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AS/ 3/7/83

handrat

The President has seen

THE WHITE HOUSE
WASHINGTON

March 1, 1983

MR. PRESIDENT:

Attached for your consideration a decision memorandum from the Cabinet Council on Commerce and Trade re the transfer of the civil operational land and weather satellite systems to the private sector.

Among Departments: Option 1 is unanimously supported by the Cabinet Council on Commerce and Trade (Commerce, State, Treasury, Justice, Agriculture, Labor, DOT, Energy, USTR and CEA). OMB has policy and budgetary concerns which are discussed at Tab A.

Among White House Offices: NSC recommends Option 1. Ken Duberstein notes that such legislation will be controversial and prospects for passage are slim at this time.



Richard G. Darman

THE WHITE HOUSE

WASHINGTON

March 1, 1983

MEMORANDUM FOR THE PRESIDENT

FROM: CRAIG L. FULLER

SUBJECT: DECISION MEMO ON THE TRANSFER OF THE CIVIL
SPACE REMOTE SENSING SYSTEMS TO THE PRIVATE
SECTOR

This issue was discussed by the Cabinet Council on Commerce and Trade. The recommendation made by the Cabinet Council was to permit the transfer of the civil space remote sensing systems (LANDSAT and MEDSAT) to the private sector.

The attached decision memorandum reflects two options: 1) to transfer to the private sector, by competitive means, the current operational civil remote sensing satellites. Separate bids would be accepted for the land or weather satellites, or a firm could elect to submit a single bid for all systems; and 2) to continue the current budget policy of bringing the operational land remote sensing systems in the Government to a close nominally by 1988 (or sooner if private industry is willing to take it over) and retain the civil weather satellites under Government control.

All Departments reviewing the decision memorandum support Option 1. OMB has reservations and we have attached their comments and points of consideration as an addendum.

THE WHITE HOUSE

WASHINGTON

February 28, 1983

MEMORANDUM FOR THE PRESIDENT

FROM: THE CABINET COUNCIL ON COMMERCE AND TRADE

SUBJECT: Transfer of the Civil Space Remote Sensing Systems
to the Private Sector

Issue

Should the Administration transfer to the private sector the civil operational land and weather satellite systems?

Background

The current U.S. program in operational civil space remote sensing consists of a single land satellite and four operational weather satellites in orbit. Civil ocean observing satellites have demonstrated their utility also, although there are no operational systems currently in place. A number of private entities have expressed interest in assuming responsibility for portions of the civil space remote sensing system. Some firms are interested in the land satellite systems; another is interested in both the land and weather satellite systems.

Foreign governments have recognized the value of this technology. Civil space remote sensing systems are being advanced by France, Japan, the European Space Agency, India, Canada, the Federal Republic of Germany, and the Soviet Union. To date, only France has actually invested in a land remote sensing system (SPOT); others have invested only in weather systems.

All agencies believe that self-supporting, successful private ventures could evolve in the land and weather sensing markets. However, the time required for this process, as well as the potential size and characteristics of the market, once evolved, are uncertain. The Government provides a steady market for weather data. The value of land satellite data to the U.S. Government has not been rigorously established. Federal user agencies have been happy to use data now provided at subsidized costs, but, if required to pay the full cost of land satellite data, they indicate an intention to consider other means to meet their needs. Therefore, to avoid discriminating against economically desirable alternatives, the Federal Government should allow agencies to choose the most cost-effective means of obtaining data.

Other than Federal users, the land satellite data market has not grown as rapidly as it could have because of the inherent limitations on the Government in developing domestic and international markets. The market for land remote sensing data will have to be further developed. If given the opportunity, an aggressive private sector operation could expand the market base for this product.

The U.S. Government is currently spending more than \$14 billion per year on the civil and national defense space programs, of which nominally \$150-\$200 million is devoted to civil space remote sensing. The Administration's current budget includes funding for the long term operation and replacement of the civil weather satellite. For land remote sensing, the current policy is to continue with the two land satellites which were purchased prior to this Administration and are expected to last until 1988. Thus, the budget has only operating costs and does not include additional Federal funding to procure additional land satellites. The budget assumes that any future land remote sensing systems would have to be developed, launched, and operated by a private entity. Current budget projections do not include funding for development and implementation of expanded uses of data generated by land satellite programs.

