

NASA Information Technology 2019 Annual Report

Securely Unleashing the Power of Data



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Acronyms

API: Application programming interface
CAP: Cross-Agency Priority
FTE: Full-time equivalent
MAP: Mission Support Future Architecture Program
NAMS: NASA Account Management System
NCAD: NASA Corporate Active Directory
NED: NASA Enterprise Directory
0365: Office 365
OMB: Office of Management and Budget
PIV: Personal Identity Verification
PKI: Public key infrastructure
PPBE: Planning, Programming, Budgeting, & Execution
STI: Scientific and Technical Information
TDD: Transformation & Data Division
VITS: Video Teleconferencing Services

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Scientific Visualization Studio

Letter from the CIO

The Office of the Chief Information Officer (OCIO) is working hard to deliver IT capabilities needed to meet NASA's diverse mission and mission support portfolio more effectively, efficiently, and securely. I am honored to share the NASA Information Technology 2019 Annual Report with you. This report highlights the initiatives undertaken over the last year to enable OCIO to achieve excellence in execution, including improvements to our cybersecurity posture and IT services which have a huge impact across the Agency.

This was accomplished despite setbacks at the beginning of the year which stemmed from the partial 35-day federal government shutdown. NASA experienced a lapse in FY 2019 appropriations from December 22, 2018, through January 25, 2019. All of NASA's programs and projects were impacted to varying degrees. But despite the disruption of operations at NASA Centers, we still managed to pick up the pieces and buckle down to get work done when we returned.

I encourage you to pay special attention to the many key accomplishments and milestones in the OCIO ecosystem in 2019. We have been able to eliminate redundancies and have also made headway in optimizing our software footprint.

OCIO is delivering cloud computing services that are easy and secure to use. We are working to serve as the single point of access for cloud computing and storage services, giving NASA employees a one-stop shop for cloud services from Amazon Web Services (AWS) and Microsoft Azure.

But most of all, we have made great strides improving NASA's cybersecurity posture. We've increased login capabilities for NASA systems and applications and obtained better visibility into who and what is connected to our corporate network. NASA is also making progress with implementing similar capabilities on our mission networks. We have increased awareness of cybersecurity risks and vulnerabilities and the need to effectively manage those risks across all NASA organizations.

Transparency and inclusion in decision making, budgeting, planning and daily operations run throughout the work in the OCIO. As we look ahead in 2020, OCIO is committed to taking a proactive and collaborative approach to deliver innovative, reliable, and sustainable technologies that optimize satisfaction and desired outcomes for our customers. In 2020, we will be focused on a better customer experience.

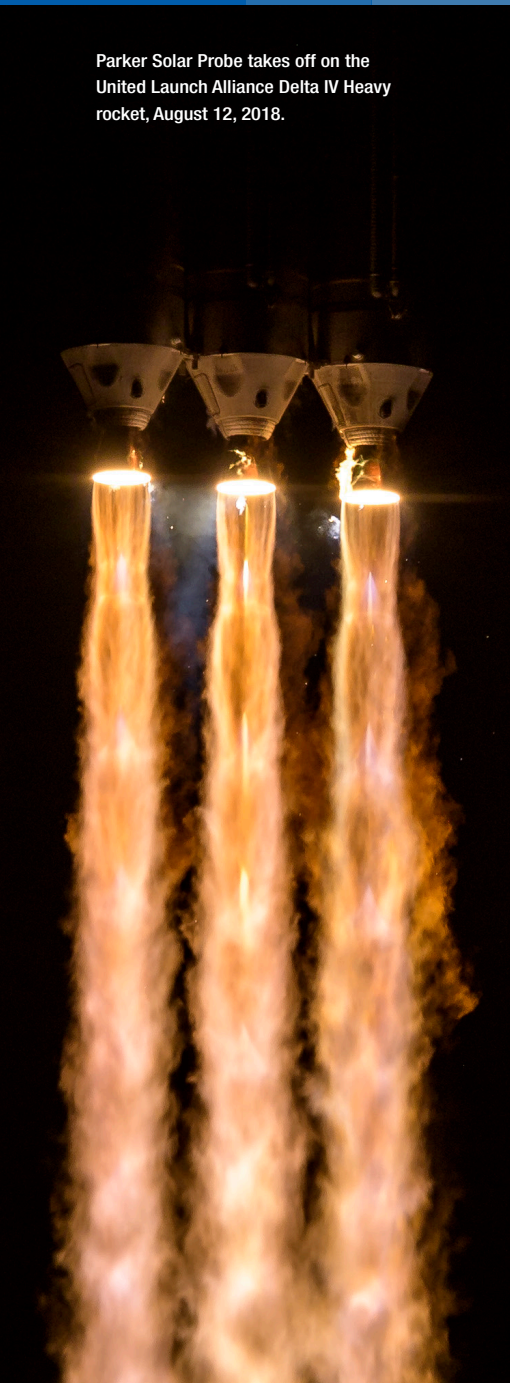
The OCIO team is dedicated to giving first rate service and positive customer satisfaction to the entire NASA community. I welcome your comments and suggestions on how OCIO services can be improved. Thank you for taking the time to review our progress. We look forward to working with you in 2020.

