Office, and in October 2017, the Office took proactive action and began requiring agreement managers to positively confirm that they had successfully validated the agreement data.

### ***Inaccurate Agreement Data Records***

We found 19 of the 115 agreement records we reviewed that were listed in PAM as active in FY 2016 should not have been. Specifically, we found 4 agreements that were completed (i.e., NASA finished the work early, but the agreement remained active in PAM until its stated expiration date), 11 duplicates or placeholders of another Center’s agreement or agreements that were otherwise never funded, 3 nonreimbursable agreements that were incorrectly coded as reimbursable, and 1 agreement from 1999 that should have been removed.

In our opinion, these errors are attributable, in part, to a change in expectations for how PAM would be used and the ineffective data validation process previously discussed. According to Center and Headquarters agreement personnel, PAM was initially developed primarily to create agreement records and store documents. After an agreement record was established, agreement personnel did not revisit the record until its expiration date to complete the agreement termination/archive steps. We found

<sup>33</sup> The agreement with NOAA provides space communication and tracking capabilities at NASA’s McMurdo Ground Station in Antarctica.

instances of the original agreement record not being updated by the latest agreement modifications, such as a reduction in funding or extension. For example, according to the original PAM record for a Johnson Space Center (Johnson) agreement, the agreement expired at the end of FY 2016; however, the agreement was extended into FY 2017 by an amendment. The extension was not updated in the original PAM record resulting in an active agreement shown as an expired agreement in PAM. We also found at least two agreements in our sample that were not funded after the agreement was signed. The project team was either unfamiliar with PAM or the agreement close out process and therefore the record remained as an active agreement in PAM.

In addition, while several Federal customers cited the Economy Act as their acquisition authority, NASA cited both Economy Act and Space Act authorities on these interagency agreements. However, we found no active Federal partner Economy Act agreements identified as such in the PAM data. The differences between the Economy Act and the Space Act are significant in that the Economy Act requires the performing agency to charge full cost for the services it provides, while the Space Act provides the flexibility to waive some costs. For example, NASA entered into an agreement to provide subject matter experts to the U.S. Army for technology integration activities and the Army cited the Economy Act in requesting this service. Conversely, NASA cited the Space Act and the agreement was recorded in PAM as a “Combined Inter-Agency Agreement/Funding Order” with an estimated value of \$756,349 and waived CMO costs of \$238,054 to be absorbed by NASA. By not citing the Economy Act, NASA may be absorbing costs that should rightfully be charged to and recovered from the Army.

## International Agreements

We found the SIERA database lacked the capability to provide accurate and complete information on the magnitude of work provided to international reimbursable agreements. Specifically, the database did not capture the agreements’ estimated dollar values and waived costs. Furthermore, our sample review found that like the domestic agreement records, the active international agreement list included some agreements that were completed long before their expiration dates. Much like PAM, this occurred because SIERA was designed as an agreement repository with a searchable index of underlying scanned documents and not for tracking and reporting agreement values that could provide management and stakeholder insight on the magnitude of the work associated with these international activities.

We randomly selected and reviewed 25 international agreements with a total value of \$35.3 million, which we calculated from the agreement documents. However, because SIERA does not capture estimated agreement values, we were unable to perform the same dollar value data comparison and validation as we did with the domestic agreements in PAM. Nevertheless, we found about \$15,000 of waived costs not correctly identified in the estimated price report and seven agreements listed in SIERA as active but which had actually been completed prior to FY 2016. For example, although Ames completed wind tunnel testing for Bombardier, Inc., in 2013 and refunded the unused balance, the project team did not inform the Office of International and Interagency Relations that the agreement ended because they were unaware of the need to do so and they did not have access to SIERA.<sup>34</sup> As a result, SIERA continued to carry the agreement as active, a situation that likely inflated NASA’s number of active agreements after 2013.

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<sup>34</sup> Bombardier, Inc., is a manufacturer of airplanes and trains with headquarters in Montréal, Canada.

# Waived Costs are Inappropriately and Inconsistently Captured

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Waived costs are costs incurred by NASA during agreement-related activity but waived because the Agency has made a determination that it has an interest in the activity and therefore does not require full reimbursement from the partner. Consequently, the costs associated with the activity are paid by NASA from its appropriated funds. As noted earlier, we found the data on waived costs in PAM significantly overstated. Specifically, PAM reported the value of waived costs for the 26 agreements in our sample at \$165.5 million while we found the actual value to be \$10.8 million after examining each of the agreements.<sup>35</sup> Even if these values were accurate, the data does not provide helpful information into NASA's contributions to the partnerships because Agency policy fails to require inclusion of relevant cost information. Consequently, the data in PAM does not provide accurate or complete information to stakeholders.

## Inappropriately Recorded Waived Costs

We identified waived costs reported in PAM that were derived from the difference between the Center's more accurate special CMO rate and the Agency standard rate, costs that should not have been recorded as waived. For example, we found three agreements between NOAA and Goddard Space Flight Center (Goddard) that used a CMO rate lower than the Agency-wide CMO rate, resulting in a difference of several million dollars that was inappropriately reported as waived costs.<sup>36</sup> Because of the massive scale of NOAA's work, Goddard applied a special rate that was more representative of the support requirements for its reimbursable agreements. Goddard management stated that waived costs recorded in PAM for these agreements reflect the difference between the applied special CMO rate – 6 percent since 2014 – and the Agency-wide CMO rate of 13 to 15 percent. In our opinion, using the special rate was appropriate and Goddard management should not have recorded the difference as waived costs.

