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14 April 1982

# Worldwide Report

TELECOMMUNICATIONS POLICY,  
RESEARCH AND DEVELOPMENT

(FOUO 9/82)



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WORLDWIDE REPORT  
TELECOMMUNICATIONS POLICY, RESEARCH AND DEVELOPMENT

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JAPAN

TELECOMMUNICATION LIBERALIZATION EXAMINED

Tokyo NIHON KEIZAI SHIMBUN in Japanese 18, 19, 24, 25 Feb 82

[18 Feb 82 p 3]

[Text]

Postal Services Ministry Tele-Communications Policy Bureau Director General MORIZUMI held a press conference on the 17th, and stated as follows on the problem of liberalizing data communications: "In regard to the revising of the Public Tele-Communications Law this time, private information and communications enterprise operators will not be permitted to offer high-level information and communications services (VAN)." So saying, he clarified the outlook that the contents of the proposed liberalization of data communications will be limited to fields excluding high-level information and communications services, for the time being. Therefore, the possibility has also appeared that the overall opening of the market for data communications, as sought by information and communications business circles and the economic and industrial circles, will be delayed on a large scale.

In connection with the problem of liberalizing data communications, the Government-LDP side has already decided on a policy to incorporate a revised Public Tele-Communications Law in a "package bill concerning the re-adjustment or rationalization of [projects which require] permission or approval," instead of enacting a new law. At the press conference held on that day, MORIZUMI also said, "The actual situation is such that this time, the enactment of a new law (as called for by the Postal Services Ministry) has become difficult." Thus, he formally expressed his intention to give up submitting a new data-communications bill (bill concerning added-value data transmission services) to the current Diet session.

However, the Postal Services Ministry says, "The preconditions (including the preservation of communications secrets) for the liberalizing of high-level information and communications services as to private information and communications enterprise operators have still not been established (through negotiations with MITI)" (Bureau Director

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General MORIZUMI). Thus, the Ministry plans not to include the liberalization of high-level information and communications services (added-value data transmission services) in the Public Tele-Communications Law Revision Bill, though it had decided to do that.

As for the revising of the Law this time, the proposed liberalization will be limited (1) to "joint use" of communications circuits by two or more companies, and (2) to "use by others," in which private communications enterprise operators will lease communications circuits from the Nippon Telegraph and Telephone Public Corporation and sub-lease them to other enterprises, and which will not be accompanied by any message exchange (meaning the transmitting of information as is, without changing the contents thereof, as in the case of the telephone). This means that approval will virtually not be granted to the liberalization of message exchange, which liberalization will be indispensable for private information and communications enterprise operators to offer high-level information and communications services, or to the connection of public communications circuits, specific communications circuits, and public communications circuits (so-called public-specific-public connection) which is necessary for the establishment of information-processing networks.

On the other hand, MITI intends to seek strongly the Postal Services Ministry's overall opening of the market for data communications, on the strength of the Provisional Administrative Affairs Research Council's recommendation calling for the overall liberalization of data communications. For this reason, the focal point has shifted to the problem of whether the proposed liberalization in the field of high-level information and communications services will be incorporated in the Public Tele-Communications Law Revision Bill this time.

[19 Feb 82 p 3]

[Text]

The problem of whether efforts should be made to cope with the proposed liberalization of data communications through the enactment of a new law (data communications law) or through the revising of the existing law (Public Tele-Communications Law), on which problem the assertions of the Postal Services Ministry and MITI were in a sharp conflict, has come to an end along the line of revising the Law now in force, with the Postal Services Ministry's having given up establishing a new law. The reason for this is that the Postal Services Ministry's view urging the establishment of a new approval or permission system was not accepted, due to the large-scale current of administrative reform, calling for the re-adjustment or rationalization of [projects which require] approval or permission. With this as a turning point, however, the Ministry has shifted to the tactic of restricting the liberalization this time. The focal point is whether high-level communications services, which can also be said to be the

nucleus of the proposed liberalization of data communications, will be included among the objects of the liberalization through the revising of the Law this time. The Postal Services Ministry intends to give up liberalizing high-level communications services, but MITI and industrial circles concerned are showing strong repulsion against this. The problem of liberalizing data communications will enter its second round of development as to how far the scope of liberalization should be expanded.

