



# *Prentice Computer Centre*

*Budget 1986*

## PRENTICE COMPUTER CENTRE - OPERATING BUDGET 1986

### SUMMARY

The forecast position for 1985 will be close to the approved Budget with the expected loss reduced only slightly from \$156,000 to \$145,000. Additional staff, software and maintenance costs were incurred for the IBM 3083E system. It is appropriate to note that, as part of the purchase contract, IBM provided \$100,000 per annum for three years for joint developments recognising that additional costs would be involved to implement such a new and different system in the environment of the University. These funds have been earmarked for the establishment of the Computing and Information Technology Research Centre (CITRC).

The objective of the 1986 Budget is to arrest the growth in the deficit. Although the demand for central computing continues to increase, the usage by University departments is constrained by available funds. Fixed charges for hardware maintenance, software licence charges, spare parts, Telecom Australia data communication charges and electricity now represent a higher proportion of expenditure and are likely to increase in 1986. The only option available is to reduce the grade of service to provide salary savings. After taking into account expected salary savings of \$124,000, the total operating costs are likely to increase by 7% in 1986 to \$2,790,000.

Revenue from services charged to users is estimated to increase by 8% to \$2,395,000. No increase is recommended in the approved services charged to the General Fund rather than to individual users but like other contract services, they should be charged at a rate which includes the approved overhead charge of 25%. This will result in a charge of \$255,000 to the University of Queensland and \$35,000 to Griffith University for these services.

The loss for 1986 is budgeted at \$104,000.

The Prentice Computer Centre reserve from past operating surpluses currently stands at \$164,000. This will be reduced by the 1985 loss but some further offset to loss should be available from the IBM contribution to development. It is suggested that, for 1985, this contribution should be negotiated when final results for the year are known.

Approval has been given for the Central Administration of the University of Queensland to issue a specification for a separate computer to be installed at the Prentice Computer Centre for dedicated administrative use. Although it is planned that this system will be installed during 1986, it is likely that by appropriate negotiations, the additional recurrent costs in 1986 will be marginal. Decisions on equipment and software will not be made until early 1986 and no provision for operating cost or revenue has been made in this Budget.

## FORECAST 1985 POSITION

Based on income and expenditure as at 31.8.85, it is forecast that the loss on operations in 1985 will be \$144,000. This is only slightly better than the approved budgeted loss for 1985 of \$156,000.

Usage of central computing facilities increased significantly in 1985 but it is difficult to establish a precise percentage figure of increase as the resource accounting and charging systems for the new IBM 3083E are very different to our previous systems. Usage on the KL10 and VAX 11/780 systems increased only marginally (6%) and mainly for low priority work. An additional DEC VAX 11/750 was temporarily allocated to meet second year Computer Science student requirements. The major growth in usage has been on the new IBM 3083E which is expected to be 50% utilized by the end of 1985 (during some periods in prime shift, the IBM system is fully loaded). Revenue from the IBM system in 1985 is expected to be \$130,000.

Growth in usage of central computing facilities in 1985 has certainly been greater than 30% but with effective and substantial charge reductions on the IBM system, overall revenue is expected to increase by only 5% in 1985. This is slightly better than budget. The apparent reduction in University of Queensland expenditure and the increase in Griffith University expenditure on central computing is due mainly to the transfer of QTAC to Griffith University for administrative purposes.

Revenue from contract programming and hardware maintenance is expected to increase by 18% in 1985.

Actual salary payments for the year after adjustment for salary supplementation are estimated to be at the budgeted figure. With growth in workload in all areas, two occurrences of long service leave, one case of special extended leave, two cases of RSI and, this winter, a more than usual amount of sick leave there has been little flexibility available for salary savings.

Operational expenses other than salary are expected to be lower than budgeted. The variation in the exchange rate had some impact on costs of spares and imported software. Savings will be made by delaying the leasing of additional software for the IBM 3083E system.

