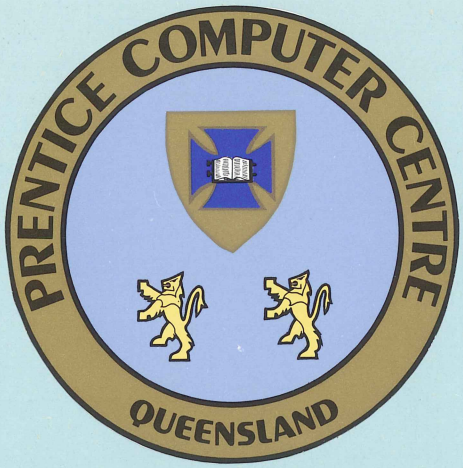

PRENTICE COMPUTER CENTRE

ANNUAL REPORT 1983

PRENTICE COMPUTER CENTRE MANAGEMENT COMMITTEE 1983

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1. System Developments

The most significant impact on the operation of the Prentice Computer Centre during 1983 was the work involved in the purchase of a new central computer for which an amount of $2 million was budgeted. Whilst representatives of the University of Queensland and Griffith University contributed to sub-committees and working parties established by the Computing Policy Committees of the two Universities, the major day-to-day work involved in specification, assessment and contract negotiation rested with Senior Staff of the Prentice Computer Centre. Such concentration on this essential activity obviously eroded management effectiveness associated with the normal activities of the Centre and reduced resources available to other areas of development.

On the recommendation of the Joint Computing Committee of the two Universities, the Vice-Chancellors of the University of Queensland and Griffith University approved the purchase of an IBM 3083E Computer at a cost of $2 million. Following this decision, the Centre was involved in the more detailed planning associated with the installation of the new equipment scheduled for March 1984.

In January 1983, the DEC KL10 Computer was upgraded to a dual processor facility with additional memory and disk storage. This upgrade relieved the critical shortage of computing capacity, particularly in prime shift.

A significant development during 1983 was the installation of a Computervision Computer Aided Design/Computer Aided Manufacturing System (CAD/CAM). This was possible as a result of co-operative arrangements between the Department of Mechanical Engineering and the Prentice Computer Centre. It is one of the most advanced systems of its kind and software for a range of engineering and mapping applications will be available on the system. Initially, two terminals have been installed in Mechanical Engineering and one in the Prentice Computer Centre but it is hoped that further terminals will be installed in other departments. The system is a significant tool for engineering research and development and provides the opportunity for our students to gain exposure to state-of-the-art design techniques. It is also planned to make the system available for experimental use by Queensland industry.

After a lengthy period of development the Centre released LABPAK in 1983. This is a comprehensive package of hardware, software and documentation for the acquisition of data from a large range of instrumentation. The Centre expects to install six units in departments during 1983/1984.

In May 1983, a Compugraphics MCS8400 Photo-Typesetting System was installed at the Centre. The typesetting software was upgraded by Centre staff to provide a professional service which could be used by Journalism students and for typesetting university publications. The seventy-four fonts available with the system have been chosen to provide photo-typesetting capabilities over a wide range of disciplines. There are 19 different families of typestyles for production of straight textual material (including many European languages), a phonetic English font, an international phonetic font, a full range of Greek, chemical and mathematical characters and two special fonts for display-advertising. The photo-typesetter is available to both the KL10 and VAX computer systems. A comprehensive typesetting manual was developed by the Centre to assist users.

The use of data base software continued to expand, particularly in research applications. The Centre also made available, through data base facilities, the *1981 Census of Population and Housing for Queensland by Collectors District*. This will significantly improve access by researchers to this information and enable data to be extracted with advanced facilities for selection and analysis.

The normal work of upgrading system software and packages to new versions continued. PROLOG was an additional language added to the KL10. This is a non-procedural language with application in the development of artificial intelligence systems. It is the language most associated with the Japanese Fifth Generation Computer developments.

Emphasis continued to be placed on providing short teaching courses for University Staff and Post-Graduate students. In 1983, 83 courses involving 899 participants were conducted.

2. Network Developments

The Data Communications Network is the major infrastructure impacting upon the rational development of computing resources for both the University of Queensland and Griffith University. The requirements are for higher transmission speeds at affordable prices, improved accessibility, higher level facilities (e.g. file transfer) and interconnection with other networks.

During the year circuit switching and packet switching facilities at Griffith University were extended and a feasibility study was commenced into the establishment of a high bandwidth microwave system between the University of Queensland and Griffith University.