"Has the Postal Services Ministry really given up enacting a new law?" News about Postal Services Minister MINOWA's statement, which said that "the Postal Services Ministry has given up enacting a new law," was conveyed to the Government-LDP side on the 16th. At that time, MITI leaders looked as if they were unable to quite believe [the news]. On the other hand, the Postal Services Ministry administrative officials concerned were also bewildered, as they were unable to grasp the real intention of the Postal Services Minister.

The major reason why a decision was rapidly reached to give up the planned enactment of a new law, was the Provisional Administrative Affairs Research Council's second recommendation calling for the re-adjustment or rationalization of the approval or permission system. The Government-LDP side earlier decided to cope with the proposed liberalization of data communications through a "bill concerning the package handling of the re-adjustment or rationalization of the approval or permission system." The atmosphere within the LDP was as represented by the view that "such a bill (as a new bill called for by the Postal Services Ministry), which will necessitate the granting of approval or permission, cannot be included in the proposed bill calling for the re-adjustment or rationalization of the approval or permission system" (LDP Administrative and Financial Affairs Research Council Chairman HASHIMOTO). Moreover, at a Cabinet meeting, slated for the 19th, the Government will decide to "respect the Provisional Administrative Affairs Research Council's recommendation." The large-scale current of administrative reform by the Government and the LDP as one body can be said to have become connected with the settlement of the problem in the form of revising the Law now in force.

However, the Postal Services Ministry has not made overall concessions, though it has given up the planned enactment of a new law. Rather, it is resorting to the tactic of rolling back with the substantial contents, in place of discarding the formal problem of whether [the situation should be settled] through the enactment of a new law or through [the revising of] the Law now in force. The first step for that purpose was the emergency press conference which Postal Services Ministry Tele-Communications Policy Bureau Director General MORIZUMI held on the 17th. MORIZUMI definitely stated as follows: "The preconditions (including the preservation of communications secrets and co-ordination of fields between private industrial circles concerned and the Nippon Telegraph and Telephone Public Corporation

[NTT]) for the liberalizing of high-level communications services (VAN) as to private information and communications enterprise operators have still not been established through negotiations with MITI. If, this time, efforts are to be made to cope with the situation only through the revising of the Law now in force, private information and communications enterprise operators cannot be permitted to offer high-level communications services."

This means that the Postal Services Ministry is still not changing its posture, to the effect that high-level communications services cannot be extended except under a new law. It also says that it will give up the proposed liberalization in the field of high-level communications services, in which field it has been planning to carry out partial liberalization in the form of enacting a new law, if it is said that the existing Law alone should be revised. It is thus carrying out operations to submit a new bill to the next Diet session, as expected at the very beginning, with its usual persevering posture seen when the three Ministers reached agreement on the establishment of a new postal individual annuity system and the handling of the Postal Savings Deliberation Council's recommendation. When asked if "this will result in delaying the liberalization of data communications," Bureau Director General MORIZUMI replied, "The Government office, which has jurisdiction over the data communications-connected legislation, is the Postal Services Ministry. His logic is that unless the Postal Services Ministry moves, the bill cannot be submitted [to the Diet]."

If the Postal Services Ministry's assertions are to be accepted, then the proposed liberalization will be limited to the following cases through the revising of the Law this time: (1) "Joint use" of communications circuits by two or more companies; (2) "use by others," in which private information and communications enterprise operators will lease communications circuits from NTT and sub-lease them to other enterprises, and which will not be accompanied by any message exchange (meaning the transmitting of information as is, without changing the contents thereof, as in the case of the telephone); and (3) the connection of computers through the use of personal circuits. This means that approval will virtually not be granted to the liberalization of message exchange, which liberalization will be indispensable for private information and communications enterprise operators to offer high-level information and communications services, or to the connection of public communications circuits, specific communications circuits, and public communications circuits, which connection is necessary for the establishment of information-processing networks.

This field of high-level communications services is a star field in regard to the liberalization of data communications. Unless that field is liberalized to private information and communications enterprise operators this time, the realization of the future image of the

data-communications liberalization age, in which simultaneous conferences will be held on the television screen, for example, between the Tokyo head office and its branch offices in Sapporo, Fukuoka, and other remote areas, will be delayed to that extent.