In 1984, the Centre achieved a result significantly better than budgeted and reserve funds did not need to be used to cover a loss. In 1985, the low charge rates on the IBM system, the major area of growth, provide little leverage for a revenue increase significantly above budget. In 1985, there is a much higher proportion of fixed expenditure for hardware maintenance and software licences and as mentioned previously, there is little opportunity for salary savings. The Centre is certainly watching opportunities for savings, but at this stage, we forecast a loss of \$144,000, although as in the past, we will endeavour to improve on this forecast. The credit in reserve account is \$164,000.

It is relevant to analyse the areas which contribute to the loss.

It was recognised that additional development work would be associated with the implementation of the IBM 3083E system and the purchase contract with IBM provided \$100,000 per annum for 3 years to fund such joint development projects. An additional three staff were approved for this work in 1985. Whilst the Prentice Computer Centre will endeavour to cover this work from its own resources to enable the funds to be kept intact for the establishment of the Information Technology Research Centre, the additional work involved with development associated with the IBM system is a major contributor to loss.

Although non-charged services covered by the central funds include such salary overheads as superannuation and payroll tax, they do not include the share of Centre overheads (i.e. 25% as approved for all other labour charges to departments). The cost of software licences for departmental systems of \$12,000 is not charged out to departments. Previous submissions have noted the operating loss of \$25,000 on the CAD/CAM system.

#### PRICING POLICY

Over the years, the Centre has adopted pricing policies reasonably consistent with general theories of pricing a public utility. On the KL10, we have reached a situation of saturation and increased contribution to fixed costs from further usage revenue is not possible. This would imply that prices should be increased to cover cost inflation. Whilst additional capacity is available on the IBM 3083E system, the charging mechanism for this system is not based on usage but rather on its division into kits and the price per kit should also increase with cost inflation. Good arguments could be advanced for an overall increase of 8% in computer prices.

The price for hardware maintenance is dependent on the costs of labour and spares. There is limited opportunity for economies of scale at the current level of operation and variety of departmental equipment. The price has not been increased since 1.1.82 and with increased labour and spares cost, an increase of 15% would not be unreasonable.

The price for contract programming services is adjusted automatically. The charge to internal users is based on the actual salary costs of staff employed plus 25% allowance for Prentice Computer Centre overheads.

Although the demand for central computing continues to increase, the major constraint on revenue will be the availability of departmental funds to pay for additional usage. In such circumstances, an increase in computer charge rates is unlikely to add to revenue. At this stage in the development of the University of Queensland and Griffith University, it would not seem wise to restrict the growth in computer usage.

In a situation where it is not the policy of the University to insist that departments ensure that University assets are properly maintained, an increase in computer maintenance charges is likely to

result in departments ceasing maintenance contracts. Indeed, in the current financial situation, some departments have this under consideration.

The conclusion is that it would not be appropriate to increase prices in 1986. Nevertheless, the growth in the deficit must be arrested and the only option available is to lower the grade of service. This is undesirable, not only because of its impact on users but also because it will lower the morale of the Centre's staff who wish to provide a good service. Responding to an increase of workload with less staff is likely to increase stress and the possibility of error. Nevertheless, it is recognised that all areas of the University must operate in a leaner mode and the Centre's management and staff will continue to do its best to maintain the viability of the Centre's operations.

#### OPERATING COSTS 1986

There is little room for savings in other than salary costs and these are expected to increase at around 12% over 1985 levels to \$731,000.

The cost of the existing staff establishment (September 1985 salary levels) would increase by 11% to \$2,183,000. This will be reduced by \$124,000. Positions will be held vacant unless revenue increases over budget estimates to the extent that would justify further staff. The savings will be positions funded from central computer operations. Two positions of Programmer will be held vacant on the basis that any essential joint development which IBM may wish to progress will be handled by the Computing and Information Technology Research Centre. Computer Centre developments will be directed to those areas essential for operational viability of the IBM 3083E and the communications network. Three positions of Operator and one position of Technician will be kept vacant. It may be necessary to limit manned operations to two shifts with unattended operations in third shift. On-site maintenance cover in second shift may need to be replaced by an on-call service. It is not possible to reduce staff in other areas of the Centre's operations without correspondingly reducing revenue.