The United States has created this high-technology field, but it could lose its leadership position in land remote sensing unless action is taken to preserve it. It should be noted, though, that NASA and DOD are heavily committed to R&D in this field. Also, some private U.S. firms have expressed strong interest in entering the field. Any action taken to transfer civil space remote sensing to the private sector should in no way preclude the continuation of R&D in NASA and DOD to advance remote sensing technology.

Transfer to a private entity without any government assurances would be preferable and will be actively sought. However, implementing a commercial satellite system may involve some form of Government-assured market for a time, e.g., a guaranteed minimum purchase agreement, until the private entity is firmly established. The level of need for such support, if any, will be considered carefully in the evaluation of proposals actually submitted. Such support could raise future budget outlays by as much as \$150 million per year, in 1983 dollars, above current budget projections.

Federal interests will require a continuing oversight to any private entity involved in civil space remote sensing, as outlined by existing international law, national law and current

national space policy. Such oversight, carried out with interagency coordination and contractual provisions between the Government and the data supplier, will assure that national defense, intelligence, and foreign relations concerns are satisfied.

The Cabinet Council on Commerce and Trade has extensively reviewed the issue and has identified two principal options for your consideration:

Option 1: Transfer to the private sector, by competitive means, the current operational civil remote sensing satellites. Separate bids would be accepted for the land or weather satellites, or a firm could elect to submit a single bid for all systems.

The Department of Commerce will oversee the transfer of the civil operational remote sensing satellites to the U.S. private sector as soon as possible. The selection of the private entity would occur under conditions of competition among U.S. firms only. The transfer will be guided by the following principles:

- (1) National security and foreign policy concerns must be appropriately addressed in preparing legislation, requesting proposals, and overseeing the private entity or entities.
- (2) The selection of the private entity would occur under competitive conditions. Private firms would have the option of bidding separately for the land or weather satellite system or preparing a joint submission for both. The financial and program justifications would be presented in such a manner that separate submissions can be appropriately compared to joint submissions.
- (3) The Department of Commerce would establish an inter-agency coordinating body as soon as possible.

Advantages

- o Stimulates technology development by the private sector in response to new market demands and expands the role of private industry.

- o Demonstrates commitment to the private sector role in space.
- o Reduces the size and scope of Government activities.
- o Increases the probability that information flows from land satellites will continue.

Disadvantages

- o May require increasing Federal funding to cover minimum purchase commitments by the Government, until the private entity is firmly established.
- o There is a possibility that a new regulatory structure would be required.

Option 2: Continue the current budget policy of bringing the operational land remote sensing systems in the Government to a close nominally by 1988 (or sooner if private industry is willing to take it over) and retain the civil weather satellites under Government control.

Advantage

- o Option is within current budget.

Disadvantages

- o Only minimally reduces the size and scope of Government.
- o May result in the relinquishment of land remote sensing to foreign competitors by U.S..

Decision

Option 1 APR Transfer to the private sector, via competitive means the current operational civil weather and land satellites. Separate bids would be permitted for the land or weather satellites, or a firm could elect to submit a single bid for all.

Option 1 unanimously supported by the Cabinet Council on Commerce and Trade

Option 2 _____

Continue the current budget policy of bringing the operational land remote sensing systems in the Government to a close nominally by 1988 or sooner if private industry is willing to take it over, and retain the civil weather satellites under Government control.



Malcolm Baldrige
Chairman Pro Tempore
Cabinet Council on Commerce and Trade

OMB Comments/Addendum
Decision Memorandum on Transfer of the Civil Space Remote
Sensing Systems to the Private Sector

OMB continues to have policy and budgetary concerns with the draft memorandum. This is a complex issue. It is important that the Federal Government not be put in a position of subsidizing private industry solely for the purpose of commercializing the satellite systems without regard to the financial and programmatic implications.

Additional points to be considered are:

Disadvantages to Option 1:

° If the results of the competitive bidding process do not lead to transfer arrangements that are in the best interest of the US government, and require unwarranted, let alone excessive subsidies, political pressures may make it extremely difficult for the Administration to refuse to go ahead with the transfer and not invest further in land remote sensing.

