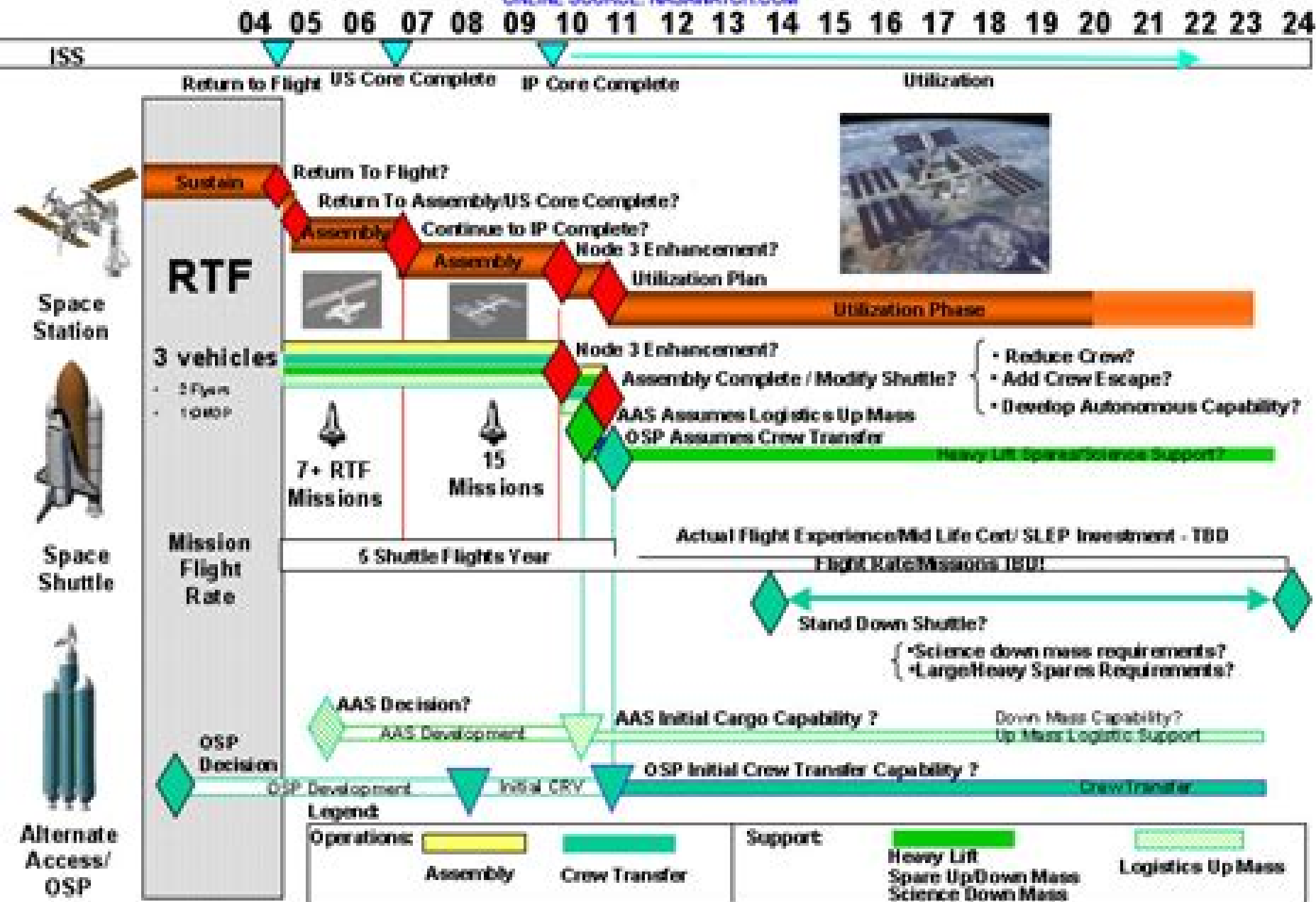


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The Space Shuttle Decision

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The Space Shuttle Decision:

The Space Shuttle Decision T. A. Heppenheimer, 1999 **The Space Shuttle Decision** T. A.

