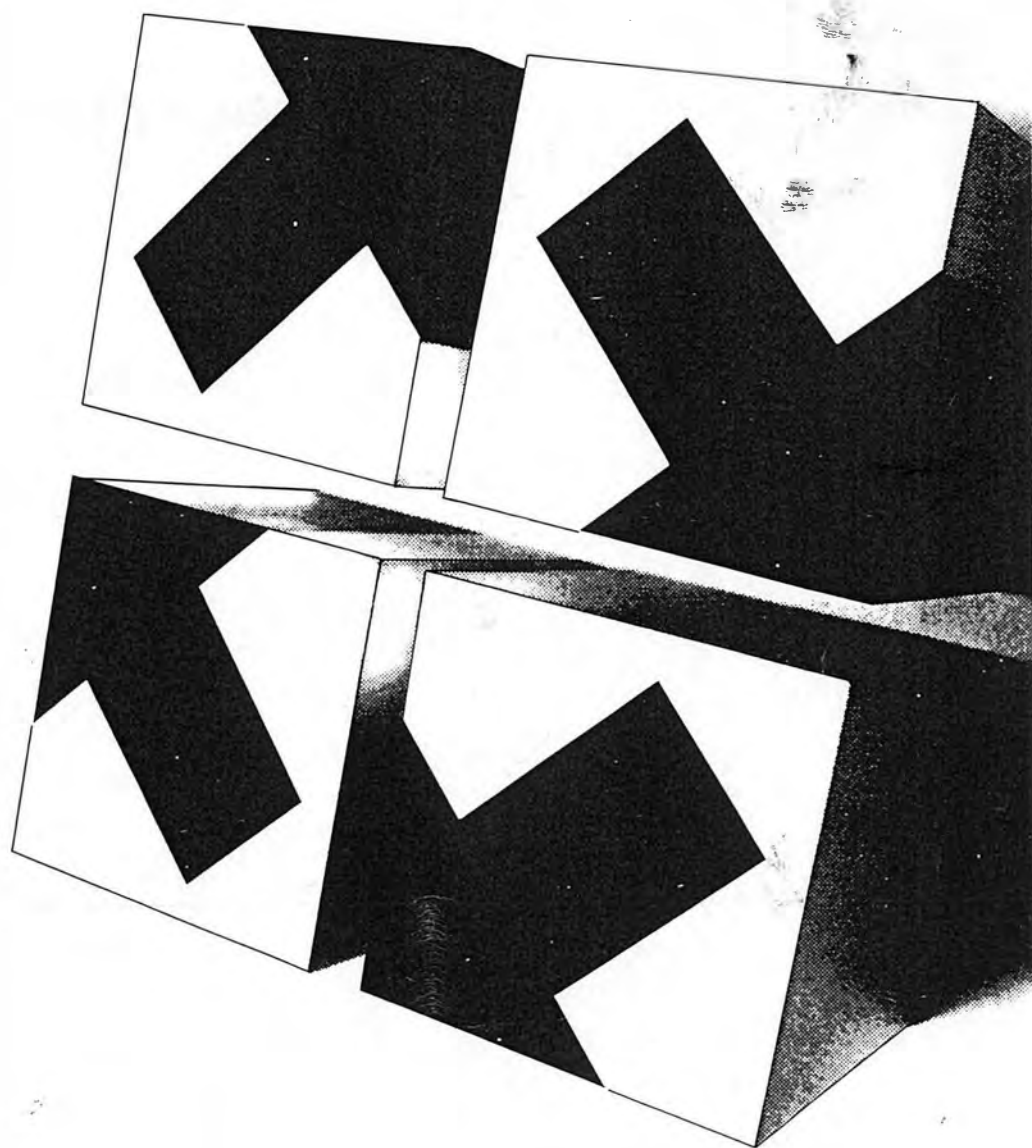


**CSIRO
REPORT
OF THE
INSTITUTE
MODEL STUDY**



CSIRO
REPORT OF THE
INSTITUTE MODEL STUDY

Final: August 1987

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PREFACE

Major structural changes now taking place in the Australian economy are affecting many organisations. CSIRO, which depends on taxpayers' money, is particularly vulnerable to severe questioning of its worth to the nation in a time of declining resources. Not only must it demonstrate this worth, but it must adopt business-like practices to ensure that its resources are used with maximum effect.

The Organisation has already experienced significant change over the last 10 years. Government decisions on the Birch Review of CSIRO (1978) provided the basis for the present "strategic mission-oriented" Institute structure. However not all the Birch recommendations were able to be implemented as thoroughly or as fast as was desirable to achieve the required change.

The more recent ASTEC Review (1986) highlighted some of the problems that CSIRO was facing in adjusting to the rapidly changing external situation. It proposed more emphasis on applications-oriented research. One major vehicle for driving proposed changes was the appointment of an external governing Board, which commenced operations in January 1987.

In April 1987, McKinsey & Co, a firm of management consultants, was commissioned by the Chief Executive, Dr Boardman, to examine the top management structure of CSIRO, to evaluate the role of the Institute Directors in this structure, and to comment on the composition of the Institutes. The McKinsey report, presented to the Management Committee on May 18, and to the Board on June 16, endorsed the prior recommendations of ASTEC and identified the need for profound changes in the Organisation's structure, ethos and working arrangements. McKinsey further suggested that these changes be implemented as a specific project in which each aspect of the Organisation would be addressed in turn. The substance of the McKinsey report was accepted by the Chief Executive and it and the recommendations of the subsequent "Institute Structure Task Force" have, with some modification, now been accepted by the Board.

The overall reorganisation is aimed at sharpening the focus of the relationship between CSIRO's research and Australia's economic growth and other direct benefits to the community. In recognition of this aim the two main recommendations already accepted by the Board are that CSIRO needs to:

- make structural changes to enable the vigorous application of scientific research results;
- devise a streamlined management structure giving greater authority, autonomy and support to research managers at all levels.

The Board has also stated that a world-class standard of research and employment of only the best people will continue to be fundamental to CSIRO.

A key recommendation of the McKinsey report was the setting up of a project team to determine how a "model Institute" would best function assuming the Organisation was reorganised as proposed, or in some similar manner. As a result the Study reported here was commenced, using the proposed Institute of Minerals, Energy and Construction as the model. The Study team took as given the major premise accepted by the Chief Executive and Board that CSIRO should maximise its value to industry and the community, and that to do so it should adopt an applications oriented strategy. Within this strategy the main purpose of an Institute is to enhance the conduct and value of research and of its delivery. The objective of this Study is to determine the management roles which best fulfill this purpose, and the management and administrative arrangements needed to support them.

The changes predicated by the Board do represent a change in ethos to a greater accountability for resource allocation and use, and the positioning of the majority of strategic research with ultimate applications in view, be they a knowledge base for anticipated technologies, a search for new methods and processes in areas where such

processes do not yet exist, or pursuit of new knowledge, methods, or products in areas where the benefit can indeed be clearly defined. Applications research for more immediate and defined problem solving, process or product development will assume added importance in delivery of immediate benefits to industry and the community. It will also provide the more immediate sourcing of external funds. Managing the tension between these approaches, obtaining both external and appropriation funding for strategic research, and conducting and applying the research itself will all demand increases in the level of management and systems skills currently existing in the Organisation. Without such skills, and without being able to demonstrate clear benefit from our research, CSIRO faces an ever decreasing budget, drastic reductions in staff numbers and a decreasing ability to fulfill its mission.

It must be emphasized that the Model Study is primarily concerned with management roles and support structures to enhance the research and application capabilities of Divisions and not directly with the 'conduct of research'. However, the enhancement of management skills, the strategic choice of research areas, the evaluation of research and the formulation of objectives for both strategic and shorter term research will of course affect the way in which research is conceived and conducted.

In this context the 'IMEC' Study anticipates management and support systems widely applicable to the Divisions of the Organisation, and is not merely applicable to this one Institute.

The line management structures recommended by the McKinsey Study and reinforced by this Study do not imply a 'top-down' direction of research - they explicitly recognise the levels of autonomy and accountability at each level, and the need for planning and objective setting at each level down to the individual scientist. Creativity and productivity remain paramount in the proposed line management structure for CSIRO, and it is essential that our individual and team performances match those of our competitors here and internationally. Although line management implies a move away from management by committee consensus, channels for the sharing of professional experience, maintenance and enhancement of shared values, and decision making where outcomes extend beyond a single Division or Institute must still be in place.

