

# COMMISSION OF THE EUROPEAN COMMUNITIES

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## Opinion of the Board of Governors of the Joint Research Centre on the Mid-Term Evaluation of the JRC

(presented by the Commission)

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The Board of Governors met in plenary session on 7 December 1989 to consider the findings of an evaluation panel of independent experts appointed by the Commission to examine the Joint Research Centre. The report is appended to this opinion.

Our opinion follows and refers to numbered paragraphs appearing in the Panel Report. (Annex)

### Principal Findings

#### Paragraph 1

We appreciate the favourable impression made on the Panel by the competence and enthusiasm of the staff and by the progress made. In our opinion this striking improvement can largely be attributed to the efforts of the Director General. We note the Panel's optimism for the future of the JRC and share its views.

#### Paragraph 2

It will be recalled that when the Commission's proposal on a new JRC structure was in preparation, the Board had pressed the Commission to explore the possibility of establishing the JRC as an agency within the CEC framework. Thus we fully agree with the opinion of the Panel and believe that the matter should be re-evaluated before the end of the current multi-annual programme in 1991. In the meantime we shall, of course, continue to do our best within the present framework, even though, like the Panel, we do not regard it as an appropriate system for running research laboratories.

### Strategic Planning

#### Paragraph 3

We accept that it is indeed the function of the Board to formulate strategic guidelines for the future direction of the JRC and to adapt them as circumstances change.

#### Paragraph 4

The Board recognised the extreme importance of exploratory research and agrees that amounts allocated should be increased from the present 5% to a figure in the region of 10% with appropriate strategic guidelines from the Board. We also agree with the view expressed by our Sub-Committee on Exploratory Research that a modest proportion of the resources allocated under this heading should be used at the sole discretion of Institute Directors with a posteriori control.

### Customer Contractor Principle

#### Paragraph 5

We fully support the customer contractor principle and intend to widen its application as far as possible.

#### Paragraph 6

We agree.

#### Paragraph 7

We have, on many occasions, insisted on the need for flexibility in research programme management and brought our views to the notice of the Commission. As in the past, our advice on programme changes will be based on demonstrated needs which may of course emanate from various internal and external sources (e.g. as a result of exploratory research).

#### Paragraph 8

We agree with the Panel that the "project management" option is generally the most appropriate.

#### Paragraph 9

We agree with the importance of incentives and the Director General informs us that indirect incentives already exist in the shape of additional staff and financial resources provided to Institutes with a demonstrated success in attracting third party work.

### Marketing

#### Paragraph 10

We understand that the Director General intends to supplement his capacity to formulate an overall marketing strategy by making appropriate staff acquisitions at headquarters' level.

#### Paragraphs 11 and 12

We agree with the Panel's remarks on cooperating clubs in enabling technologies (some of which have already been initiated), with the market importance of specific test facilities and with the modest expectations from license income.

### Structure

#### Paragraph 13a

While we naturally agree that such powers as we have should be fully exploited, we are at the same time sensitive to the criticism that so far we have not devoted enough time to matters of general strategy. We intend to rectify that in the future.

Paragraph 13b

It is the unanimous opinion of the Board that an increase in its size would be undesirable. However, the balance of expertise among members which is considered to be reasonable, should be kept, as at present, under constant scrutiny by the Commission. It must, however, be remembered that the Commission's freedom of choice is limited to having an exchange of views with nominations actually made by Member States. It is already the practice to consult the Chairman when making new appointments.

Paragraph 13c

In the opinion of the Board the present system of appointing a Chairman does allow a satisfactory scrutiny of the various factors involved which include, apart from his or her personal qualities, a certain degree of independence, as well as previous experience in science, industry, government, etc. A distinguished international figure is essential and we consider independence to be perhaps the most important attribute.

Paragraph 13d

We agree that Institute Directors should not automatically attend the whole of all meetings. Attendance will be based on need and this matter is under discussion with the Director General.

Paragraph 13e

The Board's opinion on flexibility can be found in our comments on Paragraph 7 of the Report.

Paragraph 14

We agree that the span of control of the Director General is too wide. We strongly agree with the opinion of the Panel that nine institutes is excessive and that the number should be reduced, an opinion that the Board expressed when these were created. We also agree that the amalgamation of the Centre for Information Technologies and Electronics with the Institute for Systems Engineering would be an important improvement to the structure of the Centre.

Paragraph 15

We believe that activities in Prospective Studies could be continued in a separate way without any loss of efficiency.

Paragraph 16

We agree.

Paragraph 17

Our concern is that the JRC should have an efficient, accessible central library and we have practical arrangements with the Director General.