HEPPENHEIMER, 2009-11-18 This significant new study of the decision to build the Space Shuttle explains the Shuttle's origins and early development. In addition to internal NASA discussions, this work details the debates in the late 1960s and early 1970s among policymakers in Congress, the Air Force, and the Office of Management and Budget over the roles and technical designs of the Shuttle. Examining the interplay of these organizations with sometimes conflicting goals, the author not only explains how the world's premier space launch vehicle came into being but also how politics can interact with science, technology, national security, and economics in national government. The weighty policy decision to build the Shuttle represents the first component of the broader story. Future NASA volumes will cover the Shuttle's development and operational histories. *The Space Shuttle Decision* National Aeronautics and Space Administration, T. A.

Heppenheimer, 2013-08 *The Space Shuttle Decision* NASA's search for a reusable space vehicle. National Aeronautics and Space Administration. T. A. Heppenheimer. Before anyone could speak seriously of a space shuttle, there had to be a widespread awareness that such a craft would be useful and perhaps even worth building. A shuttle would necessarily find its role within an ambitious space program, and while science fiction writers had been prophesying such wonders since the days of Jules Verne, it was another matter to present such predictions in ways that smacked of realism. After World War II, however, the time became ripe. Everyone knew of the dramatic progress in aviation, which had advanced from biplanes to jet planes in less than a quarter century. Everyone also recalled the sudden and stunning advent of the atomic bomb. Rocketry had brought further surprises as the Germans bombarded London with long-range V-2 missiles late in the war. Then in 1952 a group of specialists brought space flight clearly into public view. The concept of a space station took root during the 1920s in an earlier era of technical change that focused on engines. As recently as 1885 the only important prime mover had been the reciprocating steam engine. The advent of the steam turbine yielded dramatic increases in the speed and power of both warships and ocean liners. Internal combustion engines powered by gasoline led to automobiles, trucks, airships, and airplanes. Submarines powered by diesel engines showed their effectiveness during World War I. After that war, two original thinkers envisioned that another new engine, the liquid fuel rocket, would permit aviation to advance beyond the Earth's atmosphere and allow the exploration and use of outer space. These inventors were Robert Goddard, a physicist at Clark University in Worcester, Massachusetts, and Hermann Oberth, a teacher of mathematics in a gymnasium in a German-speaking community in Romania. Goddard experimented much, wrote little, and was known primarily for his substantial number of patents. Oberth contented himself with mathematical studies and writings. His 1923 book *Die Rakete zu den Planetenräumen* (The Rocket into Interplanetary Space) laid much of the foundation for the field of astronautics. **The Space Shuttle Decision** National Aeronautics and Space Administration (NASA), World Spaceflight News (WSN), U. S. Government, 2017-10-23 This NASA

report presents a fascinating history of the decision to proceed with the Space Shuttle program

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Chapter 9 Nixon's Decision Nixon and Technology Space Shuttle The Last Moves The Hinge of Decision Loose Ends I A Final Configuration Loose Ends II NERVA and Cape Canaveral Awarding the Contracts

The Space Shuttle took shape and won support and criticism as part of NASA's search for a post Apollo future. As with the Army and Navy in World War II, NASA had grown rapidly during the 1960s. Similarly, just as those military services saw a sharp falloff in funding in the wake of victory, the success of the piloted Moon landings brought insistent demands that NASA should shrink considerably. In facing those demands and in overcoming them to a degree, NASA established itself as a permanent player in Washington. During 1969, with Nixon newly elected and the first astronauts setting foot on the Moon, NASA Administrator Thomas Paine led a push for a future in space that promised to be expansive. He aimed at nothing less than a piloted expedition to Mars propelled by nuclear rocket engines that were already in development. En route to Mars, he expected to build space stations and large space bases. Almost as an afterthought, he expected to build a space shuttle as well to provide low cost flight to these orbiting facilities. Soon after Neil Armstrong made his one small step in the lunar Sea of Tranquility, Paine received a cold bath in the Sea of Reality. Nixon's budget director Robert Mayo chopped a billion dollars from Paine's request. This brought an end to NASA's hopes for a space base and for flight to Mars. It appeared possible, however, to proceed with the space station and the shuttle as a joint project. The shuttle drew particular interest within the Air Force, which saw it as a means to accomplish low cost launches of reconnaissance.