A number of management practices important to Institute and Divisional performance are being implemented across the Organisation, including project management training, performance appraisal and performance payments. Implementation recommendations for these and other management practices are included in this report in order to set it in Organisational context.

The high level of response to this Study deserves considerable thanks to those who responded, and has resulted in a substantial number of enhancements to the report.

If the management reorganisation and change of management practices recommended or reinforced by this Study can be understood and implemented without delay, CSIRO has the opportunity to create vigorous outward-looking Institutes conducting and delivering high-quality research for the greatest benefit of Australia.

GENERAL RECOMMENDATIONS

1. Adopt a Corporate, Institute and Divisional line management framework with clearly defined roles, authority, accountability and resources at each level.
 - **The roles of the Division Chief and Staff** are to plan and conduct research of value to Australia, and to deliver the results to end users in industry, government and the community.
 - **The roles of the Institute Director and Institute Centre** are to provide a broad, strategic perspective, to allocate resources and to require a high level of performance by Divisions.
 - **The roles of the Chief Executive and the Corporate Centre** that directly affect Institutes are to develop corporate objectives and priorities, to allocate appropriation funds to Institutes, to require a high level of performance by Institutes, and to consult with and report to those with a stake in CSIRO.
2. Provide line managers with administrative structures and support staff commensurate with these roles and responsibilities.
3. Develop and implement systems defined by the needs of CSIRO users.
4. Enhance where necessary the skill level and rewards of managers and support staff.
5. Manage implementation of the specific recommendations of this study as a major project, allocating adequate responsibilities and resources.

1. METHODOLOGY

Outline

The Study used a combination of workshop sessions and rigorous data analysis to identify and resolve issues of importance. The overall objective was to develop a model Institute that can add the most value through linking the line management from Chief Executive through Institute Directors to Divisions.

The Study commenced on 2 June 1987 with a meeting of representatives from Divisions, Institutes and the Corporate Centre to discuss goals and identify issues in workshop sessions. An effort was made to ensure representation of all groups that could be affected directly by the results of the study. Two firms of external consultants were also involved. McKinsey and Co. played a major role in facilitating the Study and Quadrant Consultants provided a systems analysis viewpoint.

The context of the Institute Model Study and its objectives were outlined by Dr Alan Reid, whose Institute had been selected as the trial unit for implementation of the Study's recommendations. Mr Geoff Morton from McKinsey and Co. then outlined the approaches to the study recommended by his firm. These approaches are discussed below.

Two workshop sessions took place to discuss a range of issues relating to the role of the Institutes and Divisions. At the end of the day, a list of significant issues was produced for the Model Study to address further. The issues were also ranked by the working groups in order of priority.

The next phase of the Study was the formation of three teams: Core, Structures and Systems (Diagram 1). The remaining participants made themselves available throughout June for extensive consultation with the teams. As the Study proceeded, more CSIRO staff, Staff Associations and the Communications Task Force were approached for assistance. Members of the three Study Teams and those who gave their time generously for consultations are listed in Appendix 1.

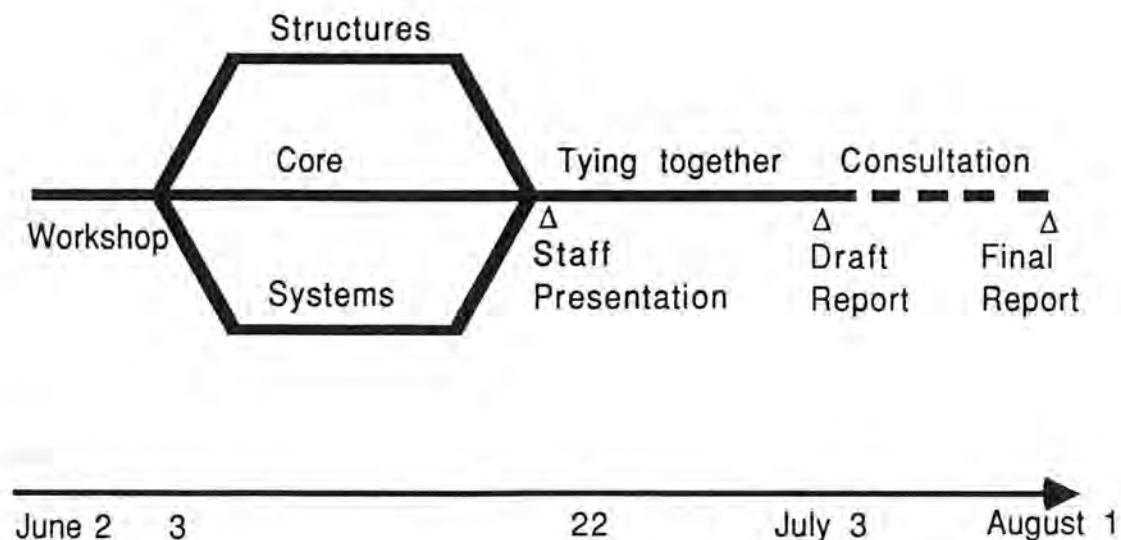


Diagram 1

The Core, Structures and Systems Teams approached the Model Study from three different perspectives (Diagram 2). The results were progressively integrated as the study proceeded.

The emerging conclusions of the three teams were presented to a staff consultation meeting on 22 June. Those present included the Chief Executive, Directors, General Managers and representatives of their respective support staffs; representatives of Chiefs and Divisions, Staff Associations and the Communications Task Force. Feedback was sought to ensure that no serious issues or options had been ignored.

An enlarged Core Team was then formed to complete the Study. This included representatives from the Structures and Systems teams, which disbanded as separate bodies. Further issues for analysis were canvassed and differences in the conclusions of the three teams were noted for resolution. Preliminary feedback from staff consultations was received and draft recommendations were formulated and discussed with the Chief Executive and with Chiefs prior to circulation of this Report. Consultation was also sought with representatives from the Institute of Energy and Earth Resource's customers, i.e. the organisations that directly benefit from the research of its Divisions.

