

The Decision to Go to the Moon

HONR 269i

To the Moon and Back: The Apollo Program

[Eisenhower's Farewell Address](#)

Dramatis Personae

- Nikita S. Khrushchev, First Secretary of the Communist Party (USSR)
- John F. (“Jack”) Kennedy, President
- Lyndon B. Johnson (“LBJ”), Vice President
- James E. (“Jim”) Webb, NASA Administrator
- Robert S. (“Bob”) McNamara, Secretary of Defense
- Theodore C. (“Ted”) Sorenson, Special Counsel to the President
- Jerome B. (“Jerry”) Wiesner, Science Advisor
- Robert S. Kerr, Senator
- George M. Low, NASA Chief of Manned Space Flight
- David E. Bell, Budget Director

Chronology

- [4th Kennedy-Nixon Debate](#) (October 21, 1960)
- Kennedy elected (November 8, 1960)
 - NASA: Low Committee formed (January 5, 1961)
- [Inaugural address](#) (January 20, 1961)
 - NASA: Webb starts as Administrator (February 14, 1961)
- **First Soviet manned orbital flight (April 12, 1961)**
- **Bay of Pigs invasion (April 17, 1961)**
 - NASA: Fleming Committee formed (May 2, 1961)
- [Joint session of Congress](#) (May 25, 1961)
- **Vienna Summit with Khrushchev (June 4, 1961)**
- \$1.8 Billion authorized for NASA (July 21, 1961)

April 20, 1961

MEMORANDUM FOR

VICE PRESIDENT

In accordance with our conversation I would like for you as Chairman of the Space Council to be in charge of making an overall survey of where we stand in space.

1. Do we have a chance of beating the Soviets by putting a laboratory in space, or by a trip around the moon, or by a rocket to land on the moon, or by a rocket to go to the moon and back with a man. Is there any other space program which promises dramatic results in which we could win?
2. How much additional would it cost?
3. Are we working 24 hours a day on existing programs. If not, why not? If not, will you make recommendations to me as to how work can be speeded up.
4. In building large boosters should we put out emphasis on nuclear, chemical or liquid fuel, or a combination of these three?
5. Are we making maximum effort? Are we achieving necessary results?

I have asked Jim Webb, Dr. Weisner, Secretary McNamara and other responsible officials to cooperate with you fully. I would appreciate a report on this at the earliest possible moment.


OFFICE OF THE VICE PRESIDENT
WASHINGTON, D. C.

April 28, 1961

MEMORANDUM FOR THE PRESIDENT

Subject: Evaluation of Space Program.

Reference is to your April 20 memorandum asking certain questions regarding this country's space program.

A detailed survey has not been completed in this time period. The examination will continue. However, what we have obtained so far from knowledgeable and responsible persons makes this summary reply possible.

Among those who have participated in our deliberations have been the Secretary and Deputy Secretary of Defense; General Schriever (AF); Admiral Hayward (Navy); Dr. von Braun (NASA); the Administrator, Deputy Administrator, and other top officials of NASA; the Special Assistant to the President on Science and Technology; representatives of the Director of the Bureau of the Budget; and three outstanding non-Government citizens of the general public: Mr. George Brown (Brown & Root, Houston, Texas); Mr. Donald Cook (American Electric Power Service, New York, N. Y.); and Mr. Frank Stanton (Columbia Broadcasting System, New York, N. Y.).

The following general conclusions can be reported:

- a. Largely due to their concentrated efforts and their earlier emphasis upon the development of large rocket engines, the Soviets are ahead of the United States in world prestige attained through impressive technological accomplishments in space.
- b. The U. S. has greater resources than the USSR for attaining space leadership but has failed to make the necessary hard decisions and to marshal those resources to achieve such leadership.