Renee Wynn

Chief Information Officer
NASA



Parker Solar Probe takes off on the United Launch Alliance Delta IV Heavy rocket, August 12, 2018.



NASA'S IT VISION

NASA's IT strategic vision for fiscal years 2018-2021 outlines our strategic IT direction, goals, priorities, and future environment to make our vision of the future a reality. The NASA Chief Information Officer is responsible for ensuring that NASA's information assets are acquired and managed consistent with Federal policies, procedures, and legislation. The agency uses its IT Strategic Plan to guide the direction, mission alignment, investments, and accountability of NASA's IT community.

IT Vision

Manage IT as a strategic resource to securely unleash the power of data.

IT Mission

Enable the secure use of data to accomplish NASA's Mission.

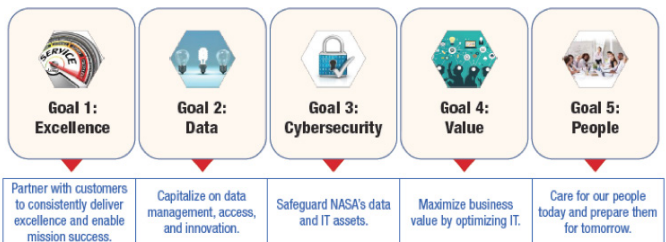
IT Values

Being a trusted partner is earned through Customer Driven (Responsive, Making IT Easy), Continuous Learning (Insight Driven), and Accountable (Transparent) behaviors.

Progress toward the plan and related metrics helps NASA personnel improve Agency outcomes by driving discoveries as a strategic partner, accelerating results through productivity, sharing NASA's data and results, and increasing quality, resiliency, and cost-effectiveness.



NASA's IT Strategic Goals (FY 2018-2021)



IT Core Services at NASA

NASA's IT community delivers a wide variety of reliable IT services to customers across the Agency and to NASA outposts around the world. The following are just some of these services:

Cybersecurity and Privacy

- ▶ Cybersecurity policy and risk management
- ▶ IT Supply Chain Risk Management (SCRM)
- ▶ Identity, Credential, and Access Management (ICAM) services: Launchpad, physical security, NAMS, NCAD, PKI, NED
- ▶ Cybersecurity awareness and training
- ▶ Security Operations Center (SOC) operations: threat assessment, incident remediation, and monitoring and detection
- ▶ Continuous Diagnostics and Mitigation and network monitoring

Applications

- ▶ Design, development, operations, maintenance, and decommissioning of web, desktop, server, mobile, business management, and infrastructure applications and platforms
- ▶ Workflow process automation (bots)
- ▶ Content management and support for non-public-facing websites
- ▶ Data visualization infrastructure and standards
- ▶ Data analytics technology, infrastructure, and standards
- ▶ Software lifecycle management

Communications

- ▶ Design, development, operations, maintenance, upgrades, and decommissioning of corporate networks
- ▶ Telephone and voicemail
- ▶ Mission Operational Voice
- ▶ Conference and VITS technology services
- ▶ Photography, graphics, and video production media service infrastructure
- ▶ Space, emergency, safety, and embedded communications

Computing

- ▶ Compute services: Platform, Infrastructure, and Application as a Service
- ▶ Cloud computing and data center services
- ▶ Real-time, archival, backup, and context-oriented storage

End User

- ▶ Workstation: desktop, laptop with software management, system administration, patching, backup, and restoration
- ▶ Mobile phones, pagers, tablets, printers, and 3D printers
- ▶ Email and distribution lists
- ▶ Collaboration: instant messaging, video and web conferencing, document collaboration, social collaboration, and file sync & share