Paragraph 18

We agree about the problems resulting from the existing staff procedures, a consequence of the Staff Regulations. Recruitment is indeed difficult and the 3 year non-renewable contracts have not proved successful and a strict and

effective application of the previous 5 year "renewable" contracts' policy would be preferable. The matter requires further discussion but recruitment should of course be more under the control of the scientists themselves.

Paragraph 19

We regretfully agree.

Paragraph 20

This matter requires further consideration.

Paragraph 21

We agree.

Paragraph 22

We agree with the Panel that a constant watch must be kept on priority and the Board regards this as part of its remit.

Conclusions

Paragraph 23

The Board wishes to express its thanks to the Panel for the thoroughness of the analysis it has made and appreciates its optimistic assessment of future possibilities. The Board is pleased to note that the Panel's recommendations by and large agree with its own preoccupations.

## **JRC Evaluation Panel 1989**

### **Mid-Term Evaluation of the JRC**

**December 1st, 1989**

EXECUTIVE SUMMARY

This executive summary is provided to help the reader find relevant sections of the main report. The summary omits many nuances to be found in the main report and should not be read on its own. Each section of the summary refers to paragraphs in the main report.

1. The Panel felt that good progress had been made in implementing earlier recommendations for improved efficiency of the JRC. The quality of the work itself, and the communication of results, deserve praise. (Paragraphs 1 and 2, 21-23).
2. Strategic planning should be strengthened throughout the JRC and its customers. (Paragraphs 3-5).
3. The Panel recommends that the number of Institutes should be reduced, and in particular that the Centre for Information Technology and the Institute for Systems Engineering should be merged. (Paragraphs 14, 15).
4. The customer/contractor principle should be extended and intensified, especially as it applies to Infrastructure Services, and the relationship between the JRC and other DG's for whom it acts as a contractor. (Paragraphs 6-12, 16, 17).

5. The composition of the Board should be re-assessed to include additional persons with industrial experience. Its method of operation should be reassessed to focus on more strategic issues. (Paragraph 13).
  
  6. Current recruitment procedures are unacceptable for an efficient research organisation. The Institute Directors must be able to hire staff directly and rapidly. (Paragraphs 18-20).
  
  7. The JRC needs more flexibility in operation than is permitted by current constraints to act as an efficient research organisation. (Paragraph 2).
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I N T R O D U C T I O N

The Panel consisting of:

H.L. Beckers (Chairman)	Shell	Netherlands
H.G. Danielmeyer	Siemens	Germany
E.R. de Arantes e Oliveira	CESE	Portugal
Y. Farge	Pechiney	France
D.J. Giachardi	Courtaulds	United Kingdom

was appointed by the Commission to carry out an evaluation of the JRC at mid-term.

The Panel was requested to assess:

- scientific, technical and economic results of the research undertaken,
- user-relevance of the research undertaken and its contributions to the overall objectives of the Community research and development policy, including the value added to the research by having it undertaken by the JRC,
- impact of the administrative and financial restructuration of the JRC on the cost of the work and the efficiency of its execution,

to make recommendations relevant to:

- the use of research results stemming from the JRC work indicating potential users and the proper ways of transfer of knowledge,
- orientations of adaptations to the research undertaken for the 1988-1991 period,
- further managerial measures necessary to ensure the overall objectives for the JRC in the 1988-1991 period,
- and on any other matters that seem relevant to the panel.

The findings of the Panel are based on interviews with the Director General and all JRC Directors, some site visits and selected customer interviews. The meetings and the site visits of the Panel are listed in Annex I. The Panel gratefully acknowledges the assistance given by all those who participated in discussions, and particularly Mr.M.Merz, the Secretary to the Panel.

P R I N C I P A L F I N D I N G S

1. The new members of the Panel were favourably impressed by the competence and the enthusiasm of the staff of the JRC they met. Those members of the Panel who had studied the JRC before were very impressed by the progress made since the implementation of the reorganisation. Since this reorganisation required deep cultural changes, it is by definition a process that requires time and will still need more time in the future, before it will be fully effective. But the Panel is very optimistic since, from a limited number of customers who were questioned, scientific quality, value for money, speed of response and quality of reporting were highly praised.

2. It is obvious that the freedom of movement of the JRC within the bureaucratic system of the Commission's rules and regulations is extremely limited. Ideally, the JRC would be able to be far more effective and flexible if it could be, in one way or another, an independent Agency within the CEC framework. Assuming that this is not possible because of political and legal conditions and requirements, the JRC will need some minimum flexibilities and freedom of actions which are basic and fundamental if it wants to act as an organisation able to do both basic research and applied research in an effective way.