## Inconsistent Recording of Collaboration Costs

NASA policy defines a subset of reimbursable agreements – known as collaborative reimbursable agreements – in which the Agency and a partner jointly collaborate on a project with both contributing to its total costs.<sup>37</sup> The policy requires that the estimated price report for these agreements only reflect the full cost of the work that NASA will perform for the partner and for which it will receive reimbursement. The project's total cost information, which includes any NASA contribution to the project, is included as supplemental information to the estimated price report. Although the policy states that the information is to be used for management analysis and provide additional visibility into the full scope of these collaborative efforts, we found such information is not recorded in PAM. However, leading to inconsistency in the application of the policy is the allowability of Agency program-funded work that would otherwise be performed regardless of the reimbursable agreement be included as waived costs in PAM.

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<sup>35</sup> Our sample represented about 91 percent of the \$182.1 million in waived costs recorded in PAM agreements as active in FY 2016.

<sup>36</sup> The agreements were for the Deep Space Climate Observatory spacecraft refurbishment, which launched in February 2015, and the Joint Polar Satellite System, the first satellite of which launched in November 2017.

<sup>37</sup> NPR 9090.1A.

For example, a Kennedy Space Center (Kennedy) reimbursable agreement with SpaceX for guest and media support services at commercial space launches showed no waived costs in PAM. According to the agreement, Kennedy and SpaceX shared expenses during these launches for use of NASA facilities and information technology services. In accordance with the policy, NASA's share of these costs were reflected in an addendum to the agreement's estimated price report. Consequently, NASA's cost-sharing relationship in this agreement is not readily apparent in the PAM data unless the user knows to review the addendum to the estimated price report.

In contrast, Goddard entered into an agreement with Virginia Electric and Power Company to split costs evenly on a project using the company's high-voltage power transmission grid as a space weather antenna. Goddard funded its part of the project work using research funds – funds that would have likely been used for some research regardless of the agreement – and recorded costs associated with travel, materials, and CMO in PAM's estimated waived dollars field.

Allowing NASA contribution data to reside in supplemental documents and the inconsistent recording of NASA's costs in PAM reduces the usefulness of the data as well as clarity into how Agency funds are being leveraged with partner organizations in reimbursable agreements.

## Ineffective and Inaccurate Crosslinking Nonfinancial and Financial Partnership Data

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NASA managers at all levels are responsible for establishing and maintaining internal controls for effective and efficient operations, including information pertaining to transparency and accountability to the public.<sup>38</sup> For reimbursable agreements, NASA must be able to accumulate, process, and present accurate agreement data that incorporates both nonfinancial and financial information cohesively. Such integrated information can provide management and other stakeholders insight into the size of the agreements, their progress (i.e., costs incurred), remaining obligations, and Federal Government contributions including waived costs (which are tracked only in PAM). In addition, the information can be used to support budget projections based on remaining obligations and help managers and Congress understand the scope of NASA's reimbursable agreements. Furthermore, presenting estimated reimbursements together with Federal Government contributions (unreimbursed costs) can illustrate how NASA is leveraging its fiscal resources to achieve science objectives.

In a 2014 OIG audit report, we found nonfinancial information for reimbursable agreements was not readily associable to SAP data and the OCFO had an ongoing effort to create a common identifier to improve financial reporting.<sup>39</sup> In response to our recommendations, NASA modified the sales order module within SAP to incorporate PAM and SIERA identifiers.<sup>40</sup> If implemented properly with accurate information, this process would have created a link between the agreement databases (PAM and SIERA) and NASA's financial system (SAP). However, 3 years later we found implementation was inconsistent, hobbled in part by the lack of Agency policy for populating these fields accurately, and the process has not been incorporated into any policy documents.

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<sup>38</sup> Office of Management and Budget Circular A-123, "Management's Responsibility for Enterprise Risk Management and Internal Control" (July 15, 2016). Office of Management and Budget Circular A-130, "Managing Information as a Strategic Resource" (July 28, 2016).

<sup>39</sup> IG-14-020.

<sup>40</sup> PAM and the sales orders also contain "agreement number" fields to potentially crosslink this data.

We assessed the accuracy and effectiveness of using the PAM identification number in SAP to link FY 2016 revenue with reimbursable agreements by examining all sales orders assigned to projects in SAP. We identified 3,595 unique sales orders that referenced 1,948 unique PAM numbers, noting that a single reimbursable agreement can have multiple sales orders. We then attempted to trace the 1,948 PAM numbers to the FY 2016 active agreements list provided by the Headquarters Partnership Office and found 1,134 associated reimbursable agreements. The remaining 814 (42 percent) of PAM numbers referenced by sales orders in SAP were expired, other agreement types, or invalid.<sup>41</sup> These 814 invalid PAM numbers were referenced by 1,332 sales orders – that is, 37 percent of the sales orders for FY 2016 reimbursable agreements in SAP referenced invalid PAM numbers – resulting in a significant portion of reimbursable revenue that cannot be traced back to corresponding agreements.

In April 2018, the OCFO, in coordination with the Partnership Office, reassessed the 814 invalid PAM numbers we identified and determined that most of these represented agreements that had been excluded from our audit universe, resulting in a more difficult process to trace reimbursable revenue back to the corresponding PAM agreement. Their analysis showed that of the 814 PAM numbers, 289 represented either task plans or funding orders, 425 represented agreements that expired prior to FY 2016, and 10 referenced other revenue such as scrap, gain on disposal (General Services Administration sales), and royalties. Accordingly, OCFO officials believe only 90 of the 1,948 PAM numbers we reviewed, or 5 percent, were invalid.

Although we appreciate the improvements in PAM referencing, we continue to have concerns regarding the accuracy and consistency of the data. Specifically, according to OCFO officials, NASA may not close a sales order for a year after the agreement expires or until all costs are final. However, we found that of the 425 expired PAM numbers, 122 referenced agreements that expired a year or more prior to FY 2016, with one PAM number representing an agreement that expired in 1998. We also identified 12 PAM numbers that represented nonreimbursable agreements.