° Federal subsidies/guarantees could mask important economic signals which would indicate what system(s) should be developed by private industry. This is an important consideration given the current uncertainty with respect to the potential size and characteristics of the market for civil space remote sensing.

Advantages to Option 2:

° Allows normal market forces to determine what satellite capability should be developed by private industry.

° Leaves the option open to commercialize satellite systems when the potential size and characteristics of the market are better understood.

26 JUL 1983

CABINET AFFAIRS STAFFING MEMORANDUM

DATE: 7/26/83 NUMBER: 118829CA DUE BY: _____

SUBJECT: Cabinet Council on Commerce and Trade - July 27, 1983

8:45 a.m. - Roosevelt Room

	ACTION	FYI		ACTION	FYI
ALL CABINET MEMBERS	<input type="checkbox"/>	<input type="checkbox"/>	Baker	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Vice President	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Deaver	<input type="checkbox"/>	<input type="checkbox"/>
State	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Clark	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Treasury	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Darman (<i>For WH Staffing</i>)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Defense	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Harper	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Attorney General	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Jenkins	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Interior	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Agriculture	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Commerce	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Labor	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
HHS	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
HUD	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Transportation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Energy	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
Education	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
<u>Counsellor</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
OMB	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
CIA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
UN	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>
USTR	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CCCT/Gunn	<input checked="" type="checkbox"/>	<input type="checkbox"/>
CEA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	CCEA/Porter	<input type="checkbox"/>	<input type="checkbox"/>
CEQ	<input type="checkbox"/>	<input type="checkbox"/>	CCFA/Boggs	<input type="checkbox"/>	<input type="checkbox"/>
OSTP	<input type="checkbox"/>	<input type="checkbox"/>	CCHR/Carleson	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	CCLP/Uhlmann	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>	CCMA/Bledsoe	<input type="checkbox"/>	<input type="checkbox"/>
			CCNRE/Boggs	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS:

The CCCT will meet on Wednesday, July 27, 1983 at 8:45 a.m. in the Roosevelt Room. Attached is the paper for LANDSAT/CM106. The Intellectual Property/CM#387 paper was distributed to you on 7/25/83.

RETURN TO:

Craig L. Fuller
Assistant to the President
for Cabinet Affairs
456-2823

Larry Herbolsheimer
Associate Director
Cabinet Affairs
456-2800



MEMORANDUM FOR MEMBERS OF THE CABINET COUNCIL ON
COMMERCE AND TRADE (CCCT)

FROM: Malcolm Baldrige, Chairman Pro Tempore
Cabinet Council on Commerce and Trade

SUBJECT: Continuity of Landsat Data

I. ISSUE

Should the Administration purchase an additional Landsat?

II. BACKGROUND

President Reagan announced on March 8, 1983, the Administration's intent to seek transfer of the Nation's civil land and weather satellites to the private sector. The transfer is contingent upon protecting U.S. national security and foreign policy interests, and securing a favorable business proposition for the taxpayer.

When the preparatory work leading to the President's decision was completed, the Landsat-4 satellite had been successfully launched and was fully operational. A follow-on satellite, called Landsat-D', was nearing completion.

It was expected that Landsat-4 would operate until approximately July 1985, and be replaced by Landsat-D' to continue service until approximately July 1988. This would have permitted a reasonably smooth transition to a private sector system, because a selection of a private entity in 1984 would have preceded by four years the failure of Landsat-D'. Four to five years is a brisk, but acceptable, period for the production of a modern space system.

The smooth transition is no longer possible because of the imminent failure of Landsat-4. Three major subsystems have fully or partially failed and the best available estimate shows that the satellite will fail completely within a few months. Enclosure 1 describes the status of Landsat-4.

Preparations are under way to launch Landsat-D' sooner, possibly as early as the spring of 1984. If the launch is successful, service should be available until the spring of 1987. This will lead to a data gap from Landsat-4 class systems for approximately eighteen months after the demise of Landsat-D'. Alternatively, the gap at the end of life could be replaced by delaying the launch of Landsat-D' and increasing the gap in 1984 and 1985.

This option is not addressed below because it adds storage costs to the approximately \$25 million that will be required to launch Landsat-D', and undermines the already modest market for Landsat data.