The Panel was therefore pleasantly impressed by the fact that a great number of recommendations made by the Panel of Senior

Industrialists in 1986 were indeed taken over by the Commission and introduced.

The Panel has tried in the rest of this report to provide observations and recommendations which could help to speed up the changes introduced.

### S T R A T E G I C P L A N N I N G

3. There is a need for the JRC to do its own medium and long term strategic planning. It is recognised that the JRC cannot evolve independently of the requirements of its customers; and that these requirements will change with time. In order to cope with these changing requirements (as an example for human resource planning), the JRC must develop its own medium term planning, which of course in due time has to be adapted to the circumstances and needs of its customers. A future direction for the JRC should be given to them. This task is obviously one for the Board of the JRC. The direction can be prepared by the Director General as a preparation for detailed discussions by the Board, but guidelines have to come from the Board about this future direction.

4. As recommended by the previous Panel of Senior Industrialists we again urge to increase the amounts allocated for Exploratory Research from the present 5% to a recommended level of 15%; 10% should be regarded as an absolute minimum. The present level of activity is so low that it really cannot make an impact on the long term development of the JRC or on the development of the skills needed to fulfill the contracts placed by the customers of the JRC. In this connection the Panel also advises that the Board should take a strategic lead in the development of the Exploratory Research Programme. Guidelines should come at regular intervals from the Board before any planning of the Exploratory Research Programme is started.

The reason that the Panel is making this strong recommendation to increase the level of exploratory research from 5% to as a minimum 10%, preferably 15%, is that almost as a minimum in most technically based industries the amount spent on Exploratory Research is in the range 10% to 15% or higher. This rule is considered to be a pragmatic one and is confirmed by practice elsewhere.

#### CUSTOMER / CONTRACTOR RELATIONSHIP

5. The Panel also concluded that, although the customer/contractor principle is applied in some cases (and the Panel is favourably impressed by the impact its application has already made in the JRC), this principle should be applied in more cases. Examples of these are:

- a. The formulation of the research programme based on a customer/contractor relationship could be done with more involvement of the various DG's who have the responsibility in particular areas for the application of this R & D. As an example DG XI (Environment) really should become the main customer for all the R & D work that is done in the JRC in the area of the environment. Therefore from year to year deeper discussions should take place between DG XI and the JRC regarding what sort of R & D programmes the JRC should really work on.

In this connection the possible restructuring of the research administration of the Commission could strengthen the neutrality of the JRC, and also make it independent from DG XII. This concept is supported by the Panel because it would also make the split between resource planning and programme planning more clear.

- b. The Panel found that customer/contractor relationship between the infrastructural services and the various Institutes of the JRC, although applied in a number of cases, could be extended quicker and further in various areas. The Institutes of the JRC should really be responsible for their own resource management. The infrastructural service area should in general terms act as a contractor to its customers, the various

Institutes of research. This would allow the Institute Director to have control over, and responsibility for, a much higher proportion of their budget than at present.

- c. Another example is the role of the Centre for Information Technologies and Electronics in the JRC. Many large industrial organisations are working in this area and devoting a huge amount of resources to pre-normative research. It is so directly connected with the competitive position of these companies that it would be foolish to assume that an institute like the JRC could play any role other than one which exploits its neutrality. The Panel believes there is no major role for this Centre in the information technology world. It is almost impossible for the Centre, unless resources are multiplied by factors of 10, to play a significant role in the European competitive position in information technology. It should act as a contractor for all the other Institutes in the JRC and possibly external organisations to provide support work in the world of computing, mathematics and information.

6. In the context of the customer/contractor relationship it is worthwhile mentioning here that it is common practice in

industry that guidelines given by contractors are in the first place business guidelines, i.e. describing the needs of the company. The same should apply in the JRC: what it needs are guidelines from its various customers to describing their requirements. The implementation of those needs in research programmes and projects is something that has to be done by the JRC who, in turn, then will come up with proposals not only describing the projects but also the accompanying resource needs in money and in staff. It is obviously necessary that, when providing these business objectives, or needs of society, the constraints are also given, not only in amount of resources which could be available but also political or other constraints which the JRC must take into account whenever it starts programming and planning of its budget.

7. In this connection it also should be stated that there is a need for the Board to have some flexibility in executing the various programmes within the 4 year JRC programme. However, this flexibility should not go so far that the Board of the JRC can change the programmes solely because of its own conviction. If the Board feels a need to change the programmes again, it should take this up with the relevant customer and make it clear that the Board believes the programmes need change. The Board of the JRC should



never be put in a position where it acts as a resource manager as well as a contractor. This will confuse the whole split between resource managers and programme managers\*, and lead to conflicts of interest.