Therefore, from the stand that "if the field of high-level communications services is not liberalized, it will decrease the meaning of liberalizing data communications," MITI intends to carry out strong activities to secure the inclusion of the liberalization of the high-level communications service field in a revision bill concerning the Law now in force. It is the Provisional Administrative Affairs Research Council's second recommendation which supports MITI's assertions. The recommendation notes as follows: (1) In connection with the use of data-communications circuits, liberalization should be carried out, with the exception of the system of exchanging messages alone, with an unspecified large number of persons as the objects; (2) in order to clarify the scope of the minimum necessary degree of restrictions, a negative-list formula (formula calling for liberalization in principle and also the listing of plans which cannot be carried out) should be adopted; and (3) in regard to mutual connection, the standards for granting approval should be clarified when a separate-approval system is carried out. In short, the recommendation calls for the overall liberalization of data communications.

The proposed liberalization of data communications cannot but be said to be incomplete unless the field of high-level communications systems and exchange of messages are liberalized. In that meaning, future negotiations between the Postal Services Ministry and MITI on the scope of the substantial liberalization may be said to be an important testing place, from the standpoint of liberalizing data communications.

(Note) High-level communications services (VAN) mean that data will be exchanged and processed, between the data communications systems of different companies through the connection of their own respective computers with NTT's communications circuits, and through the establishment of networks which will use those computers as switchboards. This is the most developed form of data communications. Private information and communications enterprise operators are planning such services as a future image of data communications services. They are also said to be added-value communications services.

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The Postal Services Ministry's and MITI's Ways of Thinking as to Liberalization of Data Communications

	Postal Services Ministry	MITI
(1) Joint use (by companies which have continuous business relations)	No message switching	Liberalization in principle
	Message switching	Only between companies which have close business relations
(2) Use by others	No message switching	Liberalization in principle
	Message switching Between specific persons	Report system*
	Between non-specific persons	Approval system*
(3) Mutual connection	Public circuits-specific circuits	Liberalization excluding message switching
	Public-specific-public circuits	Separate approval

(Note) The asterisked systems will not be included in the revising of the Law this time.

[24 Feb 82 pp 1-2]

[Text]

The Postal Services Ministry formulated the general outline of a Public Tele-Communications Law revision bill in connection with the problem of liberalizing the use of data communications circuits, and obtained the general approval thereof at a meeting of the LDP Policy Board Communications Department (Chief: Yoshihide MORI), held on the

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morning of the 24th. The general outline has been drawn up, accompanying the fact that in response to the Provisional Administrative Affairs Research Council's second recommendation concerning the proposed re-adjustment of the approval or permission system, the planned submitting of a new bill (data communications bill) to the current Diet session has been given up. Under the general outline, the utilization of data communications circuits, which utilization is banned at present, will be liberalized to a rather great extent, in the information-processing field. However, it blocks the road leading to the liberalization of high-level communications services (VAN) which are expected to develop in the future. The Ministry will submit its revision bill general outline to the Administrative Management Agency on the same day. However, MITI and the Administrative Management Agency are showing repulsion against the Postal Services Ministry's second draft on the strength of the Provisional Administrative Affairs Research Council's recommendation calling for the overall liberalization of data communications. Complications will probably arise before the problem can be settled.

In regard to data communications, information will be processed through the direct connection of computers and communications functions, as in the case of the National Railways' Green (TN: First Class Ticket) Windows and the banks' on-line systems. They are said to be the third communications, after telegraph and the telephone. At present, restrictions are being carried out on the private information and communications enterprise operators' leasing exclusive-use circuits from the Nippon Telegraph and Telephone Public Corporation (NTT) and their processing information. Industrial circles concerned have strongly criticized that this has been impeding the development of industries.

At the very beginning, the Postal Services Ministry had planned to liberalize the use of data communications circuits through the revising of the Public Tele-Communications Law now in force, and also through the enactment of a new data communications law. It had also intended to put up a new net of approval or permission over the field of data communications in the form of establishing a new law. The LDP Administrative and Financial Affairs Research Council, etc., criticized this plan, from the stand that it "will go against the current of administrative reform." The Ministry has finally decided to give up enacting a new law and to submit a revision bill as to the existing Law to the current Diet session.