Information Management

- ▶ Data architecture and standards
- ▶ Library electronic resources
- ▶ Forms management
- ▶ Processing, infrastructure, and publication of STI
- ▶ Electronic and non-electronic records management
- ▶ Paperwork Reduction Act (PRA) and Section 508 compliance

IT Management and Governance

- ▶ IT workforce recruitment, retention, training, and competency management
- ▶ Governance process, procedures, and management
- ▶ IT policy development and management
- ▶ Strategic planning
- ▶ IT portfolio and project management
- ▶ IT acquisition and contract management

NASA IT At A Glance

Data

42,946 public data sets
555 public code repositories
17 public APIs

Collaboration

16 Office 365 applications increasing collaboration and productivity, incl. Office Online, Teams, Planner, and Forms

Cybersecurity

Highest FISMA rating: Managing Risk
2nd Runner Up: National Security Agency's Frank B. Rowlett Award to ICAM

Access

90% PIV access for unprivileged users
8,722 eliminated usernames and passwords

Digital Workforce

36 bots hard at work



People

781 FTE employees across NASA
100 IT Specialists outside of OCIO
Thousands of contractors

IT Services

6 IT Programs
3 major enterprise service contracts

Projects

319 mission, 13 enterprise, and 57 Center IT-related projects planned for FY 2020
103 TDD Labs Projects funded since 2011, innovating in cybersecurity, training, sharing, safety, and public engagement

Threat Protection

100% of government-furnished devices scanned for malware before remote network connection (VPN) (CAP Goal for Intrusion Detection & Prevention)
100% Continuous Diagnostics and Mitigation tool coverage on the corporate network for network insight and protection

2019 Information Technology Highlights & Accomplishments

- ▶ Johnson Space Center's Multimedia Services Office provided ISS imagery resources to analyze a failed docking attempt during Expedition 60s and to successfully dock 48 hours later.
- ▶ Proactively managed the influx of diverse technologies including artificial intelligence, cloud, robotics, Internet of Things (IoT), and big data by leading NASA's Digital Transformation effort with the Office of the Chief Technologist.
- ▶ Science Mission Directorate delivered a high-end commercial cloud computing service offering for scientific and engineering computing, built on NASA's Enterprise Managed Cloud Computing service.
- ▶ Achieved Personal Identity Verification (PIV) access for 90% unprivileged users and 100% for privileged users, further solidifying the security of identity management and access on the Agency's network.
- ▶ Deployment of Office 365 collaboration tools (Outlook, OneDrive, Skype, and Office Online) delivered larger mailboxes, online storage, and better data security. Collaboration was made easier with O365 Phase 2 tools (SharePoint Online, Teams, Planner, and Forms).
- ▶ Kennedy Space Center's Telescience Research and Technology Support team's use of unmanned aircraft systems (UAS) and tracking imagery contributed to the 2019 Emmy Award for Outstanding Interactive Program coverage of SpaceX Demonstration Mission-1.
- ▶ NASA maintained the highest Federal Information Security Management Act (FISMA) rating 'Managing Risk,' reflecting significant progress on the implementation of cybersecurity capabilities in its corporate and mission environments.
- ▶ NASA's Software-of-the-Year awarded to UAS Traffic Management Services project for cloud-based management of drones.
- ▶ Completed OCIO MAP Listening Tour: A Commitment to Our People and Our Partnerships, visiting all Centers to meet with our people, partners, and customers.
- ▶ Agency approval of the NASA software lifecycle management plan to improve IT acquisitions and optimize agencywide software management. OCIO identified initial "invest" platforms to guide investment planning for FY 2020 and beyond.



