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SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD APPLETON LABORATORY

COMPUTING DIVISION

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CCSC DCS Panel - Policy Paper DCS/81-82/30

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COMPUTING AND COMMUNICATIONS SUB-COMMITTEE
DISTRIBUTED COMPUTING SYSTEMS PANEL

15 July 1982

POLICY PAPER

1. INTRODUCTION

The current policy of the DCS Panel is:

- a. Programme to end September 1984. Grant awarding by Panel to cease September 1982.
- b. Common software (UNIX, Pascal) and hardware (LSI-11, PERQ, Cambridge Ring) adopted.
- c. Effort to be concentrated on completion and transfer to industry of second phase of existing investigations.
- d. Size of portfolio not to be increased substantially. Applications from 'new' groups to be referred to Sub-committee unless exceptionally, they fill an important gap in the Programme.
- e. More weight to be given to industrial relevance as a criterion for judging applications.
- f. Equipment pool to be taken over by the Computing and Communications (C&C) Sub-Committee at the end of the Programme.
- g. Means of assessing success of Programme to be addressed during session.

2. FUTURE RULE OF THE DCS PANEL

At the July 1979 Policy Meeting of the DCS Panel it was agreed that no new grants would be funded after the third grant round in 81/2. At that time it was envisaged that the DCS Panel would continue to meet until January 1985 but with reduced frequency principally to monitor progress.

During 81/2 that the number of grant applications to be considered by the Computing and Communications Sub-Committee has increased twofold; for that Committee to be able to continue to give due attention to each application, it is necessary that as many applications as possible are 'pre-digested' by specialist panels.

The Panel are invited to offer to continue to meet before each CCSC meeting to formulate recommendations to CCSC on grant applications in the area of distributed computing. The Panel's role with respect to the DCS Programme will be a monitoring role. No new grants will be incorporated into the DCS portfolio.

3. WORKSHOP PROGRAMME

It is generally agreed by investigators in the DCS Programme that the Workshop programme is one of the most valuable features of DCS. It is proposed that an active workshop programme should continue until the termination of the DCS Programme.

The DCS Panel at their 1981 Policy Meeting endorsed the proposal to hold major Workshops in Summer 1983 and September 1984.

The Panel are invited to reconsider the need for such a major Workshop in Summer 1983 in the light of the Industrial Workshop planned for November 1982.

SERC's Robotics Initiative are planning a Workshop for July 1982 on applications of distributed computing techniques in robotics to which DCS investigators are being invited. The Control and Instrumentation Sub-Committee have asked for a Workshop to be organised on applications of DCS to control systems. It is proposed that such events should be supported subject to DCS investigators being willing to participate.

4. MAILSHOT

The Mailshot is also generally agreed to have been highly successful. It is proposed that this should continue until the programme terminates. The Panel are invited to recommend to CCSC that they should investigate ways of continuing the DCS Mailshot after the termination of the DCS Programme whilst the research community feel it is valuable. The circulation of trip reports in particular seems to have been very valuable.

5. EQUIPMENT POOL

The DCS Programme now has a large equipment pool from which items are loaned to investigators. The pool is maintained by SERC. When the programme terminates three courses of action are possible:

1. equipment pool becomes a CCSC equipment pool. Maintenance continues to be provided by SERC;
2. items of equipment in pool are offered to investigators. Maintenance will not be provided by SERC;
3. a combination of (1) and (2).

At present the equipment pool contains VDU's, magnetic tape decks, LSI-11 systems, Teraks, Cambridge Ring equipment, PERQs, hardware for connections to SERCnet, RT11, Unix and UCSD Pascal licences. The first four types of equipment in this list will be nearing 5 years of age when the programme terminates and are unlikely to be of interest to other CCSC funded groups when the programme terminates. Course 2 is appropriate for these items.

Cambridge Ring equipment is likely to be of general interest, but when the DCS Programme terminates the majority of CCSC funded groups may be expected to have acquired Cambridge Ring or other local area networks within their departments and so course 2 is appropriate here also.

