

Agency Goals

JSC Strategic Implementation Plan

Goal #1



Goal #2



Goal #3



Goal #4



JSC Technology Strategy

Goal #1



Goal #2



Goal #3



Goal #4



Human Exploration

Partnerships

Infrastructure

Relevance

JSC Technology Strategy



Goal #1: Develop the Human Exploration Capabilities of Tomorrow

Strategy 1.1 *Lead technology maturation efforts for human exploration*

Success factors

- Mature technology to quantitatively decrease the cost or risk, or increase the performance, of future human space missions.
- Advance the technologies needed to enable human exploration beyond LEO.
- Leverage the ISS as a platform for exploration technology development and validation.
- Expand JSC's leadership as the integrator of large scale developments:
 - Demonstrate the viability of architectural concepts and advanced developments through integrated testing and evaluation, and multi-system integration into ground analogs and in-space test beds.
 - Incorporate component and subsystem technologies developed outside of JSC to test and evaluate application to human exploration challenges.
- Maintain a pipeline of candidate technologies that need integrated (multi-system) ground or flight platforms to mature.

Strategy 1.2 *Extend technology leadership in priority areas*

Success factors

- Maintain pre-eminence in JSC's core human exploration technology competency areas:
 - Human health and performance, life support, habitation systems, EVA technologies, robotics and autonomous systems.
 - Develop technology maturation roadmaps to diagram fulfillment of a future human exploration mission capability need at the level of detail to identify execution and funding gaps.
- Declare the strategic technology areas that JSC must develop expertise, influence, and competency to ensure the success of future human spaceflight missions.
 - Identify additional areas that JSC can be a leader or principal developer.
 - Nurture growth of expertise; apply resources to achieve leadership in identified areas.



Strategy 2.1 Promote effective collaborative technology development activities among NASA, industry, academia, and international partners

Success factors

- Pursue an alliance strategy that assures timely state of art advancements for human exploration
- Establish relationships to expand and develop technology roadmap capabilities
- Establish necessary instruments for technology development collaborations (e.g., technology working groups)

Strategy 2.2 Encourage International Partnerships to establish technology collaborations that further human space exploration while optimizing resource expenditure

Success factors

- Engage greater knowledge and skills: Leverage JSC's ISS experience to enhance existing relationships and develop new partnerships that maximize the utility of the ISS as an exploration technology test bed
- Seek relationships to expand technology roadmap capabilities and evaluate (e.g., via flight experiments and ground analog activities) mission architectural concepts and elements



Strategy 3.1 Provide Center Technology Leadership

Success factors

- Communicate NASA and JSC technology vision
- Articulate Center technology needs and challenges
- Lead and integrate both Center-wide and across NASA

Strategy 3.2 Manage the transition from vision to action

Success factors

- Champion technology infrastructure and initiatives
- Facilitate relationships.
- Develop a balanced needs-driven technology portfolio
- Chart novel infusion paths.

Strategy 3.3 Promote culture of innovation

Success factors

- Engage all the entire Center in technology/innovation with fairs and symposia
- Expose the workforce to new ideas, approaches and perspectives with creative assignments
- Promote innovation facilities, techniques, and creative spaces
- Ignite the creative ability in each of us via focused training and immersion experiences within other cultures



Goal #4: Communicate Relevance of Technology Outcomes to Life on Earth

Strategy 4.1 Facilitate technology development partnerships that address dual use applications supporting both NASA and national needs

Success factors

- Facilitate joint developments and leverage unique R&D facilities
- Utilize Technology Transfer mechanisms to maximize societal and US economic benefits of JSC's Research and Technology Development Results
- Build a network of commercial and academic partners to promote information & expertise exchange.

Strategy 4.2 Inspire the next generation

Success factors

- Increase student and public participation in technology development activities
- Use resources to encourage and enhance student investment in STEM education
- Communicate the desire to expand space as our next economic frontier and develop technologies that support its industrialization to provide opportunities for next generation STEM workers and the public
- Engage the public, stakeholders, and media to participate in our missions by increasing access to accomplishments and activities

Strategy 4.3 Convey relevance of JSC technology activities to stakeholders

Success factors

- Emphasize dual-use and environmentally-friendly technologies in our portfolio
- Demonstrate and communicate relevance of technology development activities to society
- Ensure communication activities support all four goals of JSC's Strategic Implementation Plan and the four corresponding goals of JSC's Technology Strategy
- Leverage and equip the JSC workforce to serve as ambassadors communicating JSC's core messages.