DECLASSIFIED
 DOD 11/25/74; NASA 7/19/74; NY AL
 E.O. 11652, Sec. 3(E) and 5(D) or (E)
 By MFD NARS, Date 3/11/75
 NLK-74-11

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h. The American public should be given the facts as to how we stand in the space race, told of our determination to lead in that race, and advised of the importance of such leadership to our future.

i. More resources and more effort need to be put into our space program as soon as possible. We should move forward with a bold program, while at the same time taking every practical precaution for the safety of the persons actively participating in space flights.

As for the specific questions posed in your memorandum, the following brief answers develop from the studies made during the past few days. These conclusions are subject to expansion and more detailed examination as our survey continues.

Q.1 - Do we have a chance of beating the Soviets by putting a laboratory in space, or by a trip around the moon, or by a rocket to land on the moon, or by a rocket to go to the moon and back with a man. Is there any other space program which promises dramatic results in which we could win?

A.1 - The Soviets now have a rocket capability for putting a multi-manned laboratory into space and have already crash-landed a rocket on the moon. They also have the booster capability of making a soft landing on the moon with a payload of instruments, although we do not know how much preparation they have made for such a project. As for a manned trip around the moon or a safe landing and return by a man to the moon, neither the U. S. nor the USSR has such capability at this time, so far as we know. The Russians have had more experience with large boosters and with flights of dogs and man. Hence they might be conceded a time advantage in circumnavigation of the moon and also in a manned trip to the moon. However, with a strong effort, the United States could conceivably be first in those two accomplishments by 1966 or 1967.

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THE SECRETARY OF DEFENSE
WASHINGTON

Dear Mr. Vice President:

Attached to this letter is a report entitled "Recommendations for Our National Space Program: Changes, Policies, Goals", dated 8 May 1961. This document represents our joint thinking. We recommend that, if you concur with its contents and recommendations, it be transmitted to the President for his information and as a basis for early adoption and implementation of the revised and expanded objectives which it contains.

Very respectfully,

James E. Webb
James E. Webb
Administrator
National Aeronautics and
Space Administration

Robert S. McNamara
Robert S. McNamara
Secretary of Defense

1 Inclosure
Report

The Vice President

United States Senate

This document is downgraded to
Unclassified upon removal of
inclosures and/or attachments.

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II. NATIONAL SPACE POLICY

The recommendations made in the preceding Section imply the existence of national space goals and objectives toward which these and other projects are aimed. Major goals are summarized in Section III. Such goals must be formulated in the context of a national policy with respect to undertakings in space. It is the purpose of this Section to highlight our thinking concerning the direction that such national policy needs to take and to present a backdrop against which more specific goals, objectives and detailed policies should, in our opinion, be formulated.

a. Categories of Space Projects

Projects in space may be undertaken for any one of four principal reasons. They may be aimed at gaining scientific knowledge. Some, in the future, will be of commercial or chiefly civilian value. Several current programs are of potential military value for functions such as reconnaissance and early warning. Finally, some space projects may be undertaken chiefly for reasons of national prestige.

The U. S. is not behind in the first three categories. Scientifically and militarily we are ahead. We consider our potential in the commercial/civilian area to be superior. The Soviets lead in space spectaculars which bestow great prestige. They lead in launch vehicles needed for such missions. These bestow a lead in capabilities which may some day become important from a military point of view. For these reasons it is important that we take steps to insure that the current and future disparity between U. S. and Soviet launch capabilities be removed in an orderly but timely way. Many other factors however, are of equal importance.

b. Space Projects for Prestige

All large scale space projects require the mobilization of resources on a national scale. They require the development and successful application of the most advanced technologies. They call for skillful management, centralized control and unflagging pursuit of long range

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goals. Dramatic achievements in space, therefore, symbolize the technological power and organizing capacity of a nation.

It is for reasons such as these that major achievements in space contribute to national prestige. Major successes, such as orbiting a man as the Soviets have just done, lend national prestige even though the scientific, commercial or military value of the undertaking may by ordinary standards be marginal or economically unjustified.