It is appropriate to note the recent propensity of staff to take long service leave. Two applications, totalling nine months, have been received for 1986 and another two are pending. In addition, one staff member will be on special extended leave for 8 months of the year. Such leave is a charge against the salary budget overheads without revenue return and is a contributor to net operating loss.

The total operating costs in 1986 are estimated at \$2,790,000.

## REVENUE 1986

The total revenue of \$2,686,000 estimated for 1986 is expected to be divided as follows:

	\$000's
Central Computer Use	1785
Contract Services	606
Approved Non-Charged Services	290
Cash Sales	5
	\$2686

Central computer use is budgeted to increase by around 8% with the contributions from each of the systems estimated as:

	\$000's
DEC KL10 Systems & Associated Services	1420
IBM 3083E	260
VAX 11/780	65
Computervision CAD/CAM	40
	\$1785

Revenue from the DEC KL10 is not expected to grow and a slight increase has been budgeted for the VAX 11/780. The major increase will be from the IBM 3083E where revenue should be twice the 1985 level. The revenue from the CAD/CAM system is budgeted to increase by a third as a result of additional external income from the Printed Circuit Board design and development service which has now been developed to a stage for commercial use.

As a result of salary savings in the Central Computer Operations Section, it is expected that revenue and costs will be in balance for the general purpose computer operations. Although revenue for the CAD/CAM computer will improve, a loss of \$28,000 on its 1986 operations is likely.

Revenue from contract systems and programming work should increase by approximately 13% to \$350,000. Sufficient contracts are already in hand to provide confidence that revenue targets will be met. This section is self-supporting.

Contracts for maintenance of departmental computing equipment and departmental hardware developments are likely to expand revenue by 8% to \$240,000. Growth in maintenance is expected to be mainly in additional peripheral devices rather than new systems. With increased labour and spare parts costs since prices were last increased in 1.1.82, it is estimated that this activity will operate at a loss of around \$15,000 in 1986. Contract work for hardware developments on behalf of departments is not expected to increase significantly and this area will be in financial balance.

A new venture is the support of the sale of personal computers to staff and students at education discounts. Although a margin of 8% will be included in price to cover cost of sales, it is not likely that this will cover operating costs in the first year and a loss of \$15,000 is estimated for 1986. This loss should be balanced by long term capital and recurrent savings to the University through the encouragement of personal rather than institutional ownership of personal computers. Indeed, in some Universities, this activity is subsidised.

Griffith University have advised that they intend to provide operational support from within their own resources in 1986 and no allowance has been made for revenue from this source.

It is not possible to reduce the charge to the Campus Data Network account below \$16,000 to cover planning and management of this activity.

#### APPROVED SERVICES CHARGED TO THE GENERAL FUND - 1986

Seven positions have been approved to provide services which would be difficult to charge to individual users. The equivalent of one of these positions is funded by Griffith University. In 1984, a total of 12616 labour hours were costed to these activities demonstrating that the positions have been fully utilised for the purposes for which they were approved. In general, the objective is to provide assistance aimed at increasing the effectiveness of computer use by departments for both central and distributed computing systems. In summary the services provided are as follows:

**TRAINING** - 2 positions. In 1984, 110 courses were provided to 969 staff and postgraduate students. The new IBM system and the expansion of personal computers has increased the need for and the variety of these short courses.

**SYSTEMS & PROGRAM CONSULTING** - 1 position. This service extends the normal programming and operational difficulties which are costed to our central operations group. Up to one week of consulting is provided to departments to investigate feasibility of computer applications, to provide consulting advice on program development and to assist departments in the preparation of applications for research grants where computing resources are required.

**SOFTWARE SUPPORT FOR DEPARTMENTAL COMPUTER SYSTEMS** - 2 positions. The Centre provides a software distribution and support service for departmental PDP11 and VAX computer systems, network and other software for personal computers. This service provides substantial savings to the University as annual licence charges are paid only for one supported system and departments receive a discount of 79% to provide a licence to copy. As mentioned in the 1985 forecast, the annual software licence charge to the Centre has not previously been costed as an expense against this service.