On the St. Lucia Campus, significant progress was made in the conversion of Telecom Australia facilities to the new Campus Data Network and the installation of new services. To the end of 1983, 572 lines were installed. The University installed a pilot coaxial system operating at transmission rates of 10 million bits per second (ETHERNET). Extensive tests were conducted during 1983, and in 1984 facilities will be placed into operation in one segment of campus offering effective data rates for file transfer of up to 400,000 bits/second. Depending upon availability of resources, it is planned to extend the facilities available by the implementation of network terminal servers, file servers and print servers. Work also continued on the circuit switching system. Investigations were conducted into the use of local circuit switched facilities in a department or building to be connected to the central circuit switch at the Prentice Computer Centre by a trunk operating at 1.5 million bits/second. This service will be offered in 1984.

The Prentice Computer Centre was one of the first installations in Australia to connect to the Telecom Australia national packet switched system (AUSTPAC) by way of a gateway constructed at the Centre to CCITT X.25 international standards. This early implementation enabled the Centre to take advantage of free testing time offered by Telecom Australia. The X.25 gateway was brought into operation in 1983 and provides higher transmission speeds and improved facilities for connection to overseas networks. In the longer term, the significance of the system should be its use in distance education where the distance independent tariffs of AUSTPAC are relevant to communications with external students.

3. Financial and Operating Results

The financial results for 1983 were satisfactory. Operating costs of $1,860,000 were 1.7% lower than budgeted and revenue of $1,846,000 was 3.6% higher than budgeted. The slight loss of $14,000 (representing 0.77% of total costs) was significantly better than the approved budgeted loss of $109,000 and could be met from reserves.

Although usage of central computer time rose by 32%, revenue from this source was only 19% higher in 1982 reflecting the reduction in charges implemented from 1 March 1983 and increased use of low priority rates to meet computing needs within user budgets. Although the revenue from contract programming and maintenance work on behalf of users was 7% higher than the revenue of the previous year, it was below budget as a result of diversion of resources to tender evaluation which did not attract revenue.

Salary costs rose from $1,317,000 in 1982 to $1,508,000 in 1983 (14.5%) and non-salary costs from $306,000 to $352,000 (15%). The non-salaried costs were $44,000 over the Budget as a result of unavoidable increases in stationery costs, replacement of spare parts and electricity charges. This was compensated for by managing savings of $72,000 in budgeted salary costs by delaying the filling of vacant positions.

Revenue earned from Griffith University Schools and Administration increased by 17%. Usage by Schools increased by 34% and by Administration by 122%. Revenue from systems/programming contracts fell by 16%.

Revenue earned from University of Queensland increased by 19%, the major increase being a 31% increase from Administration for contract work and increased usage of central computing. Usage of central computing by Administration increased by 46%, although the revenue increase was 28% as a result of reduction in charges and greater use of low priority processing.

Revenue from Teaching and Research Departments of the University of Queensland increased by only 8%. Additional expenditures for operation of departmental mini and micro-computers is now becoming of greater relevance in departmental budgets. Usage statistics indicate that usage increased by only 6% whereas with the price reductions on the KL and VAX, one would have expected a slightly higher increase. The majority of teaching work is performed under SLOTS on the KA, KL and VAX systems where charge rates are very low. There was also a movement of research work to the low charge rates on the VAX 11/780. There was a reduction of 15% in low priority batch work and an increase of 47% in higher cost normal priority batch work. Usage of low priority terminal work also decreased by 11%.

There are, however, annual variations in expenditure on central computing by the user groups. In the last six years, revenue from Administration increased by 73% and revenue from Teaching and Research Departments by 69%.

Academic use of central computing was probably constrained by funding limitations where funds available for central computing necessarily competed with funding required to operate departmental mini and micro-computers. The Joint Computing Committee of the University of Queensland and Griffith University appointed a sub-committee to review and report on the allocation of central computing resources and associated charging mechanisms.

Revenue from the Queensland Tertiary Admissions Centre increased by 13% and by other External Users by 14%. Revenue for hardware maintenance or distributed systems increased by 6%.

Funds flowing to the Prentice Computer Centre from the General Funds of the University of Queensland in 1983 represented 1% of total General Funds of the University and accounted for 55% of the total cost of operation of the Centre.

4. Staffing and Accommodation

The labour hours worked by the Centre increased by 3% from 105,476 hours in 1982 to 108,434 hours in 1983. The major increase was in the Software Development and Maintenance Area (25%) reflecting the major development projects conducted during 1983.