The above considerations lead to the question whether a service gap seriously affects data users or the private sector transfer process, and whether a follow-on Landsat should be purchased to avoid the gap. Because schedules and dates play an important role in the succeeding discussion, Enclosure 2 lists the major milestones and their dates.

III. DISCUSSION

Significant current users of Landsat data include the Department of Agriculture, national security agencies, the academic community, the private sector, and a variety of international users. The total Federal Landsat data purchase for fiscal year 1983 is expected to be approximately \$7 million. The combined foreign ground station access fees and sales, plus the remaining U.S. over-the-counter sales, were expected to equal another \$8 million. This latter number may have to be revised downward because of the condition of Landsat-4. The year-to-date total for all Landsat revenues is nominally \$10 million. It should be noted that this figure does not reflect secondary or tertiary uses of the data, where most believe the true economic value of Landsat lies.

Current uses of Landsat data, many of which are still largely in a research status, include contributing to crop production estimates, assessments of vegetation condition, mineral exploration, water resource estimation, and land use planning.

The new sensor flown on Landsat-4, the Thematic Mapper, has produced significant results in all of the above areas. It has also produced results suggesting new applications as well. The Multispectral Scanner on Landsat-4 is essentially the same instrument flown on the earlier Landsats.

The ultimate economic value and operational utility of Landsat remain uncertain, but each succeeding Landsat has produced increasingly encouraging results, even though no major rush of private investment has occurred.

The private sector transfer of the civil satellites is proceeding. A request for proposals is planned for November of this year. Vendor selection is scheduled for May 1984.

If a satisfactory arrangement is found with private industry, and legislation is passed by Congress, a firm could place an order for a commercial Landsat as early as October 1984. Service could then begin in October 1988 or somewhat later. This schedule leads to the eighteen-month data gap mentioned above.

It could also be determined in May 1984 that no proposition is satisfactory. Although it is not current policy to assure Landsat data continuity, if it were then determined that Landsat data should continue through Government operation of at least the space segment, procurement of a follow-on Landsat could begin at that time. Depending on the extent of changes to the current design, service could begin in 1989 or 1990. This leads to an even longer data gap.

The interruption of Landsat-4 class data must be considered against the potential availability of data from the French SPOT system and the satellite planned by American Science and Technology (AS&T). The French are planning to launch their satellite in early 1985. AS&T has not established a firm date, but it appears certain to be later than the French system. Both systems are considerably different from Landsat-4.

AS&T proposes to launch a system that is largely an extension of Multispectral Scanner technology. The initial sensor will have two visible and two infrared bands, with a spatial resolution of 80 meters. For comparison purposes, the Thematic Mapper on Landsat-4 has seven bands and provides a spatial resolution of 30 meters in the visible and near infrared. The AS&T system lacks the middle and far infrared bands that are of interest to the geological community. Landsat-D' will provide service to that community during its lifetime.

The French SPOT system is complementary to the Landsat-4 system. It has somewhat better spatial resolution in the multispectral mode (20 meters instead of 30 meters). It also has a higher resolution (10 meters) panchromatic mode and an offset pointing and stereo capability. It shares largely the spectral limitations of the American Science and Technology system. It is, therefore, not a direct replacement for Landsat-4.

Last year the National Security Council staff disapproved an agency's request to obtain sample SPOT data on the basis that it would lend support to a foreign system. While no general policy has been developed, restrictions on the use of data from a foreign system could suggest the need for continuing support for a U.S. system. Further, there is a related open issue as to whether the U.S. should rely on a foreign system for earth resources data.

The conclusion of the above is that a data gap after Landsat-D' and before fruition of the commercialization activities may be filled by reliance on a small and unproven U.S. company, or by accepting reliance on a foreign supplier--assuming in the latter instance that any policy issues are resolved satisfactorily.

Alternatively, a data gap could be minimized by the purchase of an additional Landsat. The total cost, including launch, of a Landsat of the current design is approximately \$300 million. The

fraction of the cost that would be required in fiscal year 1984 is approximately \$65 million. On the assumption that work could begin in the spring of 1984, launch could occur in the spring of 1988. This still leaves a data gap, but reduces it by six months or possibly more. It also produces a system more likely to sustain the availability of data during the transfer process, but increases the Federal investment that would be subject to some cost recoupment formula during the transfer process.