satellites and other military spacecraft The Space Shuttle Decision National Aeronautics and Space Administration, T. A. Heppenheimer, 2013-11 The Space Shuttle took shape and won support and criticism as part of NASA's search for a post Apollo future NASA had grown rapidly during the 1960s and the success of the piloted moon landings brought insistent demands that NASA should shrink considerably In facing those demands and in overcoming them to a degree NASA extended our manned presence in space Before anyone could speak seriously of a space shuttle there had to be a widespread awareness that such a craft would be useful and perhaps even worth building A shuttle would necessarily find its role within an ambitious space program and while science fiction writers had been prophesying such wonders since the days of Jules Verne it was another matter to present such predictions in ways that smacked of realism This book portrays NASA's search for continued manned space exploration after the success of Apollo During 1969 with Nixon newly elected and the first astronauts setting foot on the Moon NASA Administrator Thomas Paine led a push for a future in space that promised to be expansive He aimed at nothing less than a piloted expedition to Mars propelled by nuclear rocket engines that were already in development En route to Mars he expected to build space stations and large space bases Almost as an afterthought he expected to build a space shuttle as well to provide low cost flight to these orbiting facilities Soon after Neil Armstrong made his one small step in the lunar Sea of Tranquillity Paine received a cold bath in the Sea of Reality Nixon's budget director Robert Mayo chopped a billion dollars from Paine's request This brought an end to NASA's hopes for a space base and for flight to Mars It appeared possible however to proceed with the space station and the Shuttle as a joint project The Shuttle drew particular interest within the Air Force which saw it as a means to accomplish low cost launches of reconnaissance satellites and other military spacecraft Congress however was deeply skeptical toward the proposed shuttle station as both the House and Senate came close to killing it in 1970 NASA responded to this near death experience by placing the station on the shelf and bringing the Shuttle to the forefront Its officials needed political support that could win over doubters in Congress and they found this support within the Department of Defense The Air Force now found itself in a most unusual position Its generals had worked through the 1960s to pursue programs that could put military astronauts in space These programs had faltered Yet here was NASA offering the Pentagon a piloted space shuttle The Air Force gave its political support to the Shuttle and NASA went on to quell the opposition on Capitol Hill The OMB was a tougher opponent These critics forced NASA to abandon plans for a shuttle with two fully reusable liquid fueled stages and to set out on a search for a shuttle design that would cost half as much to develop Budget officials demanded a design that would be smaller and less costly even though such a shuttle would have significantly less capability than the Air Force wanted By shrinking the Shuttle however NASA won support where it counted Caspar Weinberger the OMB's deputy director gave his endorsement late in 1971 Nixon also decided that the nation should have a shuttle On the eve of decision the key player proved to be OMB Director George Shultz He decided that since the shuttle was to serve the entire nation it should have the full capability for