Under the Postal Services Ministry's second revision-bill general outline, the use of communications circuits by companies, which have business relations with each other or with one another, will be liberalized, in regard to the "joint use" of such circuits by two or more companies. Also, as regards the exchange of messages (meaning the transmitting of information as is, without changing the contents thereof, as in the case of the telephone), it will be approved, for the first time, if it is to be carried out between or among companies

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which have close business connections with each other or with one another. It will become possible to establish communications systems, for example, between manufacturing industrialists and retail business-persons, between tourism enterprisers and hotel-keepers, and between transportation enterprisers and warehousing enterprisers, which systems have been banned up until now.

With regard to "use by others," which is regarded as a focal point, from the standpoint of fostering and developing the private information and communications services, and in which information and communications enterprise operators will lease circuits from NTT and sub-lease them to other enterprises, it will be liberalized if it is for data-processing purposes. However, in regard to high-level communications services which will be accompanied by the exchange of messages, and which the Postal Services Ministry had planned to incorporate in the proposed new law, [the liberalization thereof] will not be approved, partly for the reason that "it is impossible to preserve communications secrets through the revising of the Law now in force." Therefore, under the Postal Services Ministry's draft plan, it will be impossible for private information and communications enterprise operators to offer such high-level communications services as computer communications services or mail services (services for transmitting documents for office automation).

Moreover, concerning the connection of public communications circuits, specific communications circuits, and public communications circuits (so-called public-specific-public connection) which will become indispensable for private information and communications enterprise operators to offer information-processing networks, it will be placed under an individual approval system, on the grounds that there is fear of its causing the utilization of services similar to telegraph and telephone services which are the regular services of NTT. The connection of public communications circuits with specific communications circuits (public-specific connection) will not be approved, either, in the case of carrying out message exchange.

\* \* \* \* \*

Far Removed from Overall Liberalization; MITI to Show Repulsion

In connection with the Postal Services Ministry's draft plan for the liberalization of data communications, MITI intends to show strong repulsion, from the stand that the exchange of messages in regard to use by others will be limited in actual substance, and that it is far from the overall liberalization of data communications, as sought by MITI up until now. It also intends to press for a large-scale revision of the Postal Services Ministry's draft plan.

In regard to the Postal Services Ministry's draft plan, MITI has particularly taken up the following points as problems: (1) The

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information-processing system (such as mail services), including message exchange as to use by others, has not been approved, and the proposed use by others will also be inconsistent with the Provisional Administrative Affairs Research Council's recommendation calling for liberalization in principle; (2) in the case of use by others, the scope of liberalization will be limited, when compared with joint use, and this will be disadvantageous for medium and small enterprises which cannot but rely on the networks to be established by information-processing enterprisers; and (3) the concrete contents of the planned liberalization are not clear, because they will be decided on the basis of the Postal Services Ministry Ordinance or on the basis of the standards for granting approval.

MITI plans to sound out the Postal Services Ministry on its way of thinking as to these concrete problematical points and to seek the revising of the Public Tele-Communications Law in the form of following MITI's basic policy for securing the overall liberalization of data communications.

\* \* \* \* \*

Gist of the Postal Services Ministry's Draft Plan for Liberalization of Data Communications

Following is the gist of the Postal Services Ministry's draft plan for liberalizing the use of data communications circuits:

1. Joint Use of Specific Communications Circuits: The individual approval system concerning the joint use of specific communications circuits shall be abolished, and at the same time, the Postal Services Ministry Ordinance shall be revised as follows:

(1) Necessary communications for services, which have continuous transactions, can be freely established if they are for data-processing purposes.

(2) If they are State organizations, local public entities, two or more persons who engage in the same line of business, or persons who have close business relations with each other, [the use of communications circuits], including the utilization of telegraph and telephone services, can be freely secured, though it has not been approved up until now.

2. Joint Use of Public Communications Circuits: Restrictions on the joint use of electronic computers, etc., shall be abolished, with regard to contracts for the use of public communications circuits.