**DEPARTMENTAL COMPUTER PURCHASES** - 2 positions. Advice is provided to departments on purchase of departmental computer systems. The

service includes contract negotiations, ordering, installation and acceptance testing. In 1984 the Centre dealt with 323 orders to a total value of \$950,000 on behalf of departments. With the expansion of micro-computer systems on campus, the demand for this service has continued to grow.

No increase in services charged to the general fund is recommended for 1986 but the budget provision should be increased to take into account Prentice Computer Centre overheads. These have been costed on the same basis as staff charges to departments, i.e. the actual salary costs of the staff employed including salary overheads of superannuation, workers compensation and payroll tax plus the approved overhead charge of 25%. The annual software licence fees for support of departmental systems should also be a charge against this item.

	\$000's
Salary Costs of Staff	222
Prentice Computer Centre Overheads	55
Software Charges	13
	290
University of Queensland	255
Griffith University	35
	290

#### CAMPUS DATA NETWORK - FORECAST 1985 AND BUDGET 1986

This activity covers the installation and maintenance of data lines, line drivers and multiplexers on the campuses of the University of Queensland and Griffith University. The work involves a variety of transmission media (twisted pair, coaxial cable, optical fibre) and multiplexing and switching equipment covering transmission speeds from 300 bits/sec. to 10 million bits/sec. The initial conversion from Telecom Australia facilities to University facilities in 1982 was made possible by a loan from improvements fund to be repaid from charges levied on users. An amount of \$141,000 was outstanding on this loan at the end of 1984.

The forecast surplus for 1985 is \$72,000 which will bring loan repayments on target. The budget projection for 1986 is for a lower surplus of \$44,000 but still within the repayment schedule.

The pricing of CDN services was reviewed by a Committee chaired by an Assistant Bursar. The recommendations mainly involve a restructuring, having regard to new services introduced with more advanced technology. There will be no significant impact on revenue projections as a result of these recommendations.

The major matter for policy determination relates to funding the cost of equality of access to central computing resources by off-campus departments. At its meeting of 13.9.84, the Computing Policy Committee recommended to the Academic Board that:



In order to make for equal opportunity of access to Central Computing Resources at the Prentice Computer Centre, no communications charges be levied which are to the disadvantage of Departments or Sections which are away from the main Campuses of the Universities, and that there be like charges for like modes of communication.

The Academic Board supported this recommendation at its meeting of 15.10.84. Assuming that this recommendation is approved, the difference in costs between CDN costs and Telecom Australia charges for existing services would be \$15,000 per annum. Lower charges for communications would, however, encourage greater access to central computer services rather than departments establishing small local computing facilities with a lesser range of services. It is likely that the number of line connections would increase by a factor of three over the next three years if the data communications charges to access central computing facilities for off-campus departments were equal to on-campus charges.

It is not appropriate that on-campus users should subsidise such equality of access to Central Computing Facilities. It is recommended that this should be a charge to the General Fund but with some restrictions. These would be:

- (a) The cost equalisation subsidy would not apply to transmission speeds above 9600 bits/sec. In each case, however, the transmission speed requirement would be approved on the basis of traffic and service requirement.
- (b) Each case would be approved by the Director, Prentice Computer Centre on the recommendation of the appropriate Pro-Vice-Chancellor to a limit of 50% growth of services in 1986 and a maximum level of subsidy of Telecom Australia rental charges of \$25,000.
- (c) Departments would be responsible for the full cost of Telecom Australia installation costs.

## CONCLUSION AND RECOMMENDATION

The aim of the 1986 Budget is to arrest the rate of growth in the deficit estimated at slightly lower than budget at \$145,000 for 1985. Price increases are not considered to be an appropriate response, having regard to demand for central computing services and the difficult financial position of University departments. There is little leverage for reduction of external costs. The only option is to budget salary savings which may result in a lower grade of service in the provision of central computer services.