Because of inconsistent data across the PAM and SIERA databases, NASA cannot provide quality information to support effective internal control.<sup>42</sup> As previously discussed, these databases were designed primarily for storage of agreements and routing approvals, not for linking with financial data. Likewise, SAP was designed to maintain financial transaction information, and NASA's attempts to effectively link the two systems have fallen short, in part because the PAM number data is often incorrect.

We found several Centers have developed their own systems or workarounds to crosslink agreement financial and administrative information. For example, while most Centers keep internal "workbooks" with both nonfinancial and financial information, agreement personnel at Glenn went further and created their own database within Microsoft Access. Similarly, we identified an effective data integration practice at Goddard using these same principles in which Center staff created the Reimbursable Budget Execution Tool. This tool lists active agreements and their associated nonfinancial information, sales orders, and fiscal status. The large number of reimbursable agreements at Goddard motivated Center personnel to customize functions to streamline their management of the agreements.

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<sup>41</sup> The field that links the SAP sales order to a PAM identification number is free form – meaning it does not have to conform to PAM or SIERA format. Therefore, although a PAM number is typically four or five digits, we found the field in SAP populated with numerous erroneous numbers, such as "0," "313," "5," "220102," "888," "9," "99999," "CASX22," "NA," "N/A," and "TBD."

<sup>42</sup> According to the GAO, one component of effective internal control is internally and externally communicating relevant information that is appropriate, current, complete, accurate, accessible, and provided on a timely basis. GAO, "Standards for Internal Control in the Federal Government" (GAO-14-704G, September 2014).

## Control Weaknesses Indicate Need for Further Improvements

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NASA has taken action in response to prior reports to improve its management of reimbursable agreements, including modifying policies, publishing an agreement handbook, and establishing policies for mitigating conflict of interest and vetting potential partners. However, information obtained during our site visits, discussions with agreement personnel, and detailed review of a sample of agreements identified additional areas where NASA could further strengthen its current process controls. The ongoing deficiencies we identified were attributed to communication gaps among agreement personnel and a lack of due diligence during the approval and execution process.

### Agreement Inconsistent with NASA Mission Objectives

The NASA Space Act Agreement Guide states that agreement activity must be consistent with NASA's mission and involve goods, services, facilities, or equipment not reasonably available on the U.S. commercial market from another source.<sup>43</sup> During our review, we found one case at Ames in which NASA failed to follow this guidance, resulting in lost state and local tax revenue. In 2008, GeoG2 Solutions, Inc., entered into a SAA with NASA to lease office space, hangar space for two aircraft, and airfield ramp usage at Ames's Moffett Field. In return, GeoG2 provided NASA access to their image database in support of the Agency's Terrestrial Observation and Prediction System program.<sup>44</sup> Under this arrangement, when its flights supported NASA missions, GeoG2 was able to purchase jet fuel at the Government rate, which is less expensive than the standard rate because it is not taxed. When the SAA expired in September 2016, Ames converted the partnership to a 5-year enhanced use lease (EUL) for the same office and hangar space and allowed GeoG2 to continue purchasing fuel at the Government rate pending establishment of a new SAA between the Center and GeoG2. However, when the SAA did not materialize as planned, NASA inappropriately allowed the company to continue on the EUL and purchase aviation fuel at the Government rate even though it was no longer supporting NASA-related missions. As a result, the agreement no longer aligned with the Agency's mission and NASA's actions resulted in a loss of tax revenue to the state and local governments.

We believe this situation occurred because of ineffective communication between the project manager and the agreement manager. Specifically, Ames project officials saw no mission need to renew the SAA with GeoG2 but neglected to communicate that decision to the agreement manager. Consequently, GeoG2 continued to lease NASA's property with no valid SAA activity that aligned with the Agency's mission. In August 2017, in response to our inquiry, NASA ended the company's purchase of jet fuel at the Government rate. Nevertheless, the poor communication caused state and local governments to lose tax revenue from the partner's purchase of about \$30,000 worth of jet fuel over a 12-month period.<sup>45</sup> Coincidentally, in December 2013 we reported on a similar situation where Ames officials permitted another company to inappropriately purchase fuel at the Government rate for nearly 6 years.<sup>46</sup>

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<sup>43</sup> NAII 1050-1C.

<sup>44</sup> Located in San Jose, California, GeoG2 provides aerial imagery data and analysis for managing agricultural and forestry markets.

<sup>45</sup> Fuel purchased by the Federal Government for use in Government programs is not subject to state and local taxes. Public fuel used for private purposes requires the entity to remit taxes due to the state tax authority.

<sup>46</sup> NASA OIG, "Review of Allegations of Improper Leasing and Provision of Aircraft Fuel at Moffett Federal Airfield" (December 11, 2013).

## Potential Conflict of Interest

Both the NASA Partnerships Guide and the Code of Federal Regulations are clear that NASA employees and contractors in a position to influence the establishment or administration of partnership agreements cannot have actual or perceived conflicts of interest regarding potential partners.<sup>47</sup> To ensure partnerships are handled in a fair and consistent manner, NASA managers need to be cognizant of potential conflicts of interest early on in the SAA process. During our review, we found that while a Johnson manager was on loan to the parent company of Bay Area Houston Advanced Technology Consortium (BayTech) between June 2012 and April 2014, BayTech entered into a reimbursable agreement with NASA.<sup>48</sup> Specifically, in March 2013 BayTech established a reimbursable Space Act umbrella agreement with Johnson to accept and perform services through documented and authorized annexes with a value listed in PAM of approximately \$1 million.<sup>49</sup> On his professional website, the Johnson manager claimed that he negotiated, wrote, or facilitated approval of four SAAs between BayTech and NASA worth more than \$1 million during his time at BayTech. Furthermore, although this NASA employee was no longer on loan to BayTech as of September 2017, the company's website still listed him as a staff member – more than 3 years after the employee's tenure ended. In our opinion, in light of the SAAs, the association between the Johnson manager and BayTech could be perceived as a conflict of interest and raises questions about NASA's impartiality and fairness regarding the treatment of Agency partners. In addition, due to the ongoing and continued relationship with BayTech, Johnson management should have recognized there was a potential conflict of interest inherent in the executive-on-loan position or, at a minimum, the appearance of a conflict issue it creates.