3. Use of Specific Communications Circuits by Others: The standards concerning use by others, as set forth in Paragraph 1, Article 55-13 of the Public Tele-Communications Law, shall be revised, while

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Postal Services Ministry's Draft Plan for Liberalization of Data Communications

	Plan for Coping with the Situation	Method of Coping with the Situation
<p>Joint use</p> <p>Expansion of Scope</p> <p>Approval for message exchange</p>	<p>Restrictions on the scope will be abolished, and necessary communications for services will be possible.</p> <p>Message communications, which will inevitably arise, accompanying the incomplete processing by computers or of data, will become possible, and in the case of having close business relations, liberalization, including the use of telegraph and telephone services, will be carried out.</p>	<p>Revision of the Postal Services Ministry Ordinance</p> <p>Revision of the Postal Services Ministry Ordinance</p>
<p>Use by others</p> <p>Easing of restrictions</p> <p>Approval for message exchange</p> <p>Establishment of connection to computers</p>	<p>Use of circuits for data-processing purpose will be free.</p> <p>Possible only for communications which will inevitably arise, accompanying the incomplete processing by computers or of data, which processing will not become communications services.</p> <p>Connection to customers' computers will be possible.</p>	<p>Revision of standards for approval</p> <p>Revision of standards for approval</p> <p>Addition of one article to the Public Tele-Communications Law</p>
<p>Mutual connection</p> <p>Abolition of the individual approval system</p> <p>Connection of public, specific, and public communications circuits</p>	<p>Connection of public and specific communications circuits will be free, unless message exchange is carried out.</p> <p>Connection of public, specific, and public communications circuits will also be possible under an individual approval system.</p>	<p>Revision of the Public Tele-Communications Law</p> <p>Revision of the Public Tele-Communications Law</p>

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restrictions on use by others shall be eased on a large scale, in order to enable the free use of circuits for data-processing purposes.

4. Mutual Connection of Specific Communications Circuits and Public Communications Circuits: In reference to the connection of specific communications circuits and public communications circuits, the individual approval system shall be abolished, and efforts shall be made to enable the connection thereof under the certain standards to be prescribed by a Postal Services Ministry ordinance. Moreover, the connection of public communications circuits, specific communications circuits, and public communications circuits can be secured with approval, though it has not been approved up until now.

5. Connection to Electronic Computers, Etc., to Be Installed by Others: Connection to electronic computers to be installed by contractors under the use-by-others system and to electronic computers, etc., to be installed by others involved in the contracts can be secured if it comes under the certain standards to be prescribed by a Postal Services Ministry ordinance, or if it obtains individual approval.

6. Installation of Input and Output Equipment, Etc.: The Public Corporation or companies can offer input and output equipment, etc., to contractors for the use of specific communications circuits or contractors for the use of public communications circuits.

Supplementary Note: When the Public Tele-Communications Law is partially revised, in order to consolidate the use of data communications circuits, the strengthening of the Penal Regulations, which is an urgent task, shall be carried out.

(1) In regard to persons who engage in public tele-communications services, the provisions of the Penal Regulations concerning their obligation to preserve secrets shall be strengthened.

(2) The amounts of fines, mentioned in the Penal Regulations, shall be revised.

\* \* \* \* \*

[25 Feb 82 p 3]

[Text]

MITI on the 24th formulated an opinion of criticism, to the effect that the general outline of a Public Tele-Communications Law revision bill, drawn up by the Postal Services Ministry in connection with the problem of liberalizing data communications, "is still far from liberalization." MITI says that if the Postal Services Ministry's draft plan

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is to be followed, then problems will remain as to the following points: (1) The scope of liberalization is indefinite; therefore, there is the fear that depending on how it is operated, it may violate the Provisional Administrative Affairs Research Council's recommendation calling for the liberalization of data communications, as a general principle; and (2) this will prove disadvantageous for the processing of information by medium and small enterprises, which are unable to have their own computers, when compared with big enterprises. MITI will strongly request the improvement of these points in the course of the Postal Services Ministry's drawing up a draft revision bill, from now. But the Ministry is not changing its posture of revising the Law along the line of its general outline. For this reason, further complications are expected before early March, when a final decision is expected to be reached on the revision bill.

Data communications mean the processing of information through the direct connection of computers and communications functions, as in the case of the on-line systems of banks. Due to the vigorous renewal of technology and the appearance of new forms of services in rapid succession, voices calling for the liberalization of the use [of data communications circuits] have become stronger, centering on the enterprises and information-processing services business-persons who use computers. In response to this request, the Postal Services Ministry drew up its revision-bill general outline on the 24th. In regard to the general outline, MITI points out that there are concrete problems as to the liberalization of "message exchange" and "use by others."