The budget, nevertheless, provides for a loss of \$104,000 on 1986 operations. The major areas of contribution to the loss are unusual salary overheads for long service and special leave (44%), the CAD/CAM system operations (27%), the maintenance of departmental computer equipment (14.5%) and the establishment of the service to sell personal computers to staff and students (14.5%).

The amount in the credit of the Prentice Computer Centre Reserve Account stands at \$164,000 as at September 1985.

By the end of 1985, the repayment of the Campus Data Network establishment loan should be on target and the 1986 CDN Budget surplus should maintain the schedule of repayments. The major area of policy determination is the funding of the costs of providing off-campus data communications services at the same charges as equivalent services to internal departments.

It is recommended that:

- (a) The Prentice Computer Centre General Operating Budget 1986 as contained in the Financial Statement (Attachment A) be adopted.
- (b) The Campus Data Network Budget 1986 (Attachment E) be adopted.
- (c) Action be taken to implement the recommendation of the Academic Board at its meeting of 15.10.84 that data communications services from Telecom Australia for off-campus departments to access central computer facilities should be subsidised to be equal to the cost to on-campus departments. The following procedure is recommended:
  - (i) The subsidy should be an overhead charge to the University General Fund rather than a charge against St. Lucia campus data communications users.
  - (ii) In each case, the Telecom Australia data connection would be approved by the Director Prentice Computer Centre on the recommendation of the relevant Pro-Vice-Chancellor having regard to traffic and service requirement. In no case would the subsidy apply to transmission speeds above 9600 bits/sec.
  - (iii) The amount of the subsidy would be limited in 1986 to a maximum of \$25,000 which would provide approximately a 50% increase in services.
  - (iv) Departments would be responsible for the full costs of Telecom Australia installation charges.

Alan W. Coulter  
Director

Attach:

**PRENTICE COMPUTER CENTRE BUDGET SUMMARY - 1986**

REVENUE	(\$000's)		EXPENDITURE		(\$000's)		ATTACHMENT	
	ACTUAL 1984	BUDGET 1985	FORECAST 1985	BUDGET 1986	ACTUAL 1984	BUDGET 1985	FORECAST 1985	BUDGET 1986
Central Computer Use:					1770	1922	1920	2059
University of Queensland	1104	1210	1110	1200				
Griffith University	209	190	260	280	173	170	180	200
Other Educational Instit.	9	7	5	5	-	112	140	150
External	212	190	240	260	81	132	90	110
CAD/CAM System Usage:					57	65	61	70
Internal Users	-	30	30	30	105	100	110	120
Other Users	-	5	-	10	18	20	20	20
Contracts:					1	6	3	6
Applications Development	266	306	310	350	11	15	13	15
Distributed Computing	179	215	215	240	10	10	10	10
Campus Data Network	-	31	15	16	8	20	13	20
Operational Services - GU	-	22	22	-	8	7	7	10
Cash Sales	3	7	3	5				
Approved Services charged to General Fund - not to individual users:								
- Univ. of Qld. contribution	167	185	185	255				
- Griffith Univ. contribution	23	25	25	35				
Salary Supplementation from General Fund	107	-	52	-				
Expected Loss Transfer to Reserve Fund	-	156	145	104	37	-	-	-
	2279	2579	2617	2790	2279	2579	2617	2790

A

ATTACHMENT B

REVENUE EARNED JANUARY - AUGUST 1979-1985 (\$000's)

YEAR	UNIVERSITY OF QLD.			GRIFFITH			OTHER		CASH SALES	TOTAL
	T & R DEPTS.	ADMIN	AFFIL.	SCHOOLS	ADMIN	AFFIL.	EDUC. INSTIT.	EXTERNAL USERS		
1979	136	152	28	17	13	-	8	108	7	469
1980	174	174	41	22	14	-	11	116	7	559
1981	179	178	49	30	16	4	8	118	7	589
1982	* 199	248	57	35	30	4	5	148	6	732
1983	* 205	276	67	38	47	8	6	182	5	834
1984	* 238	389	56	40	57	25	6	142	2	955
1985	* 244	407	55	50	58	67	4	179	1	1065