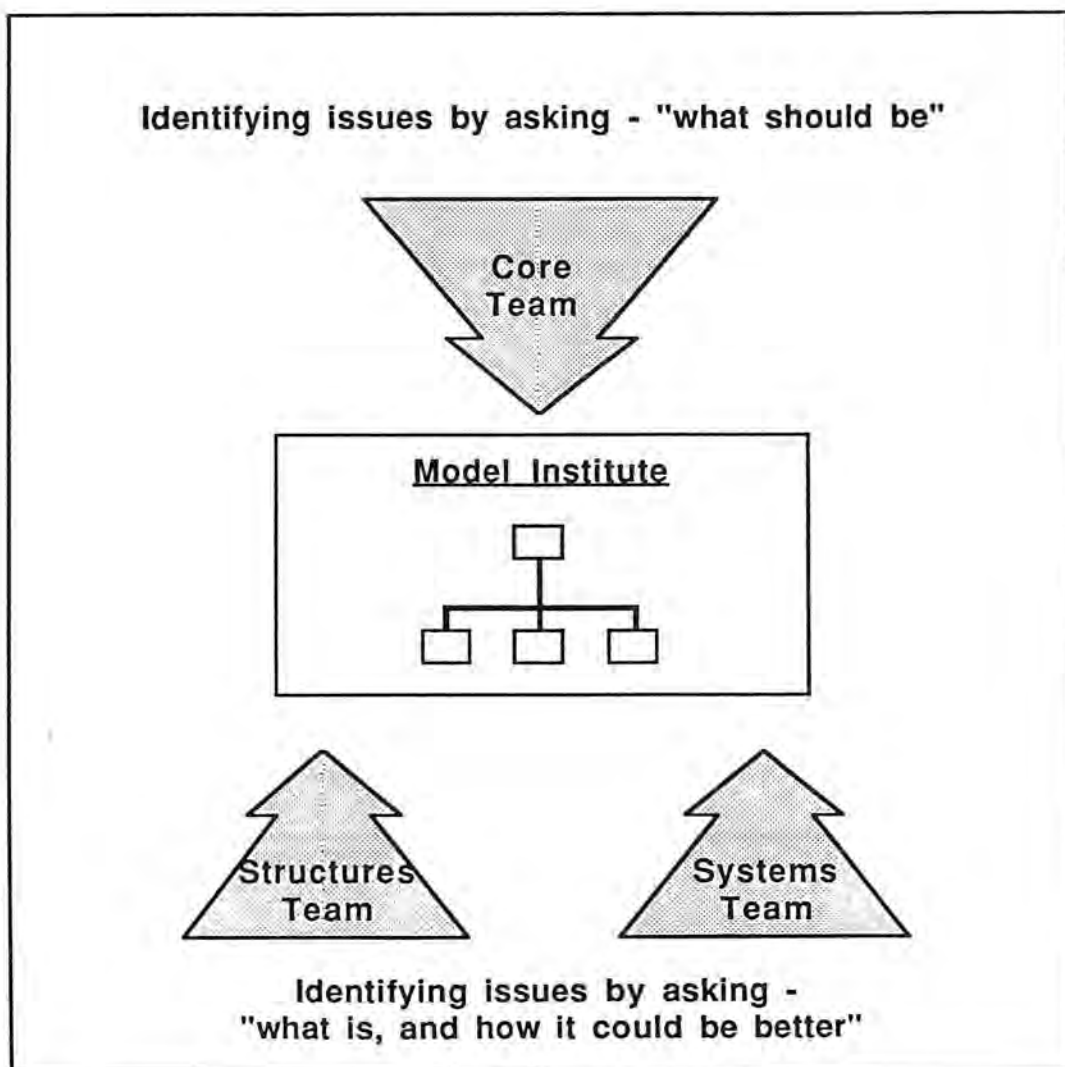


Diagram 2

Core Team

The Core Team used an inductive approach, driven by the specific issues identified by the workshops at the start of the exercise to determine a general picture of "what should be". A schematic model was developed to show how CSIRO plans, performs and delivers its research results (Diagram 3). The basic question the Core Team asked was: Where can the Institute Centre add value to the work of the Divisions and of the Corporate body?

The issues raised in the workshop sessions were related to parts of the 'CSIRO Model' and the most significant were selected for in-depth fact-finding and analysis so that conclusions based on hard evidence could emerge.

The Core Team then performed a series of issue analyses. An "issue analysis" is a device to enforce a rigorous approach to the solution of a problem. The initial step is the definition of the issue, posed as a question about the system. A hypothesis is presented: generally a "yes" or a "no", often with some qualification or clarification. The advantages of the hypothetical solution are listed carefully in point form, when weighted up against the disadvantages. Other options (ie. alternative hypotheses) are listed and explored, and pertinent comments added where necessary. The solution is then written in as an endorsement or rejection of the hypothesis.

Wherever possible, the issue analysis should be supported by factual analysis of some kind. For many issues, data can be found to prove or disprove a contention of the researcher.

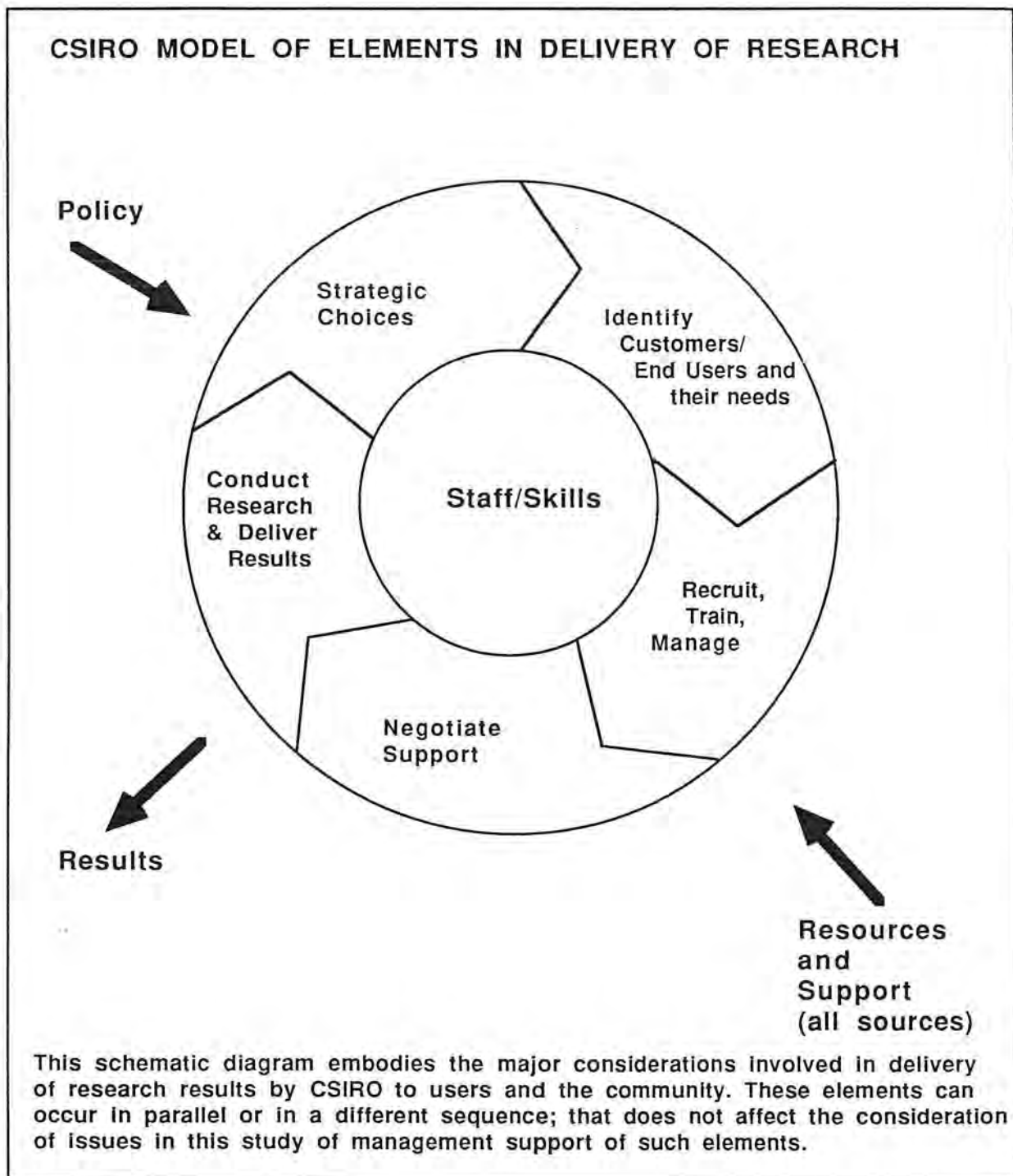


Diagram 3

Structures Team

The Structures Team set out to list the tasks performed by the Organisation, and to break these down into constituent sub-tasks that make up the whole. The overall task of CSIRO, in the broadest possible terms, was seen as to:

Maximise the economic well-being of and the quality of life in Australia.

This function could then be broken up into more specific tasks, eg. the planning of research, the conduct of research, transfer of results to its beneficiaries and evaluation of research. Each of these tasks was then specified even further, resulting in a Task Tree which eventually contained, at its lowest level, a list of some 190 or so specific tasks to be performed by the Organisation.

The Task Tree was then compared against the existing CSIRO structure. The team was particularly concerned with

- (a) tasks that nobody was doing
- (b) tasks that too many people were doing
- (c) tasks that logically fitted together but were being done by different people.

This exercise revealed about 50 issues that needed to be resolved by issue analysis.

The major issues addressed were:

- improved procedures for scientific and economic evaluation of research
- responsibilities for commercialisation and marketing of research results
- improved procedures for recruiting and separating staff
- enhanced salary packages to attract top quality staff
- improved performance reviews for all staff
- mechanisms for providing internal bridging loans to assist project managers
- accurate and full costing of contract research.

The information obtained was used to amend the Task Tree and to provide input to Core Team deliberations in the later stages of the Study. The revised Task Tree is shown in Appendix 2.

Systems Team

The team was initially composed of members from Corporate groups, Divisions and Institutes and two outside consultants. From the beginning the team felt it lacked representation from the Personnel group, and was undermanned with respect to Divisional input. These problems were partially alleviated by the full-time addition of John Baistow to the team, and by part-time contributions from Ian Whiting and Don Gibson.