- ▶ The NASA Shared Services Center used advanced technology to drive operational efficiency of automated tasks with 36 'Digital Workers,' which resulted in a path forward to scale the service across the Agency.
- ▶ Communications Program Russia Services enabled mission controllers at Johnson and in Moscow to receive and monitor real-time video, voice, and data for constant, reliable, and mission-essential connectivity during Soyuz launch events.
- ▶ Office of CyberSecurity Services (OCSS) launched a common catalog for ordering all cybersecurity services, making it easier for OCSS customers to request services in an efficient manner.
- ▶ Deployment of the Agency Applications Rationalization Tool, with approximately 4,600 applications, for assessment of portfolio breadth and health by the Applications Portfolio Management Boards.
- ▶ Made available safe data sharing with external partners through expansion of the Box Enterprise File Sync and Share service.
- ▶ New end user services contract to transform computing, mobility, and printing services for our customers.
- ▶ NASA adopted the Technology Business Management standard IT Tower and Cost Pools and reported categorized IT costs across NASA's entire IT portfolio spend for PPBE21, enabling NASA to benchmark and identify potential optimization opportunities.
- ▶ International Space Station microbiology genomics project data were migrated to the cloud.
- ▶ Completed migration of all Centers to the Agency Enterprise Border Virtual Private Network (VPN) infrastructure and decommissioned legacy VPN infrastructure for greater standardization, efficiency, and insight into network access.
- ▶ Developed PIV solutions for various NASA systems resulting in the first-ever native smartcard authentication for Apple's macOS platform, which NASA is sharing with other Federal agencies.
- ▶ The Applications Division mapped mission support business processes to applications, enabling the MAP project systems integration to identify and resolve IT gaps and overlap, as well as opportunities to reduce duplication, integrate processes, and modernize technology.

CENTER STORIES

AMES RESEARCH CENTER

NASA's Security Operations Center (SOC) expanded its relationships with mission security operations and security incident response teams. Recent changes to SOC tools, techniques, and procedures will continue to enable the merging of enterprise monitoring and detection to benefit NASA's missions. Collaboration with mission security operations and various enhancements, with access to classified datasets at the Confidential, Secret, Top Secret, and Sensitive Compartmented Information level, have strengthened the SOC's ability to track targeted and persistent cyber threats to NASA. A collaborative approach to threat intelligence expanded the analysis and investigation of security incidents and enhanced agencywide situational awareness of threat actors through the rapid sharing of indicators of compromise. NASA's SOC continues to prioritize its close relationships with mission teams to monitor and protect our most critical systems.

Unmanned Aircraft Systems (UAS), a.k.a. drones, and the UAS Traffic Management Services (UTM) software that supports them, are a key focus of Ames' Aviation Systems Division. The UTM software enables small UAS to access low-altitude airspace in a safe, efficient, and fair manner. UTM allows for distributed management of the airspace wherein private companies collaborate to maintain a safe and accessible environment. NASA's Enterprise Managed Cloud Computing (EMCC) service office provided reliable cloud-services for the UTM team, demonstrating the viability and significant advantages of commercial cloud services. The success of the UTM project (NASA's 2019 Software of the Year recipient) has shown that alignment with OMB's Cloud Smart initiative is not just for enterprise applications but also applies to NASA mission applications involving complex interfaces, interactions with non-traditional devices, and diverse industry partnerships.

ARMSTRONG FLIGHT RESEARCH CENTER

In May 2019, the Federal Aviation Administration (FAA) Certification Authority for both Armstrong and JPL mandated that all NASA-owned small UAS (sUAS) have a valid approval to operate (ATO) prior to being granted flight worthiness certification. Having successfully completed the process before, Armstrong's cybersecurity team partnered with JPL staff over a three-month period to share their existing local sUAS ATO process to help JPL receive their FAA certification while minimizing the impact to JPL's sUAS mission operations during the process.

The Aeronautics Research Mission Directorate (ARMD) Flight Data Portal (AFDP) provides the agency with a web-based integration portal for effective storage and retrieval of flight test data and associated mission-related information. This ensures retention and availability of ARMD flight research data across all ARMD centers. The portal's capability will include a modern search functionality to access flight research data and information no matter where the research originated. Also in development is AFDP Metadata Specification to provide a platform-independent data storage solution. AFDP has completed Critical Design Review and is awaiting feedback from the Independent Review Team.

GLENN RESEARCH CENTER

Glenn's OCIO automated and streamlined the end-to-end travel process for Glenn travelers and Office of the Chief Financial Officer (OCFO) business unit travel processing. This effort improved user satisfaction and metrics while reducing travel processing time and removing obsolete technology infrastructure. Travelers can track the status of their requests in real-time, communicate with their assigned coordinator, and submit receipts within the system. Due to its success, the Agency OCFO selected the Glenn system and process as the NASA standard for travel request processing. The system is now in use by Glenn, Marshall, Ames, and Langley Research Centers.