This nation needs to make a positive decision to pursue space projects aimed at enhancing national prestige. Our attainments are a major element in the international competition between the Soviet system and our own. The non-military, non-commercial, non-scientific but "civilian" projects such as lunar and planetary exploration are, in this sense, part of the battle along the fluid front of the cold war. Such undertakings may affect our military strength only indirectly if at all, but they have an increasing effect upon our national posture.

c. Planning

It is vital to establish specific missions aimed mainly at national prestige. Such planning must be aimed at both the near-term and at the long range future. Near-term objective alone will not suffice. The management mechanisms established to implement long range plans must be capable of sustained centralized direction and control. An immediate task is to specify long-range goals, to describe the missions to be accomplished, to define improved management mechanisms, to select the launch vehicles, the spacecraft, and the essential building blocks needed to meet mission goals. The long-term task is to manage national resources from the national level to make sure our goals are met.

It is absolutely vital that national planning be sufficiently detailed to define the building blocks in an orderly and integrated way. It is absolutely vital that national management be equal to the task of focusing resources, particularly scientific and engineering manpower

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100 COMPANIES AND THEIR SUBSIDIARIES LISTED ACCORDING TO
NET VALUE OF MILITARY PRIME CONTRACT AWARDS
Fiscal Year 1961

(1 July 1960 - 30 June 1961)

Rank	Companies	Millions of Dollars	Percent of U.S. Total	Cumulative Percent of U.S. Total
	U. S. TOTAL a/	\$22,693.1	100.0%	100.0%
	TOTAL, 100 COMPANIES AND THEIR SUBSIDIARIES b/	16,841.9 f/	74.2 f/	74.2 f/
1.	GENERAL DYNAMICS CORP. Freeman Coal Mining Corp. Total	1,460.5 c/ 1,460.5 f/	6.5 d/ 6.5 f/	6.5 f/
2.	NORTH AMERICAN AVIATION, INC.	1,197.4	5.2	11.7
3.	LOCKHEED AIRCRAFT CORP. Grand Central Rocket Co. Lockheed Air Terminal, Inc. Lockheed Aircraft International, Inc. Lockheed Aircraft Service, Inc. Lockheed Electronics, Co. Puget Sound Bridge & Dry Dock Co. Total	1,133.0 1.5 0.7 6.9 20.2 10.0 2.9 1,175.2	5.0 d/ d/ d/ 0.1 0.1 d/ 5.2	16.9
4.	BOEING CO. Allied Research Associates Total	918.3 1.5 919.8	4.1 d/ 4.1	21.0
5.	GENERAL ELECTRIC CO. International General Electric Puerto Rico, Inc. Total	874.6 c/ 874.6	3.8 d/ 3.8	24.8
6.	MARTIN CO. (THE)	691.8	3.1	27.9
7.	UNITED AIRCRAFT CORP. United Technology Corp. Total	624.6 0.9 625.5	2.7 d/ 2.7	30.6
8.	AMERICAN TELEPHONE & TELEGRAPH CO. Chesapeake & Potomac Tel. Co. Teletype Corp. Western Electric Co. Total	7.1 1.1 8.1 534.3 550.6	d/ d/ 0.1 2.4 2.5	33.1