The brief was to construct an inventory of CSIRO systems, and to examine each of these in the light of the questions:

- (a) Is the system effective? (Does it do the job?)
- (b) Is the system efficient? (Could timeliness/accuracy be improved?)
- (c) Is the system sustainable? (Is it capable of adaption as user needs evolve?)

However, it soon became apparent that the diversity and complexity of systems, and the time and resources constraints of the Study Group, demanded a modification of this approach. The team therefore began by simply listing all the functions within CSIRO that could be described as systems. These fitted into seven general categories:

- Finance
- Planning/Budgeting
- Personnel
- Communication
- Commercialisation
- Management Information
- Systems Development

The last two functions are not performed effectively within the present CSIRO, but were seen by the group to be necessary in future.

For each of these categories, the team raised the questions of effectiveness and efficiency of current systems. The team also determined where each part of each system was performed (i.e. at Corporate, Institute, or Divisional level) and questioned whether or not this was appropriate. In many cases members were unaware of the policies underlying the system, or the mechanics of the system itself, and unprepared group discussion was not the best means of analysis. Therefore for each system, the team defined a number of "issues" pertinent to the effectiveness and efficiency of the system, without attempting to present a solution. At the end of the workshop, a comprehensive list of these issues was produced. Each team member was allocated a number of these issues to address in the interval until the team reformed, according to the framework of an issue analysis.

However, the examination of systems and their suitability was found to be a very broad topic which could, if pursued completely, involve much time and effort in detailed analysis. With the limited time and human resources available it was decided to address systems requirements and user requirements only where the problems and possible solutions are relatively clear and accepted as such by all parties. Demonstration of the need for improvement would only be necessary where parties disagreed about this need. The team also decided that analyses such as that of cost-effectiveness of implementation were not within their brief or capabilities.

After nearly a week in which individual members performed "first cuts" at issue analysis, the team reconvened to present and discuss analyses. The broad representation of the team ensured that the solutions distilled from this process were acceptable to most, if not all, of the CSIRO groups likely to be affected.

2. SPECIFIC RECOMMENDATIONS

Outline

In the delivery of its value to the nation, CSIRO carries out the following activities:

- strategic choice of research areas
- identification of customers/end users
- recruitment, training and management of staff
- negotiation of support
- conduct of research and delivery of results.

To undertake its activities effectively CSIRO needs clear structures and line management, with line managers being responsible and accountable for their operations.

Line management will be driven by strategic planning, with resources being allocated against major objectives and regular evaluation of research.

The specific recommendations are addressed under the following headings:

Role and Structure of Research Line Management
Management Support Staff
Management Systems
Relationships with other Services and Functions

Research Line Management Roles and Structures

The research line management structure in CSIRO will have 4 to 6 layers connecting the Chief Executive with individual research staff (Diagram 4). Divisional structures may be as flat as Chief, Project Leader, Researcher or may include Officer-in-Charge and/or Program Leader between the Chief and the Project Leader.

The major responsibilities of these managers are set out in Table 1, and the way they should allocate time is shown schematically in Diagram 5.

Management Support Staff

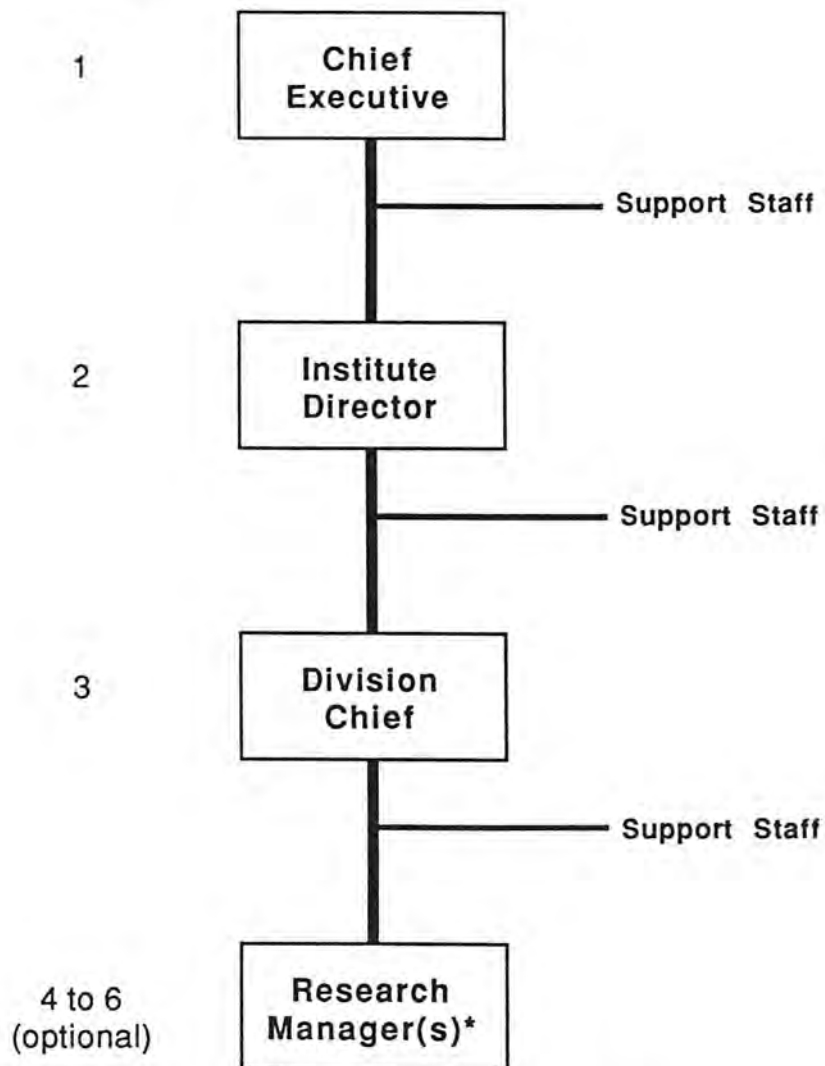
The functions performed by line management support staff are shown in Diagrams 6-9. These diagrams specify functions but the Study group recognises that the line managers will implement them in different ways. Line managers may choose for example to appoint staff, second staff from other areas, or contract services from within or outside the Organisation.

The proposed staff structure shown in Diagram 8 for the Institute of Energy and Earth Resources, or the proposed Institute of Minerals, Energy and Construction (IEER/IMEC), is an example pertinent to that Institute. The Study group recognises that other Institutes will have variations on or additions to the tasks shown in the diagram.

The process of identifying the systems, raising the issues, performing the issue analyses, and of reaching conclusions through consensus, led to the formulation of four major principles. These principles applied to all the systems examined, and were consistent with those arrived at by the Core and Structures teams. They were that the systems of the Model Institute should:

1. transfer the greatest possible responsibility out to CSIRO users
2. place greatest weight on the needs of the operational units
3. keep information and control to that necessary for decision-making at all management level
4. ensure that controls are commensurate with risk

Conclusions at the next level of detail were presented as a matrix, in which the elements of each system were shown at the administrative level at which they should be performed (ie. Corporate, Institute, Division). These are presented in Appendix 3. Functions in "normal" type are those that are currently being performed at this level, and should continue to be so. Functions shown in bold type are the modifications to the present system recommended by this Study.

LINE-MANAGEMENT AND ACCOUNTABILITY STRUCTURELevels

* Varies by Division and Includes OIC's, program leaders, project leaders and Individual scientists.

Diagram 4

Location of Directors and Institute Support Staff

Institute Director:

It was concluded that Directors are preferably located where they can best interact with their Institute's customers and with their Divisions (see Diagram 5). Economies of accommodation favour CSIRO sites in capital cities.

The decision on location should rest with the Chief Executive after consultation with actual or proposed Directors.

Institute Support Staff:

Support staff and major records should be located with Directors.