## Inconsistent Partner Vetting

We found Centers' inconsistent practices for vetting potential partners affected cost reimbursement and project scheduling. The NASA Partnerships Guide lists several approaches for agreement managers to perform due diligence to verify that a prospective non-Government partner has the financial and technical capabilities to successfully meet their responsibilities under the agreement. The NASA Space Act Agreement Guide also requires the agreement manager to review the Government-wide Excluded Parties List System to verify that the proposed partner has not been suspended or debarred from doing business with the Federal Government. In spite of this emphasis on ensuring a prospective partner is a responsible and eligible party for doing business with the Federal Government, we found Centers' practices for vetting potential partners inconsistently applied and poorly documented.

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<sup>47</sup> 5 C.F.R. 6901.103, "Outside Employment" (February 10, 2014), states that a NASA employee, other than a special Government employee or a student intern, shall not engage in outside employment with "a party to a Space Act Agreement, Commercial Launch Act agreement, or other agreement to which NASA is a party pursuant to specific statutory authority, if the employment is in connection with work performed under that agreement."

<sup>48</sup> Bay Area Houston Economic Partnership, a nonprofit organization, established BayTech as a nonprofit technology consortium to bring together academia, industry, Johnson, and the state of Texas in pursuit of Federal and private research and technology development funding to create jobs, retain the workforce and knowledge base, generate new revenue streams, and maximize future opportunities for Texas and the greater Houston region.

<sup>49</sup> The annex we selected for review was signed in December 2015 for refurbishment of Johnson's White Room and production of historical Shuttle Program interactive images and video footage for BayTech. Other annexes under this umbrella agreement involved failure analysis of electronic and mechanical components supplied by BayTech and other testing and training works.

For example, Ames, Glenn, JPL, and Kennedy did not have formal vetting processes to comply with NASA's vetting policy. Furthermore, at JPL only 1 of the 10 agreements we selected for review had been vetted and documented.<sup>50</sup> However, the JPL NASA Management Office's Agreement Manager recognized the importance of a strong vetting process and prior to our review implemented a policy to vet all future partners via the General Services Administration's System for Award Management and document the results in their files.<sup>51</sup>

Vetting potential partners prior to entering into an agreement can also help avoid issues related to partnering with fiscally unstable entities.<sup>52</sup> For example, Ames did not employ such a vetting process and during our review we found three partners having difficulty making their EUL payments.<sup>53</sup> Because the Center did not have collection procedures, Ames personnel had to set up installment payment schedules for these partners to pay their rent while keeping their leases at the NASA Research Park. At Kennedy, we found one partner could not continue funding a large portion of an SAA, resulting in NASA halting 75 percent of the work on the agreement until the partner located additional funds and provided advanced payments.<sup>54</sup> NASA project personnel had to rearrange schedules for this and other projects to accommodate the partners' stopping and restarting.

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<sup>50</sup> Marshall Space Flight Center and Johnson provided documentation to support their process for vetting selected partners.

<sup>51</sup> Information on the System of Award Management is available at <https://www.sam.gov/portal/SAM/#1> (last accessed March 23, 2018).

<sup>52</sup> Similarly, in past OIG work we found NASA lacked a standard process to assess a potential grantee's financial condition prior to grant award. Specifically, a June 2012 audit found the U.S. Space and Rocket Center's liabilities exceeded assets in 2005 through 2010, the Rocket Center suffered operating losses in four of those years, and these conditions created an uncertainty as to the Rocket Center's viability. The Rocket Center serves as the official visitor center for NASA's Marshall Space Flight Center. NASA OIG, "Audit of NASA Grants Awarded to the Alabama Space Science Exhibit Commission's U.S. Space and Rocket Center" (IG-12-016, June 22, 2012).

<sup>53</sup> The three partners were Astro Digital Inc., a global imaging and analysis company located at Ames; Game Changers, LLC, in New York City, which conducts research and development of micro-thrusters; and the Mars Institute, an international, non-Governmental, nonprofit research organization headquartered at Ames that seeks to advance the scientific study, exploration, and public understanding of Mars.

<sup>54</sup> Headquartered at Kennedy, the Light Visually Transceiving System Corporation develops new applications for visual light communication for potential use on deep space missions.

# CONCLUSION

Although NASA has made modest improvements to its management of reimbursable agreements since our last audit of SAAs in 2014, we found more needs to be done to ensure accurate reporting of data on reimbursable agreements. Our examination of records in PAM and SIERA – the only Agency systems where much of the agreement data is captured – found more than half of the records to be inaccurate or irrelevant. Although attributed to relatively few agreements, these inaccuracies resulted in billions of dollars in errors. In our judgment, the data in the systems is neither accurate enough to comply with congressional reporting requirements nor meaningful enough given its high error rate to provide helpful management information to Agency stakeholders. To effectively manage the more than \$2 billion in annual revenue generated from reimbursable agreements, PAM and SIERA can no longer be used only as repositories of agreement documentation. Rather, they should be a part of a comprehensive integrated system that pulls together accurate program and financial data to provide Congress and other stakeholders with full insight into the magnitude and performance of these agreements.