Rank	Companies	Millions of Dollars	Percent of U.S. Total	Cumulative Percent of U.S. Total
9.	SPERRY RAND CORP Vickers, Inc. Total	\$401.7 6.3 408.0	1.8 d/ 1.8	34.9
10.	RADIO CORP. OF AMERICA	392.3	1.7	36.6
11.	HUGHES AIRCRAFT CO.	331.2	1.5	38.1
12.	INTERNATIONAL BUSINESS MACHINES CORP. Service Bureau Corp. Total	329.4 0.6 330.0	1.4 d/ 1.4	39.5
13.	WESTINGHOUSE ELECTRIC CORP. Bryant Electric Co. Total	307.6 0.1 307.7	1.4 d/ 1.4	40.9
14.	DOUGLAS AIRCRAFT CO. Astropower, Inc. Total	307.4 c/ 307.4	1.4 d/ 1.4	42.3
15.	RAYTHEON CO. Machlett Laboratories, Inc. Sorenson & Co., Inc. Total	303.7 1.1 0.1 304.9	1.3 d/ d/ 1.3	43.6
16.	REPUBLIC AVIATION CORP.	295.7	1.3	44.9
17.	GENERAL TIRE & RUBBER CO. Aerojet General Corp. Aerojet General Nucleonics Byers (A.M.) Co. Space Electronics Corp. Stauffer-Aerojet Chemical Co. Total	25.9 261.7 0.8 0.5 0.9 0.4 290.2	0.1 1.2 d/ d/ d/ d/ 1.3	46.2
18.	NEWPORT NEWS SHIPBUILDING & DRY DOCK CO.	290.2	1.3	47.5
19.	GENERAL MOTORS CORP. Ethyl Corp. e/ Frigidaire Sales Corp. Total	280.2 0.5 1.1 281.8	1.2 d/ d/ 1.2	48.7
20.	BENDIX CORP. Bendix-Westinghouse Automotive Air Brake Co. Cleveland Instrument Co. Sheffield Corp. Total	266.4 0.1 c/ 0.3 266.8	1.1 d/ d/ 1.1 1.1	49.8

Rank	Companies	Millions of Dollars	Percent of U.S. Total	Cumulative Percent of U.S. Total
21.	AVCO CORP.	\$251.6	1.1	50.9
22.	GRUMMAN AIRCRAFT ENGINEERING CORP. Dynamic Development, Inc. Pearson Corp. Total	237.8 0.1 0.1 238.0	1.1 d/ d/ 1.1	52.0
23.	MCDONNELL AIRCRAFT CORP.	219.9	1.0	53.0
24.	THIokol CHEMICAL CORP.	210.0	0.9	53.9
25.	INTERNATIONAL TELEPHONE & TELEGRAPH CORP. Federal Electric Corp. International Electric Corp. Jennings Radio Mfg. Co. Kuthe Laboratories, Inc. Mackay Radio & Telegraph Co. Royal Electric Corp. Suprenant Mfg. Co. Total	143.9 55.8 0.1 0.2 1.3 0.1 0.1 0.1 201.6	0.6 0.3 d/ d/ d/ d/ d/ d/ 0.9	54.8
26.	STANDARD OIL CO. (NEW JERSEY) Esso International, Inc. Esso Research & Engineering Co. Ethyl Corp. e/ Gilbert & Barker Mfg. Co. Humble Oil & Refining Co. Jersey Production Research Co. Standard-Vacuum Oil Co. f/ Total	0.0 87.4 2.2 0.4 c/ 72.7 0.2 4.7 167.7	0.0 0.4 d/ d/ d/ 0.3 d/ d/ 0.7	55.5
27.	CHRYSLER CORP.	158.2	0.7	56.2
28.	NORTHROP CORP. Page Communications Engineers, Inc. Total	144.8 10.8 155.6	0.6 0.1 0.7	56.9
29.	PAN AMERICAN WORLD AIRWAYS, INC. Pan American-Grace Airways, Inc. Total	127.4 c/ 127.4	0.6 d/ 0.6	57.5
30.	AMERICAN MACHINES & FOUNDRY CO. Beaird (J. B.) & Co. Total	119.8 c/ 119.8	0.5 d/ 0.5	58.0
31.	PHILCO CORP.	118.8	0.5	58.5

Fleming Report

(June 16 1961)