TABLE 1 - RESEARCH LINE-MANAGEMENT RESPONSIBILITIES

1. MANAGEMENT LEADERSHIP AND CONDUCT OF RESEARCH

<u>Chief Executive</u>	<u>Institute Directors</u>	<u>Division Chiefs</u>	<u>Research Managers</u>
Be Corporate statesman; develop and promote Corporate ethos.	Provide leadership to Divisions in respect of CSIRO and Institute values and practice; develop and promote Corporate ethos.	Provide leadership in respect of CSIRO, Institute and Divisional values and practice; develop and promote Corporate ethos.	Provide research leadership and direction to project teams; develop and promote Corporate ethos.
Work with Directors on development or resolution of Corporate shared values and issues.	As a group, ensure development of shared values. Work with Chiefs on development or resolution of Institute and Corporate issues.		
Hold Directors accountable for Institute performance, report to Board.	Hold Chiefs accountable for Divisional performance, report to Chief Executive on Institute performance.	Hold Research Managers accountable for program/project performance, report to Director on Division's performance.	Hold researchers accountable for individual performance, report to Chief on program and project performance.
	Exercise scientific judgement in leadership role.	Provide strong scientific leadership, develop high quality research ethos, ensure value delivery.	Develop and maintain reputation for high quality research and value delivery by Division.
	Place Institute activities in economic, market and community context.	Instil awareness of economic and community issues in Divisional staff.	Be attuned to economic and community benefits of R & D.
	Facilitate inter-Institute and inter-Divisional collaboration.	Engage in inter-Institute and inter-Divisional collaboration.	Engage in inter-Institute and inter-Divisional collaboration.
		Ensure efficient conduct of appropriate research.	Ensure efficient conduct of research
		Transfer research results and technology to users or extension services.	Liaise with and transfer results to users or extension services.

Chief Executive

Define and ensure
implementation of adequate
Corporate systems.

Institute Directors

Assist with negotiation of
research contracts and approve
them as necessary.

Define and ensure
implementation of adequate
Institute systems.

Division Chiefs

Negotiate and approve research
contracts as necessary, subject
to Corporate and Institute
policy.

Determine line management
structure within the Division.

Define and ensure
implementation of adequate
Divisional systems.

Research Managers

Negotiate research contracts and
licences, according to
Corporate/Institute policy.

Manage projects effectively.

Support Chief in running of
Division.

Define and use appropriate project
management information systems.

Chief Executive

Strategically plan research and human resources across CSIRO.

Provide strategic advice to Directors from a Corporate perspective.

Institute Directors

Strategically plan research and human resources in Institute.

Provide strategic advice to Chiefs from an Institute perspective.

Liaise and negotiate with other Directors and Corporate managers.

Division Chiefs

Strategically plan research and human resources in Division.

Liaise and negotiate with other Chiefs and Corporate managers.

Research Managers

Strategically plan research and human resources in programs and projects.

Liaise and negotiate with admin and support staff in Division and with staff in other Divisions and Corporate Centre.

2. PLANNING, RESOURCE ALLOCATION AND REVIEWING

Chief Executive

Determine CSIRO's overall aims and objectives for Board approval; develop Corporate Plan.

Develop overall Corporate policies, eg conditions of employment, commercialisation.

Prepare CSIRO budget; negotiate with Government.

With Board, allocate and redistribute resources across Institutes.

Conduct regular performance reviews of Institutes.

Conduct economic evaluation of research in broad areas.

Institute Directors

Advise and provide input to Chief Executive about Corporate Plan and develop Institute Plan.

Assist Chief Executive in developing overall Corporate policies.

Prepare Institute budget.

If necessary ensure submissions to external funding bodies are coordinated.

Act as a mechanism for change through redistribution of resources across Divisions (including bridging finance).

Conduct regular performance reviews of Divisions.

Conduct economic evaluation of research.

Division Chiefs

Advise and provide input to Director about Institute Plan, develop Divisional One and Five Year Plans.

Assist Director in developing Institute policies.

Prepare Divisional budget.

Arrange submissions to external funding bodies.

Act as a mechanism for change through redistribution of resources within Division.

Conduct regular performance reviews of programs and projects.

Conduct economic evaluation of research.

Research Managers

Advise and provide input to Chief for Divisional Plans.

With other staff, assist Chief in developing Divisional policies.

Prepare program and project budgets.

Arrange submissions to external funding bodies as appropriate.

Propose new projects in consultation with staff.

Manage research to ensure it meets milestones and objectives.

Conduct economic evaluation of research.

Chief Executive

Conduct regular performance/counselling reviews of Directors; ensure reviews of Corporate Centre staff are conducted.

Institute Directors

Identify areas of skills deficiency in Divisions.

Conduct regular performance/counselling reviews of Chiefs and Institute Centre staff.

Division Chiefs

Ensure the development and introduction of appropriate skills in the Division.

Conduct regular performance/counselling reviews of senior Divisional staff.

Research Managers

Monitor skills available and identify those needed.

Conduct regular performance/counselling reviews of project staff.

3. HUMAN RESOURCES

Chief Executive

Develop Directors and top 50 managers.

Select, develop, counsel, reward and separate Directors and Corporate staff.

Endorse appointments of Chiefs.

Implement succession planning* for Directors and Corporate managers.

Negotiate CSIRO-wide industrial relations policies and practices. Ensure enforcement of awards and industrial agreements, including special responsibility for Consultative Council.

Develop appropriate methods for rewarding staff.

Institute Directors

Encourage development of high-potential staff.

Select, develop, counsel, reward and separate Chiefs and Institute Centre staff.

Approve appointments of RS grades and above. As a group, approve promotions to SPRS and CRS.

Implement succession planning* for Chiefs (ie, ensure potential managers obtain wide experience).

Ensure suitable procedures for human resources management are in place and adhered to.

Assist in developing appropriate methods for rewarding staff.

Division Chiefs

Provide career development for all staff and prepare high-potential staff for leadership roles.

Select, develop, counsel, reward and separate Divisional staff.

Implement succession planning* for senior staff.

Apply industrial agreements; resolve local industrial relations difficulties, using consultative procedures, within prescribed policies.

Ensure high-performing staff are rewarded appropriately.

Research Managers

Provide career development of staff in projects and encourage their self-development.

As appropriate, select, develop, counsel, reward and separate Divisional staff.

Identify high-performing staff for rewards.

* Succession planning implies providing adequate opportunities for the development of potential leaders so that they are not disadvantaged as applicable for senior positions

Chief Executive

Establish appropriate external research links, including universities and overseas institutes.

Institute Directors

Establish appropriate external research links, including universities and overseas institutes.

Division Chiefs

Establish appropriate external research links, including universities and overseas institutes.

Research Managers

Establish appropriate external research links, including universities and overseas institutes.

4. EXTERNAL AND CUSTOMER CONTACTS

Chief Executive

Advise Board and Minister on CSIRO activities and progress towards objectives.

Discharge CSIRO's legal and accountability obligations, eg statutory reporting, OHS, EEO.

Communicate CSIRO plans and achievements to industry, government, community and other interests (ie stakeholders).

Lobby actively for CSIRO, develop highest level external relations.

Institute Directors

Support Chief Executive in dealing with Board and Minister.

Act as an Institute and/or Corporate focus for external communication, lobbying and feedback.

Develop contacts with key decision makers and existing and potential customers for research results on broad Institute scale.

Act as high-level seller of CSIRO research.

Review customer base or broad subject areas when appropriate.

Identify and nurture new customers and industries that can benefit from Institute's research, particularly through high-level contact.

Division Chiefs

Support Director in role as required.

Act as a Divisional focus for external communication, lobbying and feedback.

Develop contacts with key decision makers and existing and potential customers for Division's research.

Actively sell the Division's research.

Regularly review Division's customers (their needs, satisfaction etc).

Provide support and advice to existing and new customers and industries.

Research Managers

Along with operational staff, be technical contact for users.

Develop contacts with research managers in user organisations.

Assist Chief in selling Division's research.

Maintain regular contact with customers.

With operational staff, provide advice to existing and new customer and industries.