8. As far as the interface of the JRC with cost-shared actions is concerned, the Panel understood that there are two principal options. One is the participation together with national laboratories or industries in competition for cost-shared action projects; the other is execution of scientific project management where specialised skills are required, providing possibilities for strong interaction with the outside, putting the JRC in an overall coordinating role and enabling increased contacts with industry. A combination of both these options would, in the opinion of the Panel, lead to an incompatible situation which should be avoided by the JRC. The Panel is of the opinion that the project management

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\* The resource manager has operating responsibility for maintaining an establishment, its staff, and the overall economics of the establishment.

The programme manager or contractor must see that specific work for customers (Member States, DG's, industry) is undertaken on time and to budget.

option should be preferred and that it should under no circumstances be combined with participation in cost-shared actions, which would lead to conflicts of interest. Such participation could also introduce distortions in the selection process and the financing scheme. Cost-shared actions involving the JRC would attract more Community financial support than cost-shared actions undertaken at other participating laboratories leading to distortions and conflicts of interest. Whenever the JRC acts in the management role of cost-shared actions an explicit customer-contractor principle must be established with the relevant DG.

9. With respect to Third Party work it is well understood by the Panel that the mission for the various Institutes of the JRC is different and should be kept in mind in all planning. But it is also recognized that those Institutes who are working for Third Parties are getting their guidance and targets from the Director General in order to reach a certain amount of Third Party work. What is also needed in addition to targets, is that incentives for the leaders doing this Third Party work are increased. Therefore a large part of the revenue that is coming in from Third Party work should go straight back to the departments who are really providing the skills for that Third Party work.

M A R K E T I N G

10. Marketing should be undertaken as close as possible to the level at which work is taking place and by those trained to sell the capabilities of the JRC. This should not be simply the scientist, who will frequently misjudge the commercial position. In addition, for the whole of the JRC, there should also be a small group under the direct guidance of the Director-General, to analyse possible market opportunities in the broad sense and make sure that guidelines are sent out to the various Institutes stating these opportunities and what the restrictions are. In this respect the Board of the JRC again, should express their opinion in broad terms in drawing up guidelines about particular segments of the market.
  
11. Although not strictly within the context of this framework, one of the items which were discussed in extenso by the Panel was market opportunities for external work. In this respect a broad guideline emerged that the JRC should focus its Third Party work for industry on enabling technologies. There is certainly not a tendency within industry to share their core know-how for competitive reasons with outside institutes such as the JRC. Formation of cooperating clubs in enabling technologies however, has proven to be a very good method for organisations like the JRC to help both large companies and SME's.

Another segment of the market which is important is the availability of specific test facilities which are expensive or unique. Since the JRC has a number of those which are not well-known in industry, it is worthwhile promoting those special and unique facilities which could be very helpful for industry. This statement about special test facilities not only holds for industry but is also obviously true for scientific R & D executed by public institutions and universities.

12. Income from work for Third Parties should come essentially from the execution of research or from the use of specialised test facilities and not from the income one can derive from licences on patents. The scope for license income is often very much overestimated because in the whole development process of products and processes, the first part, involving the patents alone, is often a very minute part of the total costs involved in the development process and putting too much emphasis on that part alone gives a false impression.

S T R U C T U R E

13. With respect to the Board of Governors the Panel recommends the following.
  - a. The overall position of the Board has to be strengthened, the terms of reference to be fully exploited and especially more attention should be dedicated to strategic aspects. Funding strategy, strategic planning and evaluation of exploratory research must be intensified.
  - b. The composition of the Board should be revised in order to include additional representatives from industry. These additional people could be sought in order to strengthen the Board by bringing in additional expertise and competence. Examples might include somebody with experience of large commercial research organisations or those with knowledge about how SME's work. In this connection it is also recommended that a significant portion of the Members of the Board should have active responsibilities in science, industry or government.
  - c. The profile and experience of future chairmen should be reassessed in the light of the future needs of the JRC at the time of appointment. At times it may be appropriate to have a Chairman with industrial or other experience.

