NASA's Marshall Space Flight Center Transforms Governance and Operations Models to Meet 21st-Century Goals

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Robin Henderson
Associate Center Director
Marshall Space Flight Center
Huntsville, Alabama

By capturing the world's imagination with its moon landings, space shuttle walks, and exploration of Mars, the National Aeronautics and Space Administration (NASA) is one of the most fascinating federal agencies in the United States. NASA has grown considerably since Congress created it in 1958, and while growth is good, it can have its challenges: overlapping organizational layers, diverse core competencies, duplication and dilution of efforts, and an evolving workforce are just some issues that many organizations confront as they expand.

But NASA faced more than the typical challenges generated by a public sector organization's steady growth over several decades. For example, Congress recently demanded that NASA and all federal agencies become more market-driven, performance-based, and results-oriented; the Columbia disaster put a renewed focus on safety; and President Bush's new Vision for Space Exploration called for unprecedented transformation within NASA.

FACING UNPRECEDENTED CHANGES

"NASA has experienced significant change," says Robin Henderson, associate center director at Marshall Space Flight Center in Huntsville, Alabama. "And that means change for all Centers. At Marshall, we approached this change with a fresh perspective. We sought to learn and adopt industry best practices, align ourselves and processes with our business objectives, improve our efficiency, and understand how transformations are successfully implemented."

CISCO SYSTEMS

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Internet Business Solutions Group

The Cisco® Internet Business Solutions Group (IBSG) served as a consultant to Marshall on some of this evaluation. IBSG brought to the table proven best practices developed over a 10-year span—both from its own company and through its collaboration with the Global 1000 companies.

Showcasing innovative and proven business practices that have enabled Cisco to gain US$2.2 billion annually in efficiencies, IBSG began working with Marshall in 2004. One of 10 NASA centers, Marshall is at the heart of NASA's undertaking to extend human presence across the solar system. To this end, the Center is essential to developing innovative technologies, knowledge, and infrastructure for exploration and for enabling decisions about future space destinations. Marshall has historic expertise in rocket propulsion, and the Center's scientific expertise directly supports NASA's mission to study the universe and our Earth system from space and develop new space-based and related capabilities for this purpose. Marshall manages the key propulsion systems (solid rocket motors and boosters, main engines, and external tanks) of the space shuttle, and is currently designing the next generation of space transportation and propulsion systems, including the Ares I launch vehicle and Ares V cargo launch vehicle, to lead our country back to the moon.

ALIGNING THE ORGANIZATION TO DRIVE STRATEGY AND PRODUCTIVITY

One of the first challenges Marshall addressed was aligning the Center's business objectives, success measurements, and organizational processes through the Center's governance model. "We needed to improve the integration of our business functions," continues Henderson. In response, Marshall and IBSG developed a roadmap that included project conceptualization, visioning exercises and workshops, best-practices sharing and benchmarking to drive transformation, and developing a 90-day plan and launch materials.

Marshall benchmarked practices from Cisco's own Business Process Operations Council, an internal governance council that Cisco created years ago to deal with its misalignment, stovepipes, and other governance issues that were similar to the challenges Marshall was facing. The end result is that Marshall realigned and streamlined its various councils, boards, and committees with much clearer structure and scope, significantly improving its efficiency, while helping to set a foundation for accomplishing its business objectives.

At the top level, the Center's three new governing councils consist of the Strategic Management Council, which focuses on strategy, goals, and value measures; the Program Management Council, which oversees mission and programs performance and safety; and the Integrated Management Systems Board, which manages the Center's institutional assets that support mission functions, including human capital, IT, finance, and other support functions.

One example of the efficiencies this realignment produced is in the area of strategic planning and its integration throughout Center processes. Before, strategic planning activities were performed in many organizations, but they were not performed at the level desired, nor were they appropriately connected nor integrated. In addition, budget allocations, priorities, and resources were not always delivering the impact desired. Now with a much stronger strategic planning framework, the alignment of strategic activities—both at the Center and within the organizations—and the revectoring of budget allocations to deliver impact, all stakeholders have a clearer understanding of the Center's goals, strategies, and success measures.

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$1.05 MILLION IN ANNUAL OPERATIONAL COSTS AVOIDED

Another result of Marshall's new strategic planning framework was the consolidation of four of its 24-hour operations centers, which produced a dramatic increase in efficiency and a decrease in overhead. The NASA Information Service Center, NASA Data Center (NDC), NASA Wide Area Network Center, and NASA Security Operations Center grew over time as separate entities. "When we analyzed the processes at each of the operations centers," says Charles Chitwood, deputy center director, Marshall Space Flight Center, "we found many opportunities to integrate services and increase efficiencies." For example, if technicians at NDC had more issues than they could handle, they might call on expensive outside contractors to help out even though technicians with the appropriate skills were available at one of the other three operations centers.

"By focusing on strategic benefits, we were able to implement activities like our grassroots-initiated Lean Six Sigma continual improvement program," continues Chitwood, "which consolidated operations at the four centers into one 24-hour facility. The result is that we trimmed idle capacity and overproduction, eliminated redundancies, and avoided $1.05 million in costs each year. It's all part of our mission to provide the best products and services in the most efficient manner possible."

KNOWING THE SCORE

Clearer accountability, measurement of outcomes, and data-based decision making are high priorities in any organization, and Marshall is no exception. To drive alignment up and down the organization, a scorecard was developed to clearly describe the goals and their forecasted measurable outcomes (FMOs). This tool was implemented in a simplified and hierarchical way to measure and manage progress against goals at the various levels of the organization, quantify the results, and promote business case-based decision making. The Office of Human Capital (OHC) became the lead implementer, using the scorecard to evaluate its first-line-manager level. Not only did the team and senior management reach agreement on the top human capital issues that are strategic to the Center, but they achieved almost immediate results in key process areas. One FMO established by OHC was to reduce the average processing time, which was 210 days, of Senior Executive Service vacancy actions by 50 percent. To date, that number has been lowered to 84.5 days, a reduction of approximately 60 percent. In addition, the Center has estimated approximately $1.7 million in cost avoidance and saved 31,600 Center productivity hours and 27,300 OHC productivity hours since implementing its plans.

DRIVING WORKFORCE PRODUCTIVITY

Marshall is also dealing with a highly specialized workforce that has a diverse and evolving portfolio of missions. Over a lifecycle measured in multiple years, missions require varying levels of staff based on the stage of the mission. Marshall must continually balance its current staffing with its program/project portfolio, so learning how to effectively use its workforce has become a top priority, particularly while facing the pending retirement of key personnel.

Cisco's knowledge, benchmarking, and best practices helped Marshall implement a transformation model for strategic planning, governance, and operations, all of which drove alignment, increased accountability, and improved measurable outcomes.

MORE INFORMATION

The Cisco Internet Business Solutions Group (IBSG), the global strategic consulting arm of Cisco, helps Global Fortune 500 companies and public organizations transform the way they do business—first designing innovative business processes and then by integrating advanced technologies into visionary roadmaps that improve customer experience and revenue growth.

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