Message exchange means the transmitting of information as is, without changing the contents thereof, as in the case of the telephone, even if it goes through a computer. Data communications for processing large amounts of information will inevitably include message exchange. However, the contents of the Postal Services Ministry's draft plan are such that depending on how the Postal Services Ministry Ordinance is operated, message exchange can be restricted, in actual substance. The stand of MITI is that there is fear of its violating the Provisional Administrative Affairs Research Council's recommendation which emphasizes that "message exchange should be liberalized, in principle."

Use by others means that information-processing enterprisers will lease circuits from the Nippon Telegraph and Telephone Public Corporation (NTT) and sub-lease them to other enterprises. The main objects for the joint use of communications circuits by two or more companies are big enterprises, while [those for use by others] are medium and small enterprises which are unable to have their own computers. However, under the Postal Services Ministry's draft plan, use by others will be restricted strictly, compared with joint use. MITI says, "For example, when trying to establish business contacts by telegram through the use of data communications circuits, it will not be permitted in the case of use by others, though it will be possible, in the case of joint use. There is the fear that this may cause gaps in information

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services, which can be used, between medium and small enterprises and big enterprises.

\* \* \* \* \*

Prime Minister Orders Co-ordination of Views between MITI and Postal Services Ministry -- Data Communications

Postal Services Minister MINOWA called on Prime Minister SUZUKI at the Prime Minister's Official Residence on the 24th, and explained the outline of the Ministry's draft of a Public Tele-Communications Law concerning the liberalization of the use of data communications circuits, which draft was submitted to the LDP Communications Department on the same day. In this connection, the Prime Minister ordered the continuation of studies between MITI and the Postal Services Ministry as to high-level communications services and other parts on which co-ordination has still not been carried out between the two sides. Moreover, concerning the part which is included in the Provisional Administrative Affairs Research Council's second recommendation, but which is excluded from the Postal Services Ministry's draft plan this time, the Prime Minister presented a request, saying, "I want you to explain it fully to the Provisional Administrative Affairs Research Council."

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FRANCE

ARIANE 4 EXPECTS 43 PERCENT OF MARKET FROM 1986 TO 1990

Potential Markets, Launch Reliability

Paris AIR ET COSMOS in French 6 Feb 82 pp 34-35

[Article by Pierre Langereux]

[Text] The Arianespace company has for the first time released, during the meeting on the future European launcher, the results of a new market study relating to the Ariane 4 launcher for the period 1986-1990. This study, carried out in 1981 with the help of the Sligos company, based on an information-processing simulation of the satellite market for the period 1985-1991, has been used particularly to determine what configurations of Ariane 4 rockets will be the most suited to that market and to quantify the system-response parameters of the Arianespace company's operations, enabling appropriate guidelines to be drawn up for the latter. The results, presented by B. Guillaumat of Arianespace, place the potential market, in terms of the number of satellites that could be launched by Ariane 4 over the 5-year period 1986-1990, at between 50 and 62 satellites, these figures representing two estimates (medium and high) of the new European launcher's ability to penetrate the potential global market.

The simulation took into account the Ariane 4 launcher that will be available by the beginning of 1986 for operational use, in six configurations (depending upon the use of two or four solid-propellant and/or liquid-propellant boosters) with nose cones 4 meters in diameter and 9.5 to 13 meters in height depending upon the mission (single or double launchings). These six configurations were selected as the best suited on the basis of the following criteria:

--Minimization of the number of launchers used for any given scenario (specifying a number of satellites to be launched);

--Minimization of the overall cost of the launchings (which takes into account, on the one hand, the actual cost of a given launching and, on the other hand, the fill factor for the launcher);

--Minimization of the risks inherent in the dispersion of the overall launch costs of a given scenario, depending upon the launch dates actually requested by the potential clients. To eliminate the effect of individual cases, a large

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number of configurations of dates were drawn up for each scenario. Each mission model thus generated yielded its own multiple launching associations, hence a dispersion of costs. Furthermore, for each mission model several sets of associations are possible, account taken of degrees of freedom. Optimization yields launchings at minimum cost, the others falling within a cost spread of around 5 percent.