CHIEF EXECUTIVE'S ROLE AND SUPPORT STAFF FUNCTIONS (as proposed by McKinsey and CE, July 1987)

Role

- Corporate statesman
- Sets Corporate strategy and strategic priorities (2-15 years)
- Develops top-level external relationships (corporate, government)
- Promotes CSIRO nationally and internationally
- Prepares policy recommendations for Board
- With Board, allocates resources to Institutes
- Guides/assesses performance of Directors
- Builds shared values
- Develops Directors and top 50 people
- Promotes consultation with staff unions and Consultative Council
- Is professional manager

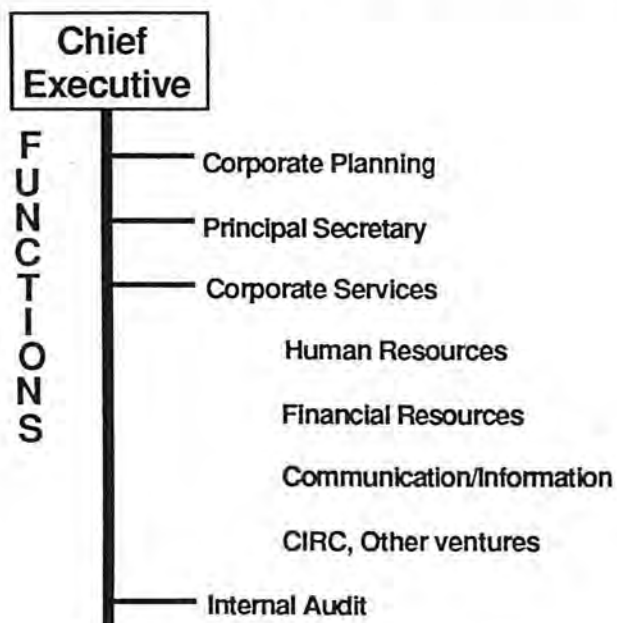
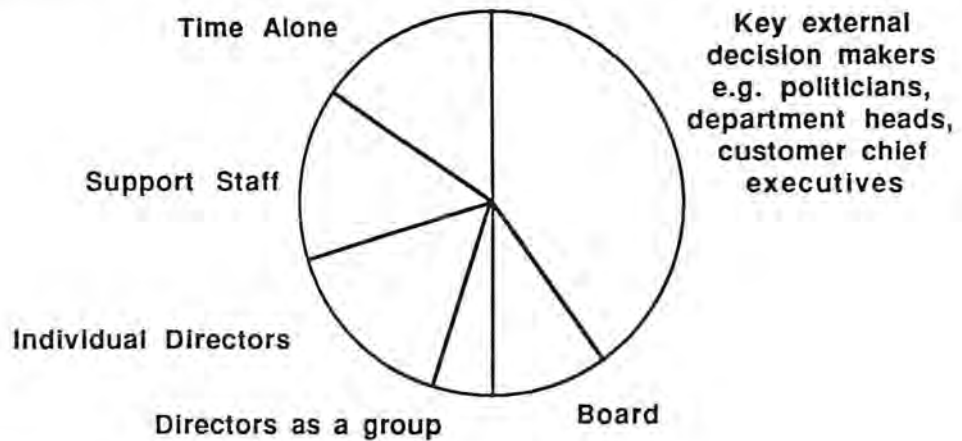


Diagram 6

NOTIONAL ALLOCATION OF MANAGERS' TIME IN NEW ORGANISATION

Chief Executive



Director



Chief



Diagram 5

INSTITUTE DIRECTOR'S ROLE AND SUPPORT STAFF FUNCTIONS

Role

- Accounts to Chief Executive for Institute's performance
- Assists Chief Executive and undertakes Corporate activities
- Obtains/allocates resources strategically (2-10 years)
- Exercises scientific judgement in leadership role
- Appraises new technologies, markets and business opportunities
- Oversees human resources development, management and appraisal
- Appoints, develops and evaluates Chiefs
- Establishes/initiates/facilitates inter-Divisional and inter-Institute projects
- Develops relationships with major customers and policy-makers
- Communicates and lobbies for Institute
- Ensures effective internal communication
- Is professional manager

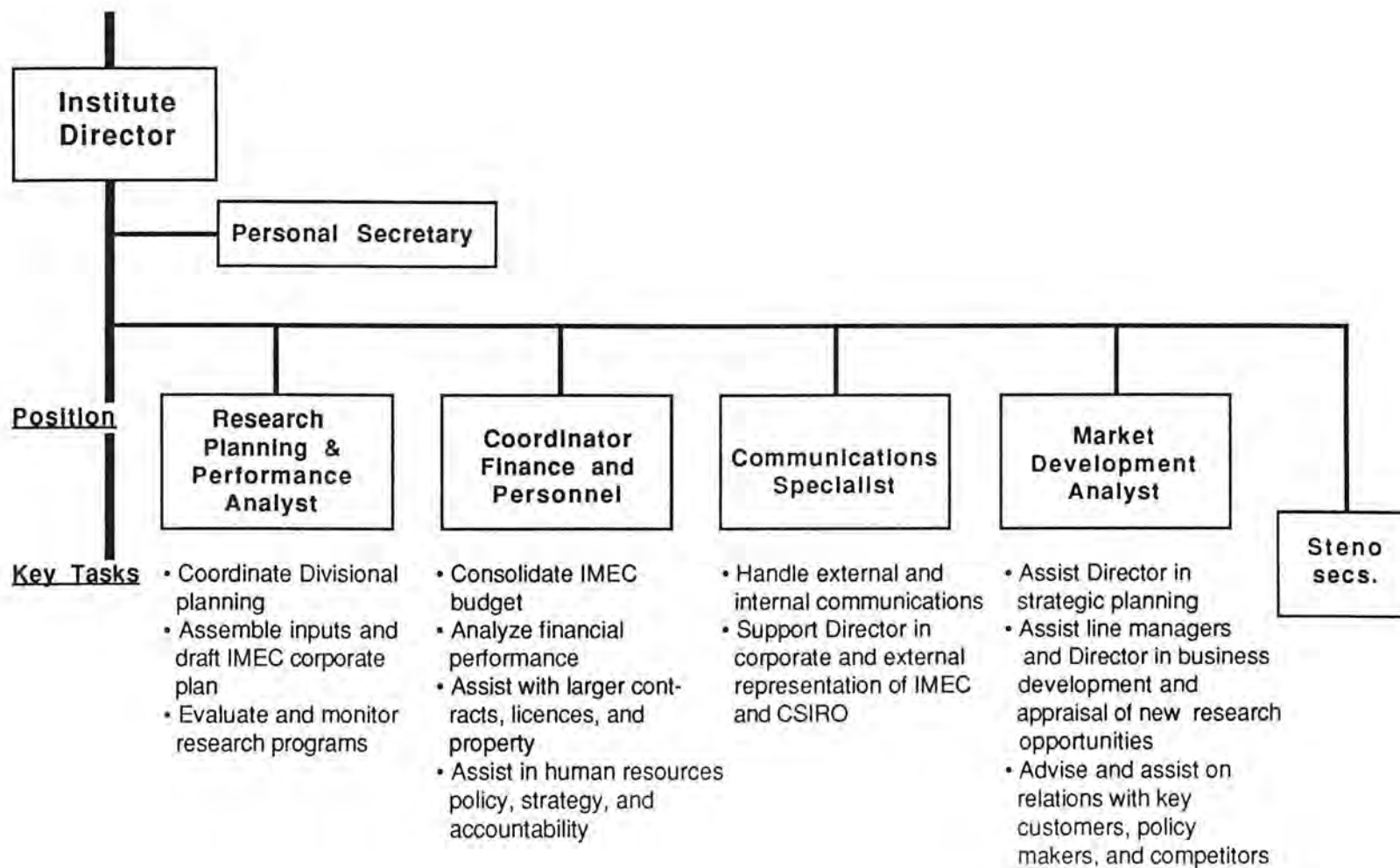


It is anticipated that these functions will require the equivalent of 3 to 5 professionals plus typing/clerical/secretarial support (present Institute professionals range from 1 to 5 per Institute)