- d. The practice of the Institute Directors attending the meetings of the Board should be abandoned, except when specific matters of an Institute under discussion require this.
  - e. Recognizing that the Board should not be in a position where it becomes customer of itself, it should be in a position where it has more freedom and flexibility in changing and reallocating resources, human as well as financial, according to the tasks not only for the customers within the Commission, but also for Third Party customers. Again, this is one of the basic requirements that is perhaps different from other services which are needed in an R & D organisation. Research and science are developing so quickly that to follow a plan that has been made up three years or even in some cases one year before in minute detail in a research organisation is just absurd.
14. The Panel came to the conclusion that the span of control of the Director General is too heavy. The Panel concluded that the number of Institutes should be reduced from 9 to 6 or 7. In judging which Institutes could be amalgamated, it was concluded that the Centre for Information Technologies and Electronics with its objectives as stated before in this report, could be amalgamated with the Institute for Systems Engineering. It was also considered whether the Institute for the Environment could be amalgamated with the Institute for Remote Sensing. The Panel came to the conclusion that given the specific objectives of the Institute for Remote Sensing, it would not be sensible to put those two Institutes together.

15. With respect to the Institute for Prospective Technological Studies the Panel is strongly convinced that this Institute should not really belong to the JRC and therefore measures should be taken to remove it out of the JRC as soon as possible. It is, however, recommended that connection with the JRC should be maintained. The reason behind this recommendation is that the Panel believes that independent technological assessment and contract R & D cannot be undertaken without bias in the same establishment.
16. As mentioned before, the Panel stresses again that between the various Institutes of the JRC the customer/contractor principle should also be applied as much as possible. As an example, the infrastructural services really should make contracts with the various research Institutes about the work they are providing for them.
17. The Panel was also convinced that the oddity of having the Library and the Publication Service in Ispra reporting to the Director of Programmes in Brussels, should be removed as soon as possible and put under the Director of Administration in Ispra.
18. Staff procedures appropriate to running an administrative civil service are inappropriate for running a research activity. The recruitment procedures currently in force are unacceptable for an efficient research and development operation, both from the point of view of delays and selection. Delays of 6 to 12 months are

appalling, and the procedure restricts the skills available in the JRC. The five year contract scheme is a disincentive for many people to work at the JRC. The change considered by Council to replace the 5 year renewable contract by a 3 year non-renewable contract scheme would further reduce the prospects of attracting high level people. Recruitment of people in a research organisation is something that has to be done by the scientists themselves under the supervision of their managers, not by a remote personnel activity. It is an essential point of an R & D organisation. If this is left the way it is, it really means that the JRC does not have one of the basic tools as mentioned in the introduction to do its work in an efficient way.

19. In this connection it should also be mentioned that the ability to second people from industry should not be overestimated. People working in industry who are really needed for the core R & D of industry will never be allowed to go out and often personally do not want to get out of the process they are involved in. It is only in the area of enabling technologies that there are possibilities of exchange of scientists from industry and the JRC. Although the Panel welcomes the secondment of people from industry, it believes that by definition it will always stay a few. Secondment from national laboratories and universities is of course much easier than from industry and that is one of the reasons why this is much more successfully done in the JRC as the secondment of industrial people.



20. Increased authority for the Directors of the Institutes as recommended by the Panel requires an appropriate reward system for the Directors of the Institutes. This will in itself require an appraisal system for the Directors.
  
21. The Panel felt that the existing accounting systems might not be optimal for the running of an efficient research organisation. A study for a new analytical accounting system has recently been undertaken, recommendations for changes made, and hopefully these will improve affairs. The Panel welcomes this initiative.
  
22. The Panel noted the recommendations, given to the JRC in the past, concerning areas for the JRC to work in, such as Pre-normative Research, Environmental Research, Research on Hazards in the Nuclear as well as in the Non-Nuclear field. The Panel advises that precautions should be taken not to cover all these fields to avoid spreading effort too thinly. It is quite obvious that in many of these areas the JRC has very good skills which can be applied. In other areas however, the JRC is less skilled relative to competing institutions. It is therefore recommended, that the JRC should be encouraged to work in those areas of these fields where it has very good skills so that it can contribute not only to do the necessary work in that particular area but also extend their work in possibly coordinating other efforts done in other national laboratories, universities or also in industry. It is obvious that in this respect the subsidiarity principle should be taken into account.

The JRC is in an excellent position to work on those areas which are related to across boundary aspects and leave the national activities indeed to the local laboratories. National governments should not drive or try to force the JRC into activities which are nationalistic rather than across boundary activities.

C O N C L U S I O N S :

23. The Panel is encouraged with the progress made by the JRC until now and is optimistic that the implementation of above recommendations will further accelerate progress.
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MEETINGS AND VISITS

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- GENVAL, B	14	October 1989
- HEATHROW, U.K.	01	November 1989
- KARLSRUHE, D	08	November 1989
- ISPRA, I	10/11	November 1989
- GEEL, B	23	November 1989
- PETTEN/HEEMSKERK, NL	24/25	November 1989