To support the mission critical Propulsion Systems Laboratory's 8x6, 9x15, and 10x10 test facilities, Glenn accelerated the replacement of the end-of-life and failing telephone switch. Following a hardware failure, a low-cost solution was implemented during the 60-day summer shutdown window. This project required daily collaboration with multiple organizations, service providers, and vendors. Previously unknown risks to other network infrastructure equipment were identified, addressed, and mitigated. The team met all physical and operational security requirements while delivering a system to address outstanding risks and provide paging, intercom, and telephone systems.

GODDARD SPACE FLIGHT CENTER

In 2019, Goddard created the Cloud Computing Initiative to help mission customers obtain the benefits of commercial cloud services without having to become cloud experts. Through partnerships with the Goddard Commercial Cloud (GCC) team, missions can now quickly adopt commercial cloud services in a secure and reliable way. One partnership is with the Near Earth Network (NEN) Initiative for Ka-Band Advancement (NIKA). A cloud sub-component of NIKA, (Data Acquisition Processing and Handling Network Environment or DAPHNE), captures, processes, and distributes scientific data. DAPHNE now provides a robust, highly available, and scalable system for missions using NEN's worldwide network of ground stations for a fraction of the cost of a traditional system, cost-effectively supporting very large data requirements and smaller data loads. Because of the cloud services provided by the GCC, NEN did not need to revise its system security plan or secure its own cloud services.

Goddard's Cybersecurity Services and Integration Division (CSID) partners and collaborates with missions to provide advice on securing their IT systems. One partnership is with the Plankton, Aerosol, Cloud, ocean Ecosystem (PACE), a NASA Earth-observing satellite that advances observations of global ocean color, biogeochemistry, and ecology as well as carbon cycle, aerosols and clouds. CSID has partnered with PACE to integrate cybersecurity early on in its lifecycle and to continually discuss adjustments to the system security approach while providing consistent reporting templates for leadership awareness. In addition, CSID provides technical advice and best practices to PACE's cybersecurity personnel to prepare for the PACE Project's Key Decision Point (KDP) reviews. This cybersecurity mission engagement program will be leveraged when working with other Goddard mission customers.

JET PROPULSION LABORATORY

Mars 2020 will be the first flight project to utilize the cloud as part of their primary operations, based on the need for quick execution of commands, science planning, and images taken. JPL's OCIO has developed a special OS Pipeline that establishes up-to-date operating system (OS) images for AWS Cloud instances, ensuring missions use the latest OS in a safe environment. The JPL OCIO also provided Mars 2020 the ability to use identity and authentication services, to set up virtual private firewalls, and to provide VPN services. Two projects scheduled for launch in 2021, the Surface Water Ocean Topography (SWOT) mission and the NASA ISRO Synthetic Aperture Radar (NISAR) mission, also plan to use the AWS Cloud extensively for their science data processing. The projected daily science data volume for NISAR is 35 terabytes and would require the equivalent of 90 racks of computers, if done on premises.

Imagine being faced with the prospect of moving hardware for the longest running (and most famous) legacy mission to a new



Ames to launch IT on the Go vending machine for often-ordered peripherals (mice, keyboards, badge readers, cables and more). IT on the Go allows Ames customers to easily order and pick-up assessed and cleared commodity IT items on site.

location without impact. This is the task facing the JPL OCIO, as Voyager is one of the several extended mission projects and instruments whose hardware assets are currently housed in an off-site data center. The location, leased by JPL since the early 1980's, has housed OCIO and Voyager personnel. JPL is scheduled to move out in 2020 and the OCIO has been working closely with past and present Voyager personnel to understand the complexity of the move while meeting their computing needs.

JOHNSON SPACE CENTER

The first attempt to dock the Soyuz MS14 (Expedition 60s) with the International Space Station resulted in an unsuccessful docking. In response to that failure, ISS called upon the partnership with the Johnson CIO's Multimedia Services Office to assist the ISS Mission Management Team with assessing the failure, with the objective to successfully complete a second docking attempt in less than 48 hours. The Multimedia Services Office captures, captions, archives, and recalls upon request all imagery that is captured in orbit, both inside and around the vehicle. Thanks to the ability to recall and provide a real-time playback of the previously successful docking of the Soyuz on Expedition 59s, ISS engineers and flight control were able to monitor the second attempt and achieve successful docking.