\* Grants for Innovative Teaching & Research projects not yet brought to account  
but in 1985 includes IBM 3083E and VAX 11/750

CONTRACT REVENUE JANUARY - AUGUST 1979-1985 (\$000's)

YEAR	UNIVERSITY OF QLD.			GRIFFITH			OTHER EDUC. INSTIT.	EXTERNAL USERS	TOTAL
	T & R DEPTS.	ADMIN	AFFIL.	SCHOOLS	ADMIN	AFFIL.			
1979	22	9	23	-	18	-	1	4	77
1980	13	6	60	-	19	-	-	2	100
1981	30	2	36	1	21	-	-	26	116
1982	46	2	22	2	48	-	-	11	131
1983	19	6	6	1	33	19	1	6	91
1984	36	22	5	6	43	30	-	6	148
1985	35	17	5	6	56	107	-	2	228

HARDWARE MAINTENANCE

	\$
1979	56,000
1980	85,000
1981	114,000
1982	138,000
1983	146,000
1984	179,000
1985	215,000

PRENTICE COMPUTER CENTRE STAFF BUDGET 1986

<u>STAFF ESTABLISHMENT</u>	<u>\$000's</u>
Projected cost of a full year of existing Staff Establishment (at September 1985 salary levels)	1925
PLUS:     Holiday Loadings	26
Payroll Tax and Workers Compensation	107
Superannuation Contribution	100
Overtime, Shift Penalties and On-Call Allowances	25
	<hr/> 2183
LESS:     Savings on Vacancies*	124
	<hr/> 2059

\* The following positions will be held vacant in 1986 pending regular reviews of the revenue position:

- 3     Operators
- 1     Technician
- 2     Trainee Systems Programmers
- +     Allowance for delay in filling vacant positions.

APPROVED SERVICES CHARGED TO THE GENERAL FUNDRATHER THAN INDIVIDUAL USERS - 1986

<u>POSITIONS</u>	<u>SALARY RATES &amp; LOADINGS</u>
	\$
a) Computing Education Officer - approved 1979 (Training of Academic Staff & Post- Graduate Students)	36,355
b) Senior Systems Programmer - approved 1979 (Systems & Programming, consulting for Academic Departments)	36,355
c) One-half Systems Programmer - approved 1979 (Distribution & support & general assistance on Mini/Micro Software for departmental systems)	15,850
d) One & one-half Systems Programmers - approved 1982 (Distribution, support & general assistance for Mini-Micro Software for departmental systems)	47,551
e) One-half Assistant Systems Engineer - approved 1979 (Investigations, procurement, installation, testing, etc., of departmental hardware)	13,637
f) One-half Senior Systems Engineer - approved 1982 (Investigations, procurement, installations, testing, etc. of departmental hardware)	17,834
g) Assistant Systems Programmer - assisting Computing Education Officer - approved 1984 Budget (Training of Academic Staff & Post-Graduate Students)	27,275
h) Assistant Systems Programmer/Engineer - approved 1984 Budget (Distribution, support, general assistance on software for departmental systems, investigations, procurement, installation, testing, etc., of departmental hardware)	27,275
i) Centre Overhead fee (25%) as approved for charging	55,000
j) Software charges - institution licence	13,000
	<u>\$ 290,132</u>

CAMPUS DATA NETWORK BUDGET SUMMARY - 1986

	ACTUAL	BUDGET	FORECAST		BUDGET	ACTUAL	FORECAST		BUDGET
	1984	1985	1985	1986	1985	1984	1985	1985	1986
Rentals and New Installations	117	173	180	160		37	45	47	51
						67	45	45	48
						1	2	1	1
						-	31	15	16
Transfer Surplus to A/c 105622 as repayment	-	-	-	-		12	50	72	44
	117	173	180	160		117	173	180	160