# RECOMMENDATIONS, MANAGEMENT'S RESPONSE, AND OUR EVALUATION

To increase the accuracy, transparency, accountability, and oversight of NASA's reimbursable agreements, we recommended NASA's Chief Financial Officer, Associate Administrator for International and Interagency Relations, and Associate Administrator for Mission Support Directorate jointly

1. revise current processes to ensure information in PAM and SIERA is routinely compared to the actual agreement source information, periodically updated with project status, and routinely verified for accuracy;
2. reassess current data recording processes to minimize duplication in the number of records for the same agreement as well as duplication in agreement values, and ensure consistency in entering administrative modification records and their linkage to initial agreement records;
3. expand and update access rights to include responsible agreement personnel such as project team members so they can verify and update agreement status and pertinent information;
4. reexamine the closeout process to assess the costs and benefits associated with early archive/closeout of records for agreements that have completed the service or products earlier than the agreement expiration date;
5. revise the information objectives for the estimated waived dollars field to reflect NASA contributions in leveraging partnership resources for all agreements;
6. identify common data structures to meet congressional reporting requirements and managerial oversight, particularly with regard to incorporating total estimated value, waived costs or Government contributions, and/or actual costs;
7. strengthen practices to ensure accurate PAM and SIERA identification numbers are entered into SAP sales order fields;
8. foster periodic and timely communication among process participants including the agreement manager, project team, and Center's or Headquarters OCFO to ensure agreements align with NASA mission, vision, goals, and objectives;
9. reassess current process and improve communication of ethical concerns to agreement process participants relative to avoiding conflicts of interest;
10. share best practices across Centers to apply a consistent due diligence review of partners' business and financial standing prior to committing NASA services; and
11. update policy, procedures, and/or guidance to reflect policy and process revisions resulting from the above actions.

We provided a draft of this report to NASA management who concurred or partially concurred with our recommendations and described actions the Agency plans to take to address them. We consider management's comments responsive; therefore, the recommendations are resolved and will be closed upon verification and completion of the proposed corrective actions.

Management's comments are reproduced in Appendix B. Technical comments provided by management have also been incorporated, as appropriate.

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Major contributors to this report include Raymond Tolomeo, Science and Aeronautics Research Directorate Director; Stephen Siu, Project Manager; Anh Doan; and John Schultz. Earl Baker provided legal support, Jaye Buppe provided data analytics support, and Sarah McGrath provided editorial and graphic assistance.

If you have questions about this report or wish to comment on the quality or usefulness of this report, contact Laurence Hawkins, Audit Operations and Quality Assurance Director, at 202-358-1543 or [laurence.b.hawkins@nasa.gov](mailto:laurence.b.hawkins@nasa.gov).

A handwritten signature in black ink, appearing to read "PKM A". The letters are stylized and connected.

Paul K. Martin  
Inspector General

## APPENDIX A: SCOPE AND METHODOLOGY

We performed this audit from May 2017 through April 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

During our audit, we obtained lists of domestic and international agreements that were active in FY 2016 from the Headquarters Partnership Office and Office of International and Interagency Relations, respectively. From the lists provided by the Headquarters Partnership Office, we selected and reviewed a sample of 115 agreements with an estimated reimbursable value of \$11.7 billion from the total population of 2,449 active domestic agreements that had an aggregated value of \$13.4 billion. We selected 66 random and 49 nonrandom samples from PAM to review and validate the agreements' dollar values as well as assess the quality of other relevant nonfinancial data. Nonrandom samples were selected based on dollar magnitude and uniqueness of the agreements and their partners. In addition, we randomly selected 25 international agreements listed in SIERA from the data provided by the Office of International and Interagency Relations for review.

Our detailed review of a sample of 115 active FY 2016 agreements found 66 (57 percent) did not have the correct estimated value in PAM (47), did not represent a valid agreement data record (7), or both (12). This translates to 59 (47+12) agreements with estimated value error and 19 (7+12) agreement data record errors. Of the 66 samples with errors, 32 sample were selected randomly, which equates to 48 percent error rate for the random samples. We applied this error rate to the total 2,449 agreements, excluding the 246 Memorandum of Understanding (which we did not include in our sample), and derived approximately 928 agreements active in FY 2016 that could have incorrect reimbursable values, waived costs, agreement authorities, agreement types, or status.

In addition to reviewing the sample agreements for compliance with NASA objectives, we also validated their data accuracy. The audit team coordinated with the NASA OIG's Advanced Data Analytic Program team to identify active sales orders in SAP, extract associated PAM identification numbers, and cross check the results with the active PAM agreement list provided by the Headquarters Partnership Office.

We visited six Centers – Ames, Armstrong Flight Research Center, Goddard, Headquarters, JPL, and Kennedy – to understand their processes and best practices. To determine whether NASA has adequate policies and procedures that will ensure suitable procurement and operation of reimbursable agreements, we reviewed relevant public laws and NASA policies and standards related to reimbursable agreements as well as Center-specific policies and procedures that corresponded with NASA guidance:

- NAII 1050-3, "NASA Partnerships Guide," December 21, 2016
- NAII 1050-1C, "Space Act Agreements Guide," August 11, 2014
- NAII 1050-1D, "Space Act Agreements Guide," September 29, 2017
- NPD 1050.1I, "Authority to Enter into Space Act Agreements" (Revalidated 10/30/14), December 23, 2008