IV. OPTIONS

There are two options: (1) Procure a follow-on Landsat. (2) Do not procure a follow-on Landsat and accept either a data gap or reliance upon the AS&T or SPOT systems.

OPTION 1 - Procure a follow-on Landsat.

Pros:

1. Minimizes data gap from Landsat-4 class systems after the demise of Landsat-D'.
2. Assists current market development by providing increased confidence in data availability.
3. Eliminates U.S. need to rely upon a foreign system or an unproven U.S. venture for data.

Cons:

1. Increases Federal budget, and no agency has agreed to allocate funds within its outyear guidelines.
2. Increases purchase cost of the system to the private sector, if cost recoupment is sought.
3. Gives appearance of a reluctance on the part of the Government to get out of the Landsat business.
4. Will create a Government competitor to firms such as AS&T that could dissuade their investors from continued participation in the venture.

OPTION 2 - Do not procure a follow-on Landsat.

Pros:

1. Requires no addition to Federal budget.
2. Demonstrates U.S. intent to establish a private sector presence in space remote sensing.

3. Minimizes the amount of capital equipment to be transferred.
4. Places greatest reliance upon the private sector and the marketplace in defining the system characteristics for the satellite that will follow Landsat-D'.

Cons:

1. May make the U.S. reliant upon a French system for earth resources data.
2. Produces greatest data gap for Landsat-4 class systems.
3. Produces less assurance of data availability to the value-added industry.
4. Current system is subject to complete failure in the event Landsat-D' is not successfully launched or does not last a full three years.

V. RECOMMENDATION

In meetings of the CCCT working group on Landsat, OMB, USDA, Interior and State favored Option 2. NASA, NSC, CIA, and Defense were undecided. The Department of Commerce supports Option 1.

STATUS OF LANDSAT-4

The newest of the U.S. earth resources satellites, Landsat-4, was launched in July 1982. Although the satellite has provided spectacular new views of the Earth, it has experienced a series of major system failures. This is a frequent occurrence in the first satellite of a new series.

Three major subsystems have experienced failures: (1) the central control unit which channels upcoming commands to the proper destination on the satellite, (2) the X-band transmitter which provides satellite-to-ground transmission of high resolution data from the Thematic Mapper, and (3) the solar array cable which connects to the power processing module.

The failure of the central control unit has left the satellite with a possibility of complete failure at any time. Operation continues on a redundant system, but should it fail there would be no way to control the satellite.

The X-band transmitter has interrupted the flow of Thematic Mapper data. This prevents the transmission of high-resolution data to foreign ground stations, and prevents the collection of all foreign data at the 30-meter resolution level. When the Tracking and Data Relay Satellite System (TDRSS) completes its checkout, collection of high-resolution data can resume through that channel. Unfortunately, the TDRSS will be heavily loaded in August and September with preparations and conduct of the STS-8 and STS-9 missions and may be unable to provide service to Landsat before the third subsystem failure brings the mission to a close.

There are four panels which make up the solar array on Landsat-4. The wires connecting two of those panels to the satellite's power supply have broken, and the satellite is operating on half power. The wires break because of a design error in the cable assembly and the nature of that error makes it inevitable that a third panel will fail soon. That failure will end the mission. The best engineering judgment is that the failure will occur this Fall, and October is being used as a planning date.

PROJECTED SCHEDULE OF EVENTS

	<u>Present Satellites (Landsat-4 & -D')</u>	<u>Private Sector and Foreign</u>	<u>Landsat Follow-on (D'')</u>
Failure of Landsat-4	10/83		
Release of Commercialization Solicitation		11/83	
Receipt of Commercialization Proposals			
Earliest Launch of Landsat-D' and Start on Landsat-D''	3/84		3/84
Decision on Commercialization Proposals		5/84	
Earliest Start on Commercial Satellite Resulting from Solicitation		10/84	
Launch of French SPOT Satellite		1/85	
Speculative AS&T Launch Date		1/86	
End of Life for Landsat-D'		3/87	
Launch of Landsat-D''			3/88
Earliest Launch of Commercial Satellite Resulting from Solicitation		10/88	