The Johnson OCIO Management Integration Office completed the modernization and migration of the Integrated Risk Management Application (IRMA) into the Project Oriented Management Information System (PrOMIS) Risk Management Module. IRMA was in need of substantial modernization and through our partnership with the Center we were asked to find an existing solution rather than rebuild the tool. The PrOMIS Risk Management Module already supports Johnson's risk management policies, processes, and reporting requirements. The tool provides enhanced capability to thoroughly track risks within Johnson organizations and Center. Other Center organizations are considering the same consolidation strategy upon the retirement of their existing risk management toolsets.

KENNEDY SPACE CENTER

The Telescience Research and Technology Support (TRATS) team provides expeditionary IT system support to the Exploration Ground Systems (EGS) and Commercial Crew Program (CCP). Expeditionary IT systems operate in extreme environments and terrains, including open water and under-sea. TRATS UAS and tracking imagery contributed to NASA's 2019 Emmy Award for Outstanding Interactive Program for the multimedia coverage

of SpaceX Demonstration Mission 1. The team also deployed expeditionary IT and UAS for imagery during the EGS/Orion Underway Recovery Tests. Additionally, the team provided helicopter-mounted high-resolution aerial imagery, video streaming, and data recording during the Orion Launch Abort System Ascent Abort Test 2 in July 2019. TRATS flew UAS and broadcast live footage in support of ten SpaceX launches as well as covering the Orion, CCP/Boeing and CCP/SpaceX parachute drop tests, open water tests offshore from Port Canaveral, and the SpaceX Demonstration Mission 1 landing with deployments on the SpaceX Go Navigator ship.

The Center's IT & Communication Services team upgraded Launch Control Center Firing Rooms 1 & 2, Mobile Launcher, and Pad B's communications systems, paging and area warning systems, high speed and still imagery, operations television, live video and recording, operational intercommunication system, timing and countdown, and cable systems to support EGS work at Kennedy. This multi-year effort required the IT & Communications team to embed with EGS, working closely to accomplish the aggressive schedule and milestones. The team is also preparing the Integrated Communications and Network system, a deep space network communications capability. The effort includes validation of the Kennedy Uplink Station and mission network operations from Kennedy to Johnson Mission Control, Marshall Huntsville Operations Support Center, and Goddard Deep Space Network.



Radiation detection experiments conducted by scientific balloon.

LANGLEY RESEARCH CENTER

Langley established a Customer Relationship Management (CRM) Team to serve as trusted IT advisors for Langley organizations and facilitate communication between the customer and OCIO. The CRM Team matches customer requirements with optimal enterprise and Center IT solutions, helps resolve customer issues with IT services, and responds to customer inquiries. In addition, they are modernizing the look and feel of the Langley OCIO web presence to ensure usability and a positive customer experience.

Langley is serving as NASA's pilot Center for the early deployment of Software Defined Networks (SDN) in support of the agency's goal of implementing a "Zero Trust" network (verifying the trustworthiness of a device before granting access to a network). This will help prevent unauthorized access, contain breaches, and reduce the risk of an attacker's movement through a network. The implementation of SDN at Langley allows for granular security controls, the opportunity to automatically deploy more types of data networks, and will significantly improve the security posture of Langley's networks. SDN has been implemented and operates in three representative buildings, preventing unauthorized systems from connecting to networks within those facilities.

MARSHALL SPACE FLIGHT CENTER

The Agency Applications Office (AAO) reduced the number of applications at Marshall by retiring, consolidating, and migrating multiple applications, which lowered operational support requirements and costs. The migration of existing applications to newer platforms resulted in a heightened security posture with enhanced support and allowed for the decommissioning of older platforms. A total of seven applications were retired and six applications were migrated and consolidated into other platforms.

Marshall's Risk Management Team within the IT Security Office performed independent cybersecurity risk assessments on a number of system security plans and hundreds of firewall requests. All IT systems are assessed annually, per National Institute of Standards and Technology guidelines, and there are nearly two hundred IT systems in the Center's inventory. In FY 2019, there was an increased emphasis on unaddressed vulnerabilities and these vulnerabilities were escalated to the Center Information Security Officer for remediation. There have been significant improvements in reducing the number of system vulnerabilities at Marshall.