- NPD 1370.1, “Reimbursable Utilization of NASA Facilities by Foreign Entities and Foreign-Sponsored Research” (Revalidated w/change 1, dated 8/9/2012), October 26, 2007
- NPD 8810.2A, “Master Planning for Real Property” (Revalidated w/Change 1 on February 20, 2015), December 9, 2009
- NPR 3300.1C, “Employment, Appointment Authorities, and Details,” November 1, 2015
- NPR 8800.15A, NASA Desk Guide for Enhanced Use Leasing of Real Property, February 2010
- NPR 8800.15C, “Real Estate Management Program” w/Change 1, February 24, 2015
- NPR 8810.1A, “Center Master Planning,” February 13, 2013
- NPR 9050.2A, “Advances and Prepayments,” July 26, 2011
- NPR 9090.1A, “Reimbursable Agreements,” February 25, 2013
- NPR 9610.1A, “Accounts Receivable, Billing, and Collection,” October 29, 2015
- Agency Master Plan, Report on the 2011 Plan
- National Aeronautics and Space Act of 1958
- National Aeronautics and Space Administration Transition Authorization Act of 2017
- NASA Agreements Process, August 9, 2016
- NASA Real Estate Desk Guide, June 2016
- NASA Real Property Management Plan, November 2004
- Pub. L. No. 110-161, “Consolidated Appropriations Act, 2008,” December 26, 2007
- Pub. L. No. 111-314, “Enactment of Title 51—National and Commercial Space Programs,” December 18, 2010
- Pub. L. No. 114-90, “U.S. Commercial Space Launch Competitiveness Act,” November 25, 2015
- 5 C.F.R. 6901.103, § 6901.103, “Outside employment” February 10, 2014
- 48 C.F.R. Chapter 1, “Federal Acquisition Regulations System,” November 06, 2017
- 5 U.S.C. §§ 3371-3376, “Intergovernmental Personnel Act of 1970,” 2006
- 31 U.S.C. § 1535, “Agency Agreements,” 2009
- 42 U.S.C. § 2459j, “Lease of Non-Excess Property,” 2008
- 5 U.S.C. §§ 3371- 3376, “Intergovernmental Personnel Act,” 1970
- 51 U.S.C. §§ 10101-71302, “National and Commercial Space Programs,” 2010
- 51 U.S.C. § 20113(e), “Contracts, Leases and Agreements,” 2010
- 51 U.S.C. §§ 50901-50923, “Commercial Space Launch Activities,” 2010
- 54 U.S.C. §§ 306121-306122, “Federal Agency Historic Preservation Responsibilities,” 2014

## Use of Computer-Processed Data

We used computer-processed data from three sources to perform this audit: (1) the Headquarters Partnership Office provided an active domestic agreement list from the PAM database, (2) the Office of International and Interagency Relations provided the international active agreement list from SIERA, and (3) Headquarters OCFO provided a transaction listing of revenue transactions and an audit point of contact to assist with cross-linking those transactions to PAM identification numbers. In addition, the respective NASA Center Partnership and Resources Offices and project and account managers provided supporting documentation to the reimbursable agreements. We assessed the reliability of the PAM database and found significant errors. These weaknesses have been addressed in this report. Our recommendations, if implemented, should correct the identified weaknesses.

## Review of Internal Controls

We reviewed, tested, and evaluated internal controls related to NASA's management of its reimbursable agreements. This included assessing compliance with requirements such as applicable Federal laws, regulations, directives, and NASA policies and procedures. The control weaknesses we identified are discussed in this report. Our recommendations, if implemented, should correct the identified weaknesses.

## Prior Coverage

During the last 11 years, the NASA OIG; Departments of Commerce, Homeland Security, and Interior; Environmental Protection Agency; and GAO have issued 14 reports of significant relevance to the subject of this report. Unrestricted reports can be accessed at <https://oig.nasa.gov/audits/reports/FY18/index.html>, <https://www.oig.doc.gov/Pages/Audits-Evaluations.aspx>, <https://www.oig.dhs.gov/reports/audits-inspections-and-evaluations>, <https://www.doioig.gov/reports>, <https://www.epa.gov/office-inspector-general/oig-reports>, and <http://www.gao.gov>, respectively.

### ***NASA Office of Inspector General***

*NASA's Use of Space Act Agreements* (IG-14-020, June 5, 2014)

*NASA's Lease of Hangar Space and Sale of Aviation Fuel to H211* (Special Review, December 11, 2013)

*NASA's Infrastructure and Facilities: An Assessment of the Agency's Real Property Leasing Practices* (IG-12-020, August 9, 2012)

### ***Department of Commerce***

*U.S. Census Bureau: Census Bureau Realignment Did Not Fully Meet Stated Goals and Reimbursable Agreements Are Not Managed Adequately* (OIG-16-004-A, October 22, 2015)

### ***Department of Homeland Security***

*DHS' Use of Reimbursable Work Agreements with GSA* (OIG-16-105, June 23, 2016)

*DHS Needs to Improve Implementation of OCFO Policy Over Reimbursable Work Agreements (OIG-16-39, February 18, 2016)*

### ***Department of Interior***

*Reimbursable Activities Funded Through the National Park Service's Construction Account (2015-WR-016, October 13, 2015)*

### ***Environmental Protection Agency***

*EPA Achieved Scientific Benefits When Using Reimbursable Research Agreements, but Better Estimating of In-Kind Costs Is Needed (16-P-0279, August 22, 2016)*

*EPA Improved Controls Over Billing Reimbursable Interagency Agreement Expenditures to Other Agencies (16-P-0212, June 27, 2016)*

### ***Government Accountability Office***

*Federal Acquisitions: Use of 'Other Transaction' Agreements Limited and Mostly for Research and Development Activities (GAO-16-209, January 2016)*

*Federal Real Property: Improved Cost Reporting Would Help Decision Makers Weigh the Benefits of Enhanced Use Leasing (GAO-13-14, December 19, 2012)*

*Key Controls NASA Employs to Guide Use and Management of Funded Space Act Agreements Are Generally Sufficient, but Some Could Be Strengthened and Clarified (GAO-12-230R, November 17, 2011)*