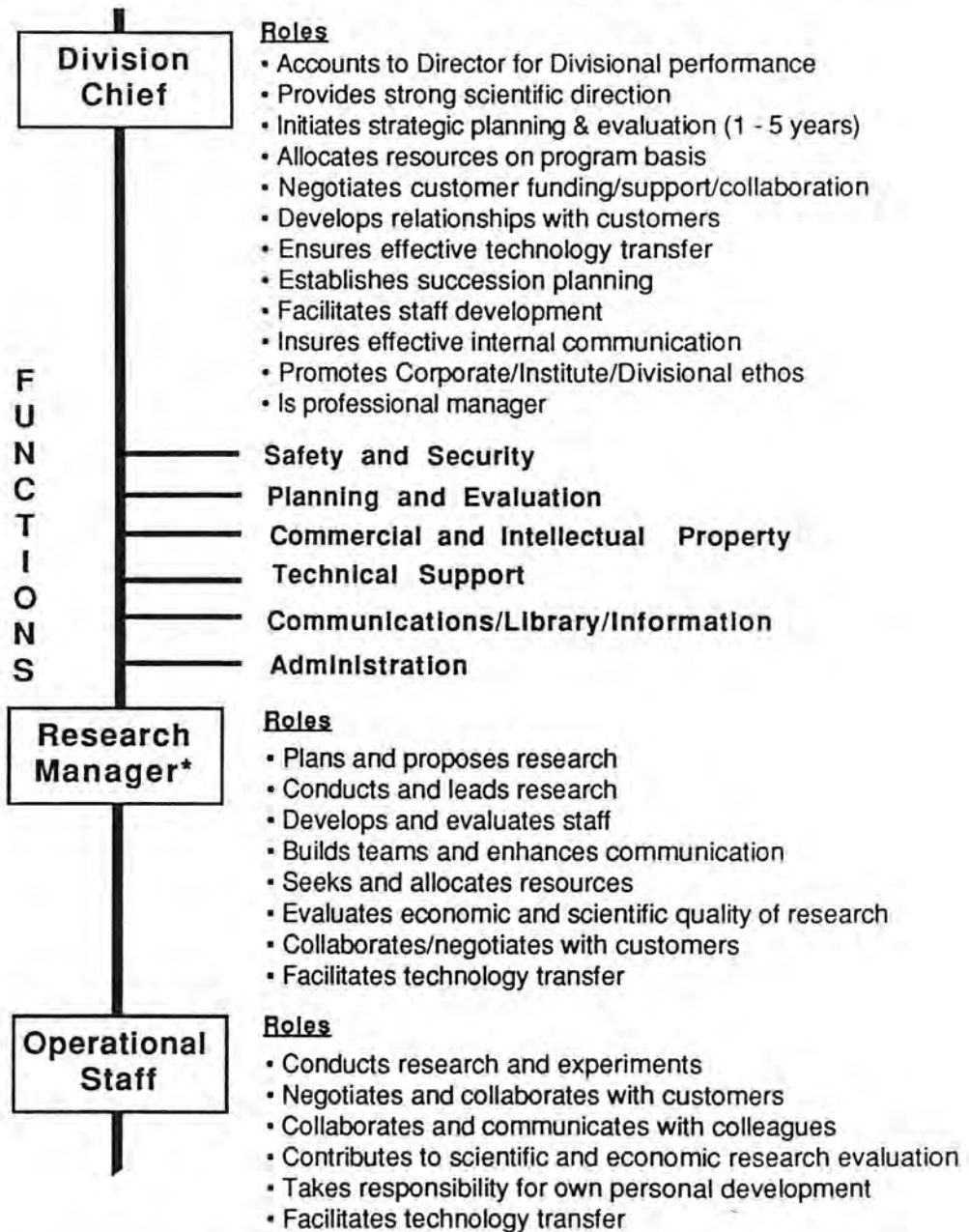
Diagram 7

PROPOSED IMEC INSTITUTE CENTRE STRUCTURE

Diagram 8



DIVISIONAL ROLES AND SUPPORT FUNCTIONS



* Assistant Chiefs, OIC's, Program Leaders, Project Managers, etc.

Diagram 9

Management Systems

The Study identified a need for systems within a model Institute which :

- (1) transfer the greatest possible responsibility out to the CSIRO end user,
- (2) place greatest weight on the needs of the operational units,
- (3) keep information and control to that necessary for decision-making at all management levels,
- (4) ensure that controls are commensurate with risk.

The study group also emphasised the need for a properly-managed implementation of these systems.

CSIRO needs systems development management at a senior level, appraised of the strategic plans of the Organisation, and with technically excellent staff able to manage in an environment of ever increasing computer sophistication and dependency.

The management systems of CSIRO were classified and addressed under the following categories:

- Finance
- Planning/Budgeting
- Personnel
- Management Information
- Communication
- Commercialisation
- Systems Development Process

As described in Section 1, the efficiency and effectiveness of each of these systems was examined and issues analysed and resolved. The recommendations are as follows:

Finance

- Purchase order processing should be automated within Divisions.
- The Accounts Payable system should be streamlined so that only cheque printing occurs out of the Divisions. The entire acquittal/examination/certification/authorisation process could be reduced to two steps, both performed at the operational units.
- Receipt of monies should occur (and be invoiced) at Divisional level up to the statutory limit.
- Grant submissions should be made directly by the Divisions (or Institutes) to the funding agencies.
- The Corporate Centre should determine travel guidelines where necessary. All local and overseas travel expense processing should occur at the operational units. DROS requirements should be examined for possible simplification.
- The Institutes and Divisions should perform journal entries directly. All statutory accounting should remain at the Corporate Centre.

- The Payroll production should remain a Corporate function, but variations should be input at the operational units. The existing system should be 'front-ended', with the objective of automating as far as practicable present pre-processing activities.

Planning/Budgeting (Diagram 10)

- The budgeting process should be devolved considerably. The Chief Executive, with Board advice, should allocate the total Institute budgets, the Institute Director should allocate total budgets to Divisions, and the Chiefs should provision within their budgets as they see fit. All transfers between provisions should be performed by the Divisions. Simple forecasting tools (ie. spreadsheeting systems) should be available at all levels.
- The Assets, Purchasing and Accounts Payable Systems should be linked with assets recording occurring automatically at the time of acquisition.

Personnel

- The mechanisms of recruitment and appointment should be devolved to the appropriate levels. The Chief Executive should be responsible for the appointment of Directors and senior Corporate administrative staff and approve the appointment of Chiefs. The Directors should be responsible for recruitment and appointment of Chiefs and senior Institute staff, and for approval of research staff appointments. Chiefs should be responsible for the recruitment and appointment of all other research, support and administrative staff.
- The processes for staff evaluation and development should be upgraded. The Corporate responsibility should be the evaluation and development of Directors and Corporate administrative staff. Similarly, Institute Directors should plan and implement the development of Chiefs and of Institute staff, whose performance should be reviewed and evaluated annually. Division Chiefs should plan the development of all of the staff in their units, and review and evaluate annually.
- A more flexible reclassification scheme should be constructed to reflect performance.
- The procedures for separation should be streamlined.
- Management skills training for Chiefs should be the responsibility of Directors, and Chiefs should be responsible for management training for individuals within their own Divisions.
- One of the most immediate needs is to upgrade the role and training of Divisional Secretaries to match the enhanced responsibilities of Divisional management and to determine appropriate remuneration levels.
- As much as possible of the negotiation and resolution of industrial relations disputes should occur at the first point of contact, ie. at the operational units.

Management Information

- A management information system should be developed to draw upon the present systems (eg. A/C Payable, Personnel, Payroll, Project Database). This system should be specified by Divisional, Institute or Corporate user groups. The maintenance of standards across the units would be a Corporate responsibility, but the system would be designed for, and principally used by, the Institutes and Divisions.