I regret to say that, for the most part of 1983, the Centre was not able to meet all its commitments. There was too much work chasing too few resources and, as a result, there was user dissatisfaction leading to a lowering of staff morale. I believe the Centre is fortunate to have a dedicated and professional staff. It is natural that they (as well as users) would become concerned when they could not, through lack of resources, provide timely service at high professional standards. Towards the end of 1983, it was necessary to build a new computer room in the Centre and this further reduced the already sub-standard accommodation available to staff. The accommodation position should be relieved in 1984 when the Department of Computer Science moves to a new building. A review will be made of the organization of work and staff with the aim of improving effectiveness and morale.

5. Summary

1983 was a year of significant achievement by the Prentice Computer Centre. The specification, evaluation and tooling up for the installation of a major new central computing system was completed; an advanced CAD/CAM system was installed; a professional typesetting service was introduced; the communications network was enhanced, both in terms of transmission speed and services; a system for data acquisition from a range of instrumentation was made available; charges for use of both the KL10 and VAX 11/780 systems were reduced and usage of the central systems rose by 32%. The financial result of 1983 with a near balance between income and expenditure was significantly better than the approved Budget. Unfortunately, the Centre did not have the resources to provide the grade of service it considered appropriate in a number of areas, particularly in timely response to equipment faults and user problems. Nevertheless, I believe the staff of the Centre have done a magnificent job of meeting the challenges of providing new services and coping with growth. I take this opportunity in expressing my gratitude for their support, their performance and their effort.

Alan W. Coulter
Director

FINANCIAL STATEMENT

PRENTICE COMPUTER CENTRE OPERATIONS ACCOUNT SUMMARY - 1983

REVENUE ($000's)	Budget 1983	Actual 1983
Computer Use		
Internal University of Qld	815	896
Internal Griffith University	105	145
Other Educational Institutions	5	10
External	240	265
CAD/CAM System Use		
Mechanical Engineering	15	-
Others	5	-
Programming & Hardware Services	385	336
Sale of Software	6	-
Cash Sales	8	7
Charge to General Fund for approved services rather than charges to individual users -		
University of Queensland	116	116
Griffith University	14	14
Network Development charged to CDN	25	13
Expected loss transfer to Reserve Fund (3)	109	14
	1848	1816

EXPENDITURE ($000's)	Budget 1983	Actual 1983
Salaries (1) (actual salary costs $1,508,000 less Salary Supplementation $44,000)	1536	1464
Maintenance (2)	113	141
Software Charges	20	32
Stationery	40	51
Electricity	70	73
Insurance	14	12
Air Conditioning & Maintenance	17	10
Travel	7	10
Publications	20	20
Rentals	3	-
Magnetic Tapes & Packs	5	1
Furniture & Fittings	3	2
Transfer to Reserve Fund	-	-
	1848	1816

(1) Budget estimates are based on expected December 1982 rates - Award & CPI increases being covered by Salary Supplementation Salary supplementation of $43,390 calculated by Bursar's Office.

(2) The Salary Supplemention of $44,000 has been brought to account regardless of the fact that the transfer normally performe by Business Services to clear the QUBAC Salaries Account was not processed at the end of 1983.

(3) Charge reductions in 1983 - see Appendix B.

Outstanding Debtors 31.12.83 = $46,331 Outstanding Orders 31.12.83 = $34,455

PRENTICE COMPUTER CENTRE OPERATIONS ACCOUNT SUMMARIES - 1979-1983

REVENUE ($000's)	1979	1980	1981	1982	1983
Computer Usage (1)					
Internal University of Qld.	519	622	660	785	896
Internal Griffith University	49	59	67	100	145
Other Educational Instit.	14	15	13	8	10
External	142	164	170	226	265
Contracts - User Services & Equipment Maintenance	174	256	319	315	336
Sales of Software	-	-	5	-	-
Cash Sales	8	8	8	7	7
Salary Supplementation	76	59	138	125	44
Charge to General Fund for Approved Services - Univ. of Qld.	31	41	60	105	116
- Griffith Univ.	-	5	7	10	14
Network Development - CDN	-	-	-	-	13
Transfer from Reserve Fund	26	-	-	-	14
	1039	1229	1447	1681	1860