The performance characteristics of the six configurations of Ariane 4 launchers that have been chosen for launchings into geostationary transfer orbit will enable single launchings of satellites weighing respectively: 2,000 kg (Intelsat 5A or direct-TV satellites), 2,600 kg (enhanced direct-TV satellites), 3,000 kg, 3,200 kg, 3,700 kg (Intelsat 6), and 4,200 kg (enhanced Intelsat 6). The same configurations with the SPELDA [expansion unknown] system (375 kg) will enable double launchings respectively as follows: 1,450 kg (Telecom or direct TV) and 775 kg (meteorological); 1,450 kg (Telecom or direct TV) and 1,175 kg (Telecom); 1,450 kg (Telecom or direct TV) and 1,375 kg (Telecom or direct TV); 2,000 kg (Intelsat 5A or direct TV) and 1,325 kg (Telecom or direct TV); 2,450 kg (direct TV) and 1,375 kg (Telecom or direct TV). Satellites weighing 3,000 kg (enhanced SPOT [Earth Observation Probe System]) can also be launched in the single-launch mode into heliosynchronous\* orbit.

The study took into account only the period 1986-1990, considering the years 1985 and 1991 only as representing boundary conditions. Ariane's potential market is thus estimated at 178 satellites over the 1985-1991 period (7 years) and at 143 satellites over the 1986-1990 period (5 years). The world market (outside the USSR and not counting U. S. military satellites) for the same periods is, respectively, estimated at 258 and 207 satellites. Taking into account only satellites covered by current, scheduled, known or planned programs, the simulation has intentionally underestimated the potential market for the period 1988-1991 in the interest of realism. The world and potential markets have been broken down into five country groupings, ten types of missions, two types of orbits (heliosynchronous and geostationary), and nine classes of satellites (see tables).

The simulation has in particular identified the possibilities of association of satellites permitting double launchings with Ariane 4, the criterion used for this selection having been the determination of a minimum launching cost for a given mission model, and this criterion being subject to adjustments in actual practice to deal with inevitable delays attributable to the satellites. The simulation thus yielded more "realistic" possibilities of association within a deviation of around 5 percent from the minimum-cost association.

Thus, the study has resulted in the following findings: Ariane 4 can expect to launch between 50 and 62 satellites (medium and high estimates) during the period considered (1986-1990), representing a penetration of 35 to 45 percent into the potential market. This will represent between 32 and 41 launchings (single and double combined) in 5 years, or a little over 6 to 8 launchings per year (an estimate that is compatible with the Kourou complex's launching capabilities). The launch coefficient, which takes into account a certain mission scrub rate, attributable either to the launcher or the satellite, is estimated at 15 percent. These market assumptions yield a mean fill factor of 88-89 percent for the number of missions and the period considered.

Ariane Launcher's Potential Market for 1986-1990 (Source: Arianespace)

Country Grouping	Total Market*		Ariane's Potential Market - 1986-1990					
			Total		Medium Estimate		High Estimate	
	Satel- lites	Share (per- cent)	Satel- lites	Share (per- cent)	Satel- lites	Share (per- cent)	Satel- lites	Share (per- cent)
Europe	43	16.6	43	24.2	30	88	34	100
United States	135	52.3	55	30.9	4	22	6	33
International bodies	24	9.3	24	13.5	4	9.5	6	14.3
Other developed countries	25	9.7	25	14.1	6	25	6	25
Developing countries	31	12.1	31	17.3	6	24	10	40
Total Market:								
1985-1991 (7 years)	258	100	178	69	-	-	-	-
1986-1990 (5 years)	207	-	143	-	50	-	62	-

\* Worldwide, except USSR and other communist countries.

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Ariane Market Forecasts: 1986-1990

<u>Item</u>	<u>Penetration Forecasts</u>	
	<u>Medium</u>	<u>High</u>
Market penetration (percent):		
Ariane potential	35	43.5
Worldwide	24.1	30
Satellites launched by Ariane:		
Total	50	62
In low orbits	7	8
In geostationary orbits	43	54
Total launched weight (tons)	90	108
Number of launches		
Single	16	16
Double	16	25
Total	32	41
Average launches per year (5 years)	6.4	8.2
Number of satellites per rocket (average)	1.5	1.6
Fill factor (percent):		
Single launchings	81	81
Double launchings	91.5	92
Average	88	89

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Geostationary Satellite Launch Cost

Paris AIR ET COSMOS in French 6 Feb 82 p 35

[Article by Pierre Langereux]

[Excerpt]

Geostationary Satellite Launch Costs\*  
(Source: ESA [European Space Agency])