MASTER FLIGHT PLAN

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JUNE 9, 1961

VEHICLE	MISSION	1961				1962				1963				1964				1965				1966				1967															
		J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
ARGO D-B	RADIATION AND BIOMEDICAL	○						○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
THOR DELTA	RADIATION ATMOSPHERIC STRUCT. & SOLAR ENV							○				○	○					○								○								○							
AIRCRAFT	CONCEPTUAL DROP TESTS									○	○	○	○	○	○	○	○																								
LITTLE JOE II	CONCEPTUAL DEVELOPMENT TESTS									○	○	○	○																												
ATLAS	18 ORBIT MISSION													○	●	●	●	●	●																						
	14 DAY ANIMAL													○	○	○	○																								
AGENA	RANGER	○	○			○	○			○	○	○	○	○	○	○	○																								
	MODEL PARABOLIC RE-ENTRY									○	○	○	○																												
	RECOVERABLE BIOMED SAT													○	○	○																									
	ECCENTRIC GEOPHY OBSERV													○	○			○								○								○							
CENTAUR	SURVEYOR A B													○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
	RECOVERABLE BIOMED SAT																	○	○	○						○								○							
AIRCRAFT	PROTOTYPE S/C DROP TESTS													○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
C-1	C-1 1ST STAGE DEV	○					○			○																															
	C-1 1ST & 2ND STAGE DEV (BOILERPLATE S/C)													○	○	○	○																								
	PROTO S/C RE-ENTRY																	○	○	○																					
	PROTO S/C SUBORBITAL																					○	○																		
	S/C SUBORBITAL & ORBITAL QUAL																	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
	LUNAR LDG. & TAKEOFF DEV																									○	○	○	○	○	○	○	○	○	○	○	○				
C-3	C-3 1ST STAGE DEV																	○	○	○																					
	C-3 1ST & 2ND STAGE DEV																									○	○	○													
	COMPL C-3 DEV (S/C RE-ENTRY QUAL)																									○	○	○	○												
	ELLIPTICAL & CIRCULUNAR																									○	○	○	○	○	○	○	○	○	○	○	○				
	PROSPECTOR																									○	○	○	○	○	○	○	○	○	○	○	○				
NOVA	NOVA 1ST STAGE DEV																									○	○	○													
	NOVA 1ST & 2ND STAGE DEV																									○	○	○													
	COMPL NOVA DEV																									○	○	○	○	○	○	○	○	○	○	○	○				
	LUNAR LDG & RETURN																									○	○	○	○	○	○	○	○	○	○	○	○				

○ UNMANNED FLIGHTS

● MANNED FLIGHTS

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A “Rational Actor” Perspective

- American leadership was essential to the American way of life
 - And American leadership demanded leadership in space
- The Soviet Union had much larger rockets in 1961
 - And they could probably make them large enough to fly around the moon
- Landing on the Moon would require 10 times the rocket thrust
 - And the Americans had started design work on what became the F-1 in 1955
- The American economy was far larger than the Soviet economy
 - So the Americans would have a good chance to win a “moon race”

A “Bureaucratic Politics” Perspective

- NASA
 - Launch vehicles capable of reaching anywhere in the solar system
 - Advanced human spaceflight technology
 - Balanced program
- Department of Defense
 - Preserving the aerospace industrial base
 - Investments in solid-fuel rockets
 - Gaining human spaceflight experience
- Politicians
 - Strengthening Kennedy’s negotiating position at the Vienna summit
 - Leadership in the eyes of the world, and in the eyes of the American people
 - Special interests

Discussion Groups

- Day, Space Review (“Pay No Attention to the Man with the Notebook ...”)
 - A journalist sitting on discussions on how to react, 2 days after Gagarin’s launch
- Launius Chapter 2 (“Kennedy and the Decision to Go to the Moon”)
 - A critical view, casting Kennedy as taking a page from Khrushchev’s playbook
- Kennedy Recording (“Meeting on the Presidential Budget”)
 - A secretly made recording in which Kennedy explains why Apollo is important
- Logsdon (“The Apollo Decision and its Lessons for Policy-Makers”)
 - An appreciative view, articulating four factors that make such decisions possible

Logsdon's Apollo-Like Decision Circumstances

1. The objective must be known to be technologically feasible, with a high degree of probability, at the time the decision ... is made
2. The objective must have been the subject of sufficient political debate so that ... potential sources of support have time to develop
3. Some dramatic "occasion for decision" must occur to create an environment in which policies to achieve it become politically feasible.
4. There must be in leadership positions ... individuals ... who have the political skill to choose the situations in which such activities can be initiated.