EXPENDITURE ($000's)	1979	1980	1981	1982	1983
Salaries (2)	855	1006	1173	1317	1508
Maintenance	66	86	89	129	173
Stationery	37	45	30	46	51
Electricity	32	38	62	64	73
Insurance	9	10	11	11	12
Furniture & Fittings	-	1	2	2	2
Air Conditioning & Maint.	10	12	11	18	10
Travel	3	6	2	10	10
Publications	14	11	30	22	20
Rentals	12	13	6	3	-
Magnetic Tapes & Packs	1	1	1	1	1
Transfer to Reserve Fund	-	-	30	58	-
	1039	1229	1447	1681	1860

(1) Internal charge rates were reduced by 12.5% from 1.4.79. The low priority terminal use rate from 6pm to 7.30pm was reduced from 70% to 50% from 1.1.79; Sunday operation at $\frac{1}{4}$-rate introduced from 15.4.79; Student Low Overhead Time Sharing Service at 1/3rd charge rate over all shifts introduced start of second semester 1979; low priority terminal rate reduced from 50% to 40% of prime rate from 1.5.80; VAX 11/780 system introduced at 3/4 KL10 charge rates on 17.8.81; KL10 primary memory charges reduced by 15% from 1.2.82; VAX 11/780 charge rates reduced to 1/3rd of KL10 equivalent charges; KL10 primary memory charges reduced by 10% and charge for file I/O reduced by 15% from 1.3.83.

(2) Actual staff costs including payroll tax, overtime, penalty payments and other staff costs.

REVENUE EARNED 1979 TO 1983 ($000's)

		UNIVERSITY OF QLD			GRIFFITH UNIVERSITY							
	YEAR	ACADEMIC	ADMIN	AFFILIATED	ACADEMIC	ADMIN	AFFILIATED	OTHER EDUC. INSTITUTIONS	EXTERNAL	CASH SALES	HARDWARE SUPPORT	TOTAL
COMPUTING AND CASH SALES	1979	224	233	62	30	19	-	14	148	8	-	738
	1980	291	257	74	37	20	2	15	172	8	-	876
	1981	306	269	85	48	22	9	13	173	8	-	933
	1982	335	351	99	56	39	4	8	226	7	-	1125
	1983	361	450	87	60	72	26	10	265	7	-	1338
CONTRACTS	1979	35	12	37	-	27	-	2	5	-	-	118
	1980	38	9	88	1	31	2	-	2	-	-	171
	1981	66	3	55	1	34	-	-	46	-	-	205
	1982	60	2	32	2	64	1	1	15	-	-	177
	1983	55	12	8	2	54	49	2	9	-	-	191
HARDWARE SUPPORT	1979	-	-	-	-	-	-	-	-	-	56	56
	1980	-	-	-	-	-	-	-	-	-	85	85
	1981	-	-	-	-	-	-	-	-	-	114	114
	1982	-	-	-	-	-	-	-	-	-	138	138
	1983	-	-	-	-	-	-	-	-	-	146	146
TOTAL	1979	259	245	99	30	46	-	16	153	8	56	912
	1980	329	266	162	38	51	4	15	174	8	85	1132
	1981	372	272	140	49	56	9	13	219	8	114	1252
	1982	395	353	131	58	103	5	9	241	7	138	1440
	1983	416	462	95	62	126	75	12	274	7	146	1675

Notes:
1. Figures refer to revenue earned during the year. There may be variations between these and revenue brought to account in expenditure and revenue statements.
2. Figures do not represent relative work load on computers due to variations in use of priorities, changes to charge rates and charge factors for different classes of users. External users are charged at 3.6 times the internal rate and other educational institutions at 1.7 times the internal rate.
3. UQ Affiliated figures for 1982 includes $64,000 for QTAC, whilst QTAC revenue of $73,000 for 1983 is included with Griffith University Affiliated figures.

PRENTICE COMPUTER CENTRE

PROPORTION OF USAGE CENTRAL COMPUTING FACILITIES

	1980		1981		1982		1983	
	USAGE %	JOBS %	USAGE %	JOBS %	USAGE %	JOBS %	USAGE %	JOBS %
UNIVERSITY OF QUEENSLAND								
Teaching & Research Depts.	41	66	41	65	37	64	29	60
Administration	34	7	32	8	39	9	43	10
* Affiliated	10	8	10	5	9	4	6	6
GRIFFITH UNIVERSITY								
Schools	4	8	6	12	6	12	6	12
Administration	4	2	4	2	4	3	7	4
* QTAC							4	1
OTHER APPROVED USERS	7	7	6	7	5	8	5	7
	100	100	100	100	100	100	100	100

(Note - Usage refers to central computing only and does not include mini-computers established in Departments of the Universities)

* QTAC included with the University of Queensland Affiliated Group prior to 1983