*Training Necessary to Address Data Reliability Issues in NASA Agreement Database and to Minimize Potential Competition with Commercial Sector (GAO-11-552R, May 26, 2011)*

*NASA: Enhanced Use Leasing Program Needs Additional Controls (GAO-07-306R, March 1, 2007)*

# APPENDIX B: MANAGEMENT'S COMMENTS

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



MAY 18 2018

Reply to Attn of:

Office of the Chief Financial Officer

TO: Assistant Inspector General for Audits

FROM: Chief Financial Officer  
 Associate Administrator for Mission Support Directorate  
 Associate Administrator for International and Interagency Relations

SUBJECT: Agency Response to OIG Draft Report, "NASA's Management of Reimbursable Agreements" (A-17-014-00)

NASA appreciates the opportunity to review and comment on the Office of Inspector General (OIG) draft report entitled "NASA's Management of Reimbursable Agreements" (A-17-014-00), dated April 12, 2018.

NASA is committed to leveraging successful partnerships with a variety of partners to enable success with the Agency's research, exploration, and other mission objectives. NASA is also committed to being a good steward of the resources entrusted to the Agency and committed to its partnership activities. Accordingly, in the past four years, NASA has taken several initiatives to establish greater internal controls and enhanced processes aimed at strengthening execution and reporting for reimbursable agreements. The OIG recognized several of these initiatives in its report, including certain Partnership Agreement Maker (PAM) and Systems Applications and Products (SAP) data integration initiatives and additional data validation measures implemented in 2014 and the issuance of a comprehensive NASA Partnerships Guide and the Office of the Chief Financial Officer's (OCFO) publication of an end-to-end process narrative in 2016. Additional significant initiatives incorporated by the Agency include the appointment of an OCFO Agreements Process Champion in 2017 who is responsible for working with the Partnership Office and other Agency stakeholder offices to ensure financial processing practices are consistent and effective across the Agency.

The results in this report may not fully reflect the positive impacts of the Agency's initiatives since many of the agreements sampled as part of the audit were executed prior to their implementation. Most notably, the overstatement of agreement values in PAM is predominantly attributed to three of the 115 sampled agreements, accounting for \$3.6B (90 percent) of the \$4B overstated value. One agreement accounted for \$150M (97 percent) of the \$154M overstatement of waived cost. These four agreements were executed between 2005 and 2014, prior to NASA's recent process improvements. Other ongoing process and system enhancements are described in the response to the specific recommendations below.

Notwithstanding the above, the Agency appreciates the OIG's findings and recommendations in this report, recognizes that further improvements are needed, and is committed to making those improvements.

In the draft report, the OIG makes eleven recommendations intended to improve NASA's management of reimbursable agreements.

Specifically, the OIG recommends the following:

To increase the accuracy, transparency, accountability, and oversight of NASA's reimbursable agreements, NASA's Chief Financial Officer, Associate Administrator for International and Interagency Relations, and Associate Administrator for Mission Support should jointly:

**Recommendation 1:** Revise current processes to ensure information in PAM and SIERA is routinely compared to the actual agreement source information, periodically updated with project status, and routinely verified for accuracy.

**Management's Response:** Concur. The Agency will reinforce its current validation process implemented in 2014 for new agreement actions to ensure a holistic review of the accuracy of information as validated by the cognizant Agency Agreement Manager, the Office of International and Interagency Relations (OIIR) desk officer and System for International External Relations Agreements (SIERA) data base custodian, program/project personnel, and OCFO staff. The NASA Partnerships Guide will be updated to include a new section on agreement administration protocols, such as the need for Agreement Manager, program/project personnel, and OCFO staff to periodically review agreement status and update the agreement records, as necessary.

**Estimated Completion Date:** December 31, 2018.

**Recommendation 2:** Reassess current data recording processes to minimize duplication in the number of records for the same agreement as well as duplication in agreement values, and ensure consistency in entering administrative modification records and their linkage to initial agreement records.

**Management's Response:** Concur. The Agency will reassess and establish, as needed, procedural guidance for proper agreement data entry and financial information recording of domestic agreement actions in PAM. The Partnership Office will update the PAM system to clarify agreement type classification categories to reduce the risk of data entry errors. OIIR will confirm that its guidance is correct for entering data into SIERA to avoid duplication of records and entering agreement record modifications.

**Estimated Completion Date:** December 31, 2018.

**Recommendation 3:** Expand and update access rights to include responsible agreement personnel such as project team members so they can verify and update agreement status and pertinent information.

**Management's Response:** Partially concur. Full read/write access to the Agency's PAM system (for domestic agreements) and SIERA (for international agreements) is purposefully controlled to ensure that only authorized and trained agreement personnel (typically, the Center's designated Agreement Managers for domestic agreements and OIIR desk officers and the SIERA database custodian for international agreements) are able to update agreement data in the systems. Expanding such access to include NASA program/project or technical personnel, some of whom engage in agreements very infrequently and lack familiarity with the systems, would exacerbate the problem with data entry errors. However, we agree with the spirit of the recommendation that project personnel be kept apprised of system information related to their agreements. Accordingly, NASA will develop reporting guidance and make reports available to the program/project personnel regarding the agreement status and other pertinent information relating to their agreements, so that they can verify and update agreement status and pertinent information. Such reports will be a key tool for the periodic reviews between Agreement Managers and OIIR desk officers, program/project personnel, and OCFO staff discussed in the corrective action in response to Recommendation 1.

**Estimated Completion Date:** December 31, 2018.

**Recommendation 4:** Reexamine the closeout process to assess the costs and benefits associated with early archive/closeout of records for agreements that have completed the service or products earlier than the agreement expiration date.