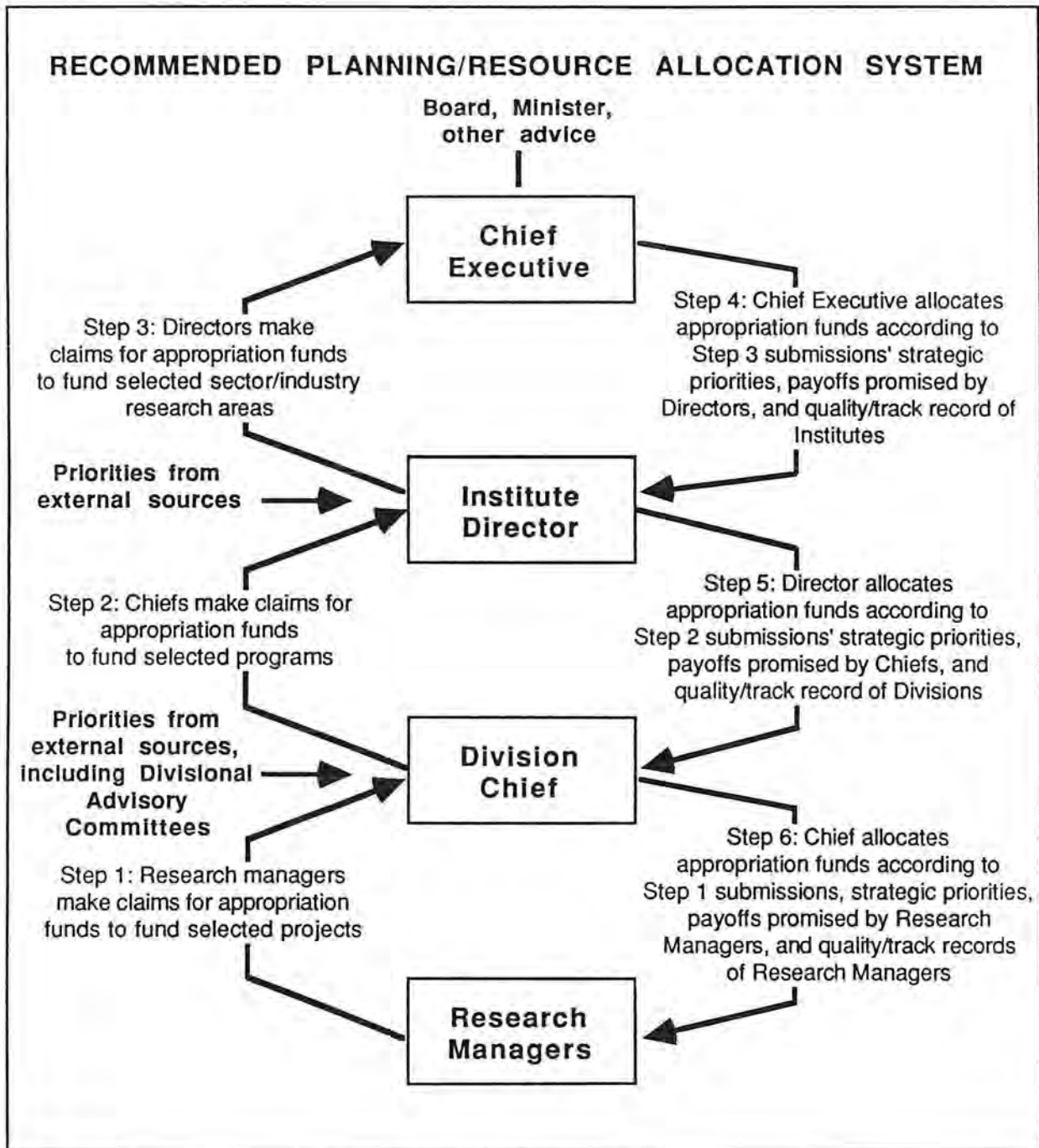


Diagram 10

- The Corporate central databases should draw aggregated program data from the Divisions.
- The Institute system should involve a statement of programs, and will include planning information, ie. proposed projects, goals, performance indicators, achievements to date, financial and research performance analyses, etc.
- The Divisional system should include project statements and define goals, major milestones, resources, integrated with financial/budgeting forecasting.
- Interfaces must be provided through which authorized users may retrieve CSIRO Corporate or Institute data pertinent to organisational performance analysis or similar purposes.
- The emphasis on project management should be supported with skills, training and relevant packages. Training in these skills should be coordinated.

Communication

- The major responsibility for external communication of research capabilities, opportunities and results should lie with Institutes and Divisions.
- Divisions should have the responsibility for communication with their business sectors.
- The responsibility for Corporate communication should remain with the Corporate Centre.
- Communication policies should be developed at all levels.
- Communication training for research and administrative staff should be the responsibility of Institutes and Divisions.
- The Corporate Centre should have responsibility for the central library and for the maintenance of common library standards. The Divisions should be responsible for their own library facilities, including those that might be shared on a site basis.

Commercialisation

- The Corporate Centre should remain responsible for overall policy and legal arrangements. Sirotech remains an efficient means of technology transfer, although the retainer should be diminished to zero over the next few years to reflect payment for service by client Divisions.
- Institutes should bear final responsibility for the negotiation and legal arrangement of large contracts.
- The Division Chief should have delegation to approve research contracts and collaborative agreements according to Corporate or Institute guidelines. It is suggested that their receiving limit be the same as their spending limit.

Systems Development Process

- Central Systems Development to be responsible for:
 1. Systems development policy - central and remote
 2. Central administrative systems supporting Corporate needs
 3. User support services
- A more flexible strategic approach to systems development
- Emphasis on interfaces for retrieval and acceptance of data to and from Central Systems as opposed to specific development of applications.
- Alternate or dual supplier policy and support services to support that policy ie. selection of range of hardware and software.
- Manage central systems development as committed projects with regard to funding.
- Develop minimum standards for user development.
- Make users committed and actively involved with Central Systems Development and responsible for specific parts of projects.
- Support users own efforts for local development with technical training and advice on a selected range of hardware and application packages ie. 1 or 2 Database packaged spreadsheet and project management packages.
- Co-ordinate information on user developed software across Divisions and Institutes.
- Evaluate the need for a central project database, having regard to level and accuracy of data versus a need for local project databases, the need to differentiate between public and CSIRO data, and the aggregation level at which Divisions will report to Institute Centre.

Relationships with Other Services and Functions

Sirotech and Commercialisation

- The Corporate Centre should remain responsible for policy and for legal arrangements.
- Sirotech should continue to maintain CSIRO's patent portfolio.
- Sirotech has a valuable role to play in raising level of commercial return to Divisions and assisting as required in contract, collaboration and licensing agreements. They should be consulted on contracts where rights to intellectual property are to be negotiated.
- Institutes should bear final responsibility for the negotiation of and license arrangement for large contracts.
- The Division Chief should have delegation to approve research contracts and collaborative agreements according to Corporate and Institute guidelines. It is suggested that their receiving limit should be the same as their spending limit.
- Directors should be involved in multi-level marketing of Institute capability where senior industry personnel are involved and similar representation should be provided from Sirotech.
- Sirotech have assembled an integrated, critical mass of marketers, legal advisors and experts in patenting. They are an efficient means of technology transfer. In the long term > 3 years, use of Sirotech should be on a voluntary basis, as and when they add value.
- During the transition period, Sirotech should be paid a reducing retainer by CSIRO.
- In order to most closely align Sirotech's activities with those of CSIRO, the retainer should be partitioned to reflect the stated requirements of Institutes and their constituent Divisions on an annual basis.
- Sirotech should be encouraged to pursue as much activity as possible above their retainer on a case by case basis. It should be made clear to Divisions whether any activity is under retainer or case by case funding.

Multi-Unit Services

A number of activities of the Organisation that support Institutes or Divisions lie outside the scope of the Model Study proper, but impinge directly on the conduct of Institutes and Divisions.

The task force made some investigations and is making brief recommendations on:

- Site facilities/services
- Cheque and salary processing
- Director's responsibilities for sites

Site Facilities/Services

For a site with only one Division present, support services should report outside of the project or discipline based research structure, eg. to the Divisional management committee, in order that priorities for work can be handled in an unbiased manner.

The appropriate level of management for each category of service will depend on the size of the establishment. Typical managers may be the Divisional Secretary, the Divisional Engineer, the OIC of the site, or in some cases, the Chief.

Where more than one Divisional HQ or major centre is located on one site, consideration must be given to effective and efficient ways sharing site facilities, including library facilities or elements of them; workshop facilities or specialised aspects of them; safety; travel; purchasing and stores, taking also into account geographic separation and additional levels of communications and control.

Cheque and Salary Processing

Cheque and salary processing, currently located at RAO's, could be located on major CSIRO sites. There would then be direct communication of salary variation to such groups on a local basis, as well as validated cheque issue instructions. Smaller sites and more isolated groups would be linked to major sites.

Director's Responsibilities for Sites

It is important that individual Directors continue to be made responsible for multi-Divisional activities at given sites, negotiating if necessary with other Directors when decisions involving more than one Institute are involved.