PERQ systems pose a problem in that it is not at present clear how PERQs will be awarded by SERC in the future. Presently PERQs seem to be made available to investigators on loan for the duration of a grant, but there is pressure from CCSC that PERQs should be awarded as other equipment so that when a grant terminates ownership passes to the Institution. If SERC adopts a loan policy, then the DCS PERQs should become a part of the CCSC PERQ pool, otherwise they should be offered to the investigators to whom they are on loan when the programme terminates.

The hardware for SERCnet connections consists of modems and LSI-11 front-end systems for PDP11 systems running the Unix operating system. Connections to SERCnet are currently only permitted for machines owned by SERC. Agreement has been reached with the SERCnet management committee that DCS funded groups can connect to SERCnet if the hardware/software combination to be connected is approved by SERC. It is suggested that the SERCnet connections should continue to operate as a loan pool, but that the decision should be reviewed if the conditions for use of SERCnet change.

Software licences pose different problems. Both the Unix and UCSD Pascal licences are only valid so long as the machines licenced are used for SERC funded research. These licences must therefore continue to be administered by SERC, though no maintenance charges accrue from them. The RT-11 licences for the LSI-11 systems are not subject to such restrictions and may thus be offered to institutions along with the systems they licence.

6. DCS SUPPORT TEAM

The DCS Support Team at the Rutherford Appleton Laboratory have built up considerable expertise in the current hardware and software components of SERC's Common Base and have also developed good working relationships with the DCS community. The Panel are invited to consider ways in which this team might continue to serve the research community when the DCS programme terminates.

7. DCS ANNUAL REPORT

The DCS Annual Report should continue to be produced until the end of the programme, but should evolve towards a summary of the programme and the contribution made by each project to the state of the art.

8. ASSESSMENT OF THE DCS PROGRAMME

The DCS Panel have been asked by the Computing and Communications Sub-Committee to produce a scheme for the assessment of the DCS Programme. In assessing the DCS Programme due regard needs to be paid to the fact that SERC funded research in general is not subjected to rigorous assessment.

The primary stated objectives of the programme are to seek an understanding of the principles of Distributed Computing Systems and to establish the engineering techniques necessary to implement such systems effectively.

The more general objectives have been described as:

1. To achieve results of practical value to UK industry by directing research to a key area for the future.
2. To promote relevant computer science research of high quality in a positive manner in academic departments by co-ordinating the efforts and achievements of individual research teams.
3. To ensure the best use of funds at a time of financial stringency.

There are three main headings under which assessment may be considered:

1. Scientific Merit
2. Technology Transfer
3. Benefits of Co-ordination

Each will be considered in turn.

8.1 Scientific Merit

At the 1980 Policy Meeting it was envisaged that a consultant might be engaged to produce a book summarising and giving critical appraisal of the Programme's achievements. It is clear that the scientific merit of the programme could be assessed in this way, though the chief difficulty in this approach is to find a consultant or consultants of the right calibre, not already active in the programme. To appoint the wrong consultant would be worse than to have no assessment at all.

8.2 Technology Transfer

There are some areas already in which the DCS Programme has made significant, tangible, contributions to industry. These include the PERQ, exploitation of the Cambridge Ring and the Cambridge Ring 82 harmonization exercise (a DCS initiative). In general however such technology transfer as has been achieved has been as a result of more or less informal meetings between industrialists and investigators or as a result of trained manpower taking appointments in industry. It is difficult to determine the extent and effectiveness of such transfer. It should be possible to assess the level of DCS trained manpower taking up positions in industry and individual investigators might be able to give an indication of the level of interest expressed by industrialists in their work.

8.3 Benefits of Co-ordination

It would seem appropriate to make an assessment of the benefits of co-ordination. One piece of evidence that should not be ignored is the fact that DCS has been used as the model for later Information Engineering Committee activities, such as the Software Technology Initiative and the IKBS SPP.

It might be appropriate to invite a number of investigators funded by DCS to give their views on the benefits (and otherwise) of co-ordination. Included under this heading should be the Workshop Programme, Mailshot and Equipment Pool.

Under this heading it is worth considering the new research groups that have been created by the programme and the tangible research community that has been established.