**Management's Response:** Concur. As stated in response to Recommendation 1, the Agency will update the NASA Partnerships Guide to discuss best practice agreement administration protocols, such as the need for the Agreement Manager, program/project personnel, and OCFO staff to conduct periodic meetings to review agreement status and to update the agreement records, as necessary. As part of these periodic tag-ups, it is expected that NASA personnel will identify instances when the work under an agreement was completed prior to the agreement's expiration date and determine whether it is beneficial to administratively close the agreement so that it does not continue to be reported as an active agreement.

**Estimated Completion Date:** December 31, 2018.

**Recommendation 5:** Revise the information objectives for the estimated waived dollars field to reflect NASA contributions in leveraging partnership resources for all agreements.

**Management's Response:** Concur. The Agency agrees that applicable agreement process and/or policy related to waived dollars and NASA contributions to partnership agreements should be amended for clarity.

**Estimated Completion Date:** June 30, 2019.

**Recommendation 6:** Identify common data structures to meet congressional reporting requirements and managerial oversight, particularly with regard to incorporating total estimated value, waived costs or Government contributions, and/or actual costs.

**Management's Response:** Concur. The Agency is reviewing common data structures and will ensure that it is consistently recording estimated value and waived/excluded cost information in PAM (for domestic agreements) and SIERA (for international agreements), as appropriate. OIIR will ensure that it is implementing its existing requirement to record estimated values for international reimbursable agreements, as applicable.

**Estimated Completion Date:** February 28, 2019.

**Recommendation 7:** Strengthen practices to ensure accurate PAM and SIERA identification numbers are entered into SAP sales order fields.

**Management's Response:** Concur. The Agency OCFO will continue to enhance data entry processes to better link SAP sales order data to PAM and SIERA information. Training and written guidance provided through the OCFO Agency Agreements Process Champion will strengthen internal controls and practices to ensure accurate PAM and SIERA data in SAP.

**Estimated Completion Date:** December 31, 2018.

**Recommendation 8:** Foster periodic and timely communication among process participants including the agreement manager, project team, and Center's or Headquarters OCFO to ensure agreements align with NASA mission, vision, goals, and objectives.

**Management's Response:** Concur. The Agency will update the NASA Partnerships Guide to discuss best practice agreement administration protocols, to include communication between the various stakeholders. The Agency will continue to jointly foster communication across the organizations through regular meetings by the Partnerships Office, the OCFO Agreements Process Champion, and OIIR; training initiatives; and other avenues to emphasize that agreement activities must align with NASA's missions.

**Estimated Completion Date:** December 31, 2018.

**Recommendation 9:** Reassess current process and improve communication of ethical concerns to agreement process participants relative to avoiding conflicts of interest.

**Management's Response:** Concur. As stated in the OIG audit report, NASA's Partnerships Guide currently discusses ethical responsibilities of NASA employees and contractors involved in the agreement process, including avoiding actual or perceived conflicts of interest. The Director of the NASA Partnership Office and the OCFO Agreements Process Champion reminded Agency partnerships staff of this guidance and re-emphasized these important considerations during its annual Agency-wide Partnerships Community of Practice (PCoP) meeting held at Goddard Space Flight Center, May 1-3, 2018. These important points will also be emphasized in Module 2 of the impending "Partnerships 101" SATERN-based training program being developed.

**Estimated Completion Date:** December 31, 2018.

**Recommendation 10:** Share best practices across Centers to apply a consistent due diligence review of partners' business and financial standing prior to committing NASA services.

**Management's Response:** Concur. The MSD Partnership Office conducted a dedicated workshop on this topic as part of the annual Agency-wide Partnerships Community of Practice meeting held at Goddard Space Flight Center, May 1-3, 2018, reaching over 100 participants. Best practices related to performing due diligence were shared.

**Estimated Completion Date:** Completed May 3, 2018.

**Recommendation 11:** Update policy, procedures, and/or guidance to reflect policy and process revisions resulting from the above actions.

**Management's Response:** Concur. See responses above.

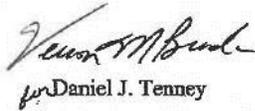
**Estimated Completion Date:** June 30, 2019.

We have reviewed the draft report for information that should not be publicly released. As a result of this review, we have not identified any information that should not be publicly released.

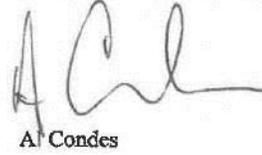
Once again, thank you for the opportunity to review and comment on the subject draft report. If you have any questions or require additional information regarding this response, please contact Sandy Massey on (321) 867-6262.



Jeff DeWit



for Daniel J. Tenney



Al Condes

# APPENDIX C: REPORT DISTRIBUTION

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## National Aeronautics and Space Administration

Administrator  
Associate Administrator  
Deputy Associate Administrator  
Acting Chief of Staff  
Associate Administrator for Strategy and Plans  
Chief Financial Officer  
Associate Administrator for International and Interagency Relations  
Associate Administrator for Mission Support

## Non-NASA Organizations and Individuals

Office of Management and Budget  
Deputy Associate Director, Energy and Space Programs Division  
Government Accountability Office  
Managing Director, Office of Financial Management and Assurance  
Director, Office of Acquisition and Sourcing Management

## Congressional Committees and Subcommittees, Chairman and Ranking Member

Senate Committee on Appropriations  
Subcommittee on Commerce, Justice, Science, and Related Agencies  
Senate Committee on Commerce, Science, and Transportation  
Subcommittee on Space, Science, and Competitiveness  
Senate Committee on Homeland Security and Governmental Affairs  
House Committee on Appropriations  
Subcommittee on Commerce, Justice, Science, and Related Agencies  
House Committee on Oversight and Government Reform  
Subcommittee on Government Operations  
House Committee on Science, Space, and Technology  
Subcommittee on Oversight  
Subcommittee on Space

**(Assignment No. A-17-014-00)**