which NASA hoped and the Air Force demanded Shultz's decision reinforced Nixon's putting an end to the OMB's continuing demands to downsize the design. The consequence was the Space Shuttle as we know it today. [History of the Space Shuttle: The space shuttle decision, 1965-1972](#) T. A. Heppenheimer, 2002 **The Space Shuttle Decision, Etc., NASA SP-4221, 1999**, 1999* *Exploring the Unknown: Selected Documents in the History of the U.S. Civil Space Program*, 1999 **Exploring the Unknown**, 1995 *Space Policy in the Twenty-First Century* W. Henry Lambright, 2003 Though more than forty years old the space age has just begun and questions about its future abound. What will replace the Space Shuttle? Will the International Space Station justify its 100 billion potential cost? Are asteroids real threats to Earth or just the subject of science fiction movies? Will humans land on Mars? Will the search for extraterrestrial life be rewarded? In *Space Policy in the Twenty-First Century* W. Henry Lambright brings together ten top ranking observers of United States space exploration to address these and other issues relating to the future of the space program. While the U.S. no longer competes with the Soviets for technological firsts they argue ideology and national image remain at the core of space policy with other factors playing subordinate roles. Reminding readers of the historical highlights the authors pose searching questions about the priorities and applications of space science: manned vs unmanned flights and commercial access to the space enterprise. Contributors include Christopher F. Chyba, SETI Institute and Stanford University; Ronald J. Deibert, University of Toronto; Daniel H. Deudney, Johns Hopkins University; W. Henry Lambright, Syracuse University; Roger D. Launius, NASA; Karl A. Leib, Syracuse University; John M. Logsdon, George Washington University; Howard E. McCurdy, American University; Scott N. Pace, White House Office of Science and Technology Policy; and Debora L. VanNijnatten, Wilfrid Laurier University. [Exploring the Unknown](#) John M. Logsdon, 1995 [Challenger](#) Adam Higginbotham, 2024-05-14 From the New York Times bestselling author of *Midnight in Chernobyl* comes the dramatic minute by minute story of the Challenger disaster based on new archival research and in depth reporting a riveting history that reads like a thriller [1973 NASA Authorization, Hearings Before ...](#) United States. Congress. House. Science and Astronautics, 1972 **Hearings** United States. Congress. House. Committee on Science and Astronautics, 1972 [Encyclopedia of Decision Making and Decision Support Technologies](#) Adam, Frederic, Humphreys, Patrick, 2008-04-30 As effective organizational decision making is a major factor in a company's success a comprehensive account of current available research on the core concepts of the decision support agenda is in high demand by academicians and professionals. Through 110 authoritative contributions by over 160 of the world's leading experts the *Encyclopedia of Decision Making and Decision Support Technologies* presents a critical mass of research on the most up to date research on human and computer support of managerial decision making including discussion on support of operational tactical and strategic decisions, human vs computer system support, structure, individual and group decision making and multi criteria decision making **Forging China's Military Might** Tai Ming Cheung, 2014-02-24 Case studies look in detail at the Chinese space and missile industry *Spies and Shuttles* James E. David, 2015-01-27 Revealing the

connections between NASA and the United States defense community In this real life spy saga James E David reveals the extensive and largely hidden interactions between NASA and U S defense and intelligence departments The story begins with the establishment of NASA in 1958 and follows the agency through its growth not only in scope but also in complexity In Spies and Shuttles David digs through newly declassified documents to ultimately reveal how NASA became a strange bedfellow to the Department of Defense DoD and the Central Intelligence Agency CIA He tracks NASA s early cooperation supplying cover stories for covert missions analyzing the Soviet space program providing weather and other scientific data from its satellites and monitoring missile tests that eventually devolved into NASA s reliance on DoD for political and financial support for the Shuttle David also examines the restrictions imposed on such activities as photographing the Earth from space and the intrusive review mechanisms to ensure compliance The ties between NASA and the intelligence community have historically remained unexplored and David s riveting book is the first to investigate the twists and turns of this labyrinthine relationship

Research and development United States. Congress. Senate. Committee on Armed Services,1973 *Fiscal Year 1974 Authorization for Military Procurement, Research and Development, Construction Authorization for the Safeguard ABM, and Active Duty and Selected Reserve Strengths: Research and development* United States. Congress. Senate. Committee on Armed Services,1973 *Fiscal Year 1974 Authorization for Military Procurement ,research and Developement, Construction Authorization for the Safeguard ABM, and Active Duty and Selected Reserve Strengths, Hearings Before ...*, 93-1, March 28, 29; April 2, 10, 12, 13, 17, 26, 30; May 1, 1973 United States. Congress. Senate. Armed Services,1973

The Space Shuttle Decision Book Review: Unveiling the Magic of Language

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