NASA HEADQUARTERS

NASA Headquarters Information Technology and Communications Division (ITCD) expanded its Managed Cloud Environment to offer infrastructure, platform, software, and application hosting cloud services to other NASA Centers, programs, and organizations, supporting the adoption of cloud computing across NASA. ITCD also developed an anti-harassment application for the NASA Office of Diversity and Equal Opportunity. Improving upon a cumbersome and unreliable tool, the new ServiceNow-based cloud solution has a user-friendly interface, 24x7 uptime, automated e-filing and assignment workflow, and convenient reporting tools.

Other significant achievements in 2019 included the programming and deployment of virtual reality viewers and tablet controllers, later used for "Take Your Child to Work Day" and Apollo 50 celebrations held on the National Mall in Washington, DC; wireless and cellular infrastructure upgrades; and installation of high-tech video and audio for streaming and broadcasting from the White House to NASA Headquarters.

STENNIS SPACE CENTER

The Stennis Data Center (SDC) provides a number of services to the Stennis Engineering & Test Directorate which contribute directly to mission success. Nearly all engine test video and data created during propulsion testing is stored in the SDC's secure applications, databases, or encrypted file shares. The SDC also provides video streaming services during propulsion tests or special events, such as the Pathfinder installation. Data integrity, confidentiality, and availability are safeguarded by implementing secure applications, encryption, and secure authentication mechanisms.

The Design and Data Management System (DDMS) support team maintains and enhances the DDMS application at the core of the Stennis' Product and Data Lifecycle Management program. DDMS supports mission activities in a variety of ways, including the storage, access control, and configuration management of all test facility drawings, models, test data, component data, and other engineering documentation. The recent incorporation of advanced software development techniques resulted in the WalkDown and PSKetcher applications, which allow engineers to easily access, review, and update key data from a mobile device in the field. These innovative applications provided mission customers time and the possibility of cost savings.

Atacama Rover Astrobiology Drilling Studies rover
prototype practices researching on Mars.

— Aspirational Statement —

Enable NASA's mission success through a new operating model to simplify IT management and strengthen IT service delivery to our partners and our customers.

NASA's CIO MAP Project

The Mission Support Future Architecture Program (MAP) is NASA's phased plan to evaluate and realign the mission support structure to maintain mission focus, improve efficiency, and ensure local authority, while valuing the NASA workforce. This plan was approved by the Executive Council on May 10, 2017 and each branch of the mission support services will complete individual MAP projects.

Why MAP?

- ▶ More directly enable NASA to achieve mission success
- ▶ Improve and set high standards for the customer experience
- ▶ Optimize available resources (funding, time, and people)
- ▶ Deliver services that are consistently excellent
- ▶ Provide transparency through clear, relevant, and data-driven metrics
- ▶ Integrate Center and Agency IT strategy and service delivery
- ▶ Ensure that OCIO is an organization where our people grow, learn, and thrive

Approval to implement project decisions is expected in December 2020.

ON THE HORIZON

Goal	2020 Planned Milestones*	Benefits
Excellence	Simplify ordering for IT services and automate management and protection of user devices	Improve end user experience with NASA's IT services and devices
	Modernize and integrate collaboration capabilities	Make it even easier to get work done using new collaboration tools
Data	Enable complex analysis, research, and discovery across cloud platforms using artificial intelligence	Increase the ability to securely access, discover, share, and understand NASA's data to drive mission outcomes
	Mature NASA's data governance	Effectively drive priorities to manage and use the Agency's data as a strategic asset
Cybersecurity	Automate scanning of files for sensitive data, tagging files as necessary to facilitate handling	Increase the security of NASA's data with reduced end user effort
	Provide mission and business owners with the cybersecurity risk profile for their assets	Use risk-based priorities to allocate resources for cybersecurity risk reduction
Value	Streamline the IT acquisition experience for software	Enable customers to focus on functional software requirements with single entry point for acquisition that capitalizes on cost saving opportunities
	Scale task automation as an Agencywide service	Increase efficiency and quality of back-office processes through the use of advanced technology
People	Implement a more effective and efficient IT operating model and enterprise architecture	Simplify IT management and strengthen IT service delivery to our partners and our customers
	Align NASA's IT workforce strategy with the Agency's enterprise mission support model	Strengthen employee roles and competencies in alignment with Agency priorities
<p><i>* Milestones depend on planned funding levels for fiscal year 2020. Reduced funding could postpone achievement of part or all of an impacted milestone and its benefits.</i></p>		

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