(1) LANCEURS	(2) Masse de charge utile en orbite...			(6) Coût de lancement	
	(3) Basse kg	(4) Transfert kg	(5) Géosynchrone kg	Total Millions \$	Rapport à charge (7) \$/kg
1 Ariane 44 L + Apogée .....	—	4 300	2 485	72	29 000
1/2 Ariane 44 L + Apogée .....	—	2 000	1 156	42	36 300
1/4 Shuttle + SSUS-D + Apogée .....	(4 445)	1 247	643	27	42 000
1/2 Shuttle + SSUS-A + Apogée .....	(7 642)	1 996	1 029	48	46 500
1 Shuttle + IUS .....	21 150	—	2 280	90	39 500
1 Shuttle + Centaur .....	—	—	5 000	90	18 000
1/2 Shuttle + Propulseur intégré(8)	11 000	—	1 923	38	19 800
1/2 Shuttle + Périqée + Apogée.	(12 000)	2 400	1 752	52	29 700

\*Note: These estimates are based on the following (1981) costs of launchers: 1 Shuttle \$60 million, 1/2 Shuttle \$30 million, 1 Ariane 44 L \$70 million, 1/2 Ariane 44 L \$40 million. The (1981) costs of upper stages are: 1 IUS (solid) \$30 million, 1 Centaur (cryogenic) \$30 million, 1 SSUS-A (solid) \$16 million, 1 SSUS-D (solid) \$10 million, 1 perigee motor (liquid) \$20 million, and 1 apogee motor (liquid) \$2 million. The integrated propulsion system (IPS) serving as perigee and apogee motor is calculated at \$8 million.

Key:

- |                             |                                   |
|-----------------------------|-----------------------------------|
| 1. Launchers.               | 5. Geostationary orbit - kg.      |
| 2. Payload weight in orbit. | 6. Launch cost.                   |
| 3. Low orbit - kg.          | 7. Cost as/payload ratio - \$/kg. |
| 4. Transfer orbit - kg.     | 8. Shuttle + IPS.                 |

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FRANCE

## BRIEFS

ARIANE OPERATIONAL LAUNCH IN APRIL--The CNES [National Center for Space Studies] and the ESA [European Space Agency] have just confirmed in a joint release that the first operational launch of Ariane 1 is still scheduled for the end of April 1982 (tentatively, after 20 April) with two European geostationary satellites--MARECS-2 and SIRIO-2--that will use for the first time the SYLDA [Ariane Double Launch System] developed by Arianespace. This first operational launch (L5), which follows four flight test launches (L1 through L4) carried out between December 1979 and December 1981, will also be the first launch of the "promotional series" that is being sponsored by the ESA. Seven operational launches are planned under this promotional series, four in 1982 and three in 1983. Subsequent launches, after September 1983, will be done by the private company Arianespace. The CNES and the ESA have jointly confirmed the operational qualification of the Ariane 1 launcher decided unanimously on 25 January 1982 by the 10 countries participating in the program. [Text] [Paris AIR ET COSMOS in French 6 Feb 82 p 35] [COPYRIGHT: A. & C. 1982] 9238

ARIANE LAUNCH SET FOR APRIL--The first operational launch of the new European Ariane rocket is currently planned for 22 or 23 April of this year, at Kourou (French Guyana); its payload will be two new European geostationary satellites, MARECS B and Sirio 2. This will be the fifth launch of the Ariane rocket, which is henceforth qualified after the success of three out of four flight tests conducted between December 1979 and December 1981. This will also be the first launch carried out with the new double launch system, SYLDA, specially developed by Aerospatiale. SYLDA is an adapter shaped like an enormous egg, made of carbon fibers for reasons of lightness and rigidity. One of the satellites is placed inside, while the other is attached to SYLDA; after insertion into orbit, the latter opens in two, to release the satellite placed inside. The satellite MARECS B is the second European maritime telecommunications satellite built under ESA direction, for the new organization for maritime telecommunications by means of Inmarsat satellites. The satellite Sirio 2 is a new European experimental satellite built in Italy for ESA. Sirio 2 will have two missions: distribution of data (treated images) from the European meteorologic satellites Meteostat (MDD experiment), and synchronization of atomic clocks by laser telemetry across the Atlantic (LASSO experiment). [Text] [Paris AIR ET COSMOS in French 20 Feb 82 p 37] [COPYRIGHT: AIR ET COSMOS 1982] 11,023

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