Back-up Slides



JSC Strategic Implementation Plan

Goal #1: Lead Human Exploration



Strategy 1.1 *Exploit the ISS as a cornerstone of human exploration*

Success Factors:

- Ensure utilization of ISS as a premier scientific research laboratory
- Promote ISS as an exploration technology development test bed
- Safely operate ISS through at least 2020 as a cornerstone of LEO operations

Strategy 1.2 *Enable the commercialization of LEO*

Success Factors:

- Enable the success of commercial partners by providing technical expertise, ISS domain knowledge, facility usage, and serving as a key customer for services
- Support the development of additional commercial opportunities in space such as satellite servicing, orbital debris removal, expanded access, and R&D platforms

Strategy 1.3 *Extend human exploration beyond LEO*

Success Factors:

- Lead development of space exploration systems and vehicles by applying our unique capabilities
- Expand and apply mission planning and operation expertise beyond LEO
- Understand and mitigate human health and performance risks to enable extended exploration beyond LEO
- Lead maturation of human exploration technologies
- Support development of human rated launch systems
- Develop knowledge of exploration destinations to enable future missions of discovery

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JSC Strategic Implementation Plan

Goal #2: Lead Internationally



Strategy 2.1 *Leverage ISS experience to lead international community participation in human space exploration*

Success Factors:

- Expand existing relationships to formulate exploration concepts
- Promote international utilization of ISS as an exploration technology test bed

Strategy 2.2 *Guide development of Agency Global Exploration Roadmap*

Success Factors:

- Apply unique JSC international experience to Agency global exploration roadmap effort
- Lead definition of key interfaces and protocols
- Define key architecture concepts and elements

Strategy 2.3 *Champion international participation in development of exploration capabilities*

Success Factors:

- Pursue international collaborations on exploration technologies development
- Pursue mutually beneficial international contributions to exploration mission

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JSC Strategic Implementation Plan



Goal #3: Excel in Leadership, Management, and Innovation

Strategy 3.1 *Lead through innovative technical and business management practices*

Success Factors:

- Aggressively pursue innovative technical and business approaches that drive affordability, sustainability, and accountability
- Develop a customer-focused approach, streamlining policies, processes, and requirements such as agreements, pricing, and intellectual property to meet internal/external stakeholder needs
- Promote the development of business acumen and situational awareness
- Develop and implement an investment plan that provides critical capabilities while reducing infrastructure costs and meeting green technology goals
- Emphasize life-cycle affordability and risk-informed decision processes in Program / Project management

Strategy 3.2 *Lead by fully engaging the human spaceflight team*

Success Factors:

- Attract creative and talented individuals by creating an environment that is open minded and values different perspectives
- Retain and cultivate critical skills that align with goals and business practices
- Partner with other NASA centers, government, academia, industry and international community to achieve human spaceflight goals

JSC Strategic Implementation Plan



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JSC Strategic Implementation Plan

Goal #4: Expand Relevance to Life on Earth



Strategy 4.1 Intertwine JSC in mutually beneficial partnerships to maximize economic and societal impact

Success Factors:

- Expand collaborative development with other centers, agencies, industries, international partners, and academia, particularly in the areas of Aerospace, Medicine, Energy, and Transportation
- Maximize technology transfer to, and technology solutions from, commercial applications for economic benefit
- Collaborate with academia and research institutions and utilize open sources for development of multi-use technologies, and promote two-way exchange of knowledge
- Engage intermediaries to enable utilization of facilities and expertise, and foster collaborative development with external entities

Strategy 4.2 Inform, educate and engage all generations to advance human space exploration

Success Factors:

- Engage the public, stakeholders, and media to participate in our missions by increasing access to accomplishments and activities
- Deliver compelling information, programs, and activities for students and teachers that promote STEM education
- Target products and outreach efforts in ways that reach key audiences and stakeholders such as using social media and other advanced bi-lateral information technology

Strategy 4.3 Strategically communicate JSC's relevance in terms meaningful to our stakeholders

Success Factors:

- Develop a compelling narrative of JSC's relevance in economic and societal terms
- Enable all JSC team members to be ambassadors communicating JSC messages
- Ensure communication activities support all four JSC goals

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