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The First Fifteen Years of Computing in Aotearoa New Zealand

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Abstract—This article outlines the first fifteen years of modern computing in New Zealand ...

Modern computers arrived in Aotearoa New Zealand in 1960, little over a century after the first discernable information technology [7]. New Zealand was then a relatively isolated and small (2.5 million people) economy, so it is feasible to track the dissemination and socio-economic influence of computing for the following period; this study runs from 1960 to about 1975. Two events in the mid-1970s signaled the end of the economic and social era that began after World War II, and act as the end of our study: Britain joined the European Common Market in 1973, with major economic consequences, and New Zealand switched on a national Police Computer in 1976, with significant social impact.

In 1960, New Zealand had a rather centrally managed economy. Indeed, its currency did not float until as late as 1985. The details are complex [11], but the result was that during the period of our study the Treasury was constantly concerned about the foreign exchange impact of computer imports, and this necessitated a system of import licensing. This was a constant background for trends in computing, especially since the Treasury initially favored computing service bureaus to ensure maximum usage of what they considered a scarce resource. Of course, many companies much preferred to have their own systems.

Several themes are used to organize this article:

- growth in numbers of computers, vendors and employment
- key areas and types of usage, including service bureaus
- start of computing services and teaching in universities, technical colleges
- professionalization
- local contributions to the technology
- commercial and economic impact
- social impact

GROWTH IN NUMBERS AND EMPLOYMENT

The following table shows the estimated number of electronic digital computers installed in New Zealand over the years in question.

Year	Computers	Source	Notes
1960	2	[6]	
1965	70	[5]	[9] gives 45
1966	81	[5]	
1968	120	[5]	[3] gives 87
1969	140	[5]	
1971	180	[5]	
1972	200	[3]	
1974	280	[5]	
1976	400	[5]	

Although there are some discrepancies in the available data, the trend is one of rapid growth, from one computer for every 1.2 million people to one for every 8000. Similarly, the number of programmers in public services rose from a handful (maybe 4) in 1960 to 115 (84 men and 31 women) by 1974 [3]. Overall, 4000 data processing staff were then employed at 220 sites – 39% in Wellington, 31% in Auckland, 9% elsewhere in the North Island, and 21% in the South Island [5].

Even if the public services had 27% of female staff, it is not clear that the same applied elsewhere. For example, a staff photograph in 1966 shows 14 men and only three women (Figure 1). Whenever staff appear in computer room photographs, the women are almost invariably seated at a keyboard and the men are standing in discussion.

There is little to indicate significant Māori involvement in computing during our period of study. Robyn Kāmira [10] shows that such involvement would only

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FIGURE 1. Fletcher Computing Bureau staff, 1966. Courtesy Fletcher Archives, NZ.

start in the 1980s, when a first handful of Māori information technology specialists graduated.

New Zealand had a long history of preferring to import British products of all kinds, but this did not long survive in the computer market. IBM was of course a major player; not only did they snag the Treasury as their first customer for an IBM 650 in 1960 [6], but they also delivered a heavily discounted IBM 1620 to the University of Canterbury in 1962, the first machine in academia [4]. This was in line with IBM's world-wide practice of educational discounts, a powerful marketing tool that exposed many students to the IBM brand. As time went on, IBM sold numerous machines - more IBM 1620s, at least one IBM 1401, several IBM 1130s, until the game-changing IBM 360 series came along in 1964.

The main British competitor in 1960 was ICT, but a potential customer would certainly have been confused by the fragmented state of the British computer industry at that time [8]. Nevertheless, ICT sold one ICT 1201, at least six ICT 1301s, and numerous machines from the ICT 1900 series. It was not until the various British companies were unified as ICL in 1968 that things settled down, but by then IBM had the lion's share of the New Zealand market and ICL was too far behind. In 1974, the new ICL 2900 series had to compete with the well established and upwards compatible IBM 360 series.

Other companies that were active in the early days were Burroughs (with its E2000, not a general-purpose computer, but specialized for accounting), and NCR (Series 500 , also specialized for ledgers).

TBD? Give a table summarising what we've collected in a spreadsheet. But at best it will be a sample

FIGURE 2. ICL 1902A Delivery in 1969. Courtesy Fletcher Archives, NZ.

FIGURE 3. The TAB Computer Centre, Christchurch, 1970. Courtesy Fletcher Archives, NZ.

of the market.

Throughout the period under study, most computers remained large and comparatively heavy, even as they moved from "first generation" (vacuum tubes) through "second generation" (discrete transistors) and "third generation" (integrated circuits) to the "fourth generation" (very large scale integration). As the technology got smaller, mainframe computers became more powerful rather than more compact; space and air conditioning requirements did not substantially change. For example, the third computer installed in 1969 by Motor Specialties in Auckland, an ICL 1902A, needed to be lifted to the top floor by crane, like its predecessors, an ICT 1201 and an ICT 1301 (Figure 2).

At the same time, the growth in installations led to a minor building boom of dedicated computer centers, which tended to be stark concrete buildings with few windows (Figure 3).

TBD: summary and link to next section

HOW COMPUTERS WERE USED

In 1973, the Department of Statistics provided the following summary [1]:

> The demand for computers has come from Government departments, local authorities, universities, primary producer boards, private firms in industries such as printing, forestry, insurance, oil, food processing, electrical equipment manufacturing, building and construction, clothing, engineering, airways, banking, retailing, motor assembly, paint manufacturing, and stock and station agents.

This was quite a change from 1960, when the demand was for handling the payrolls for teachers and public servants. The expansion in fields of use came very quickly. By the end of 1966 [2] [TBD: Janet check the Archives citation], Government usage included payroll, statistics, science, NZ Railways, Inland Revenue, Post Office, Social Security, Reserve Bank, Bank of New Zealand, New Zealand Broadcasting Corporation, Apple & Pear Board, and the Dairy Board. In a surviving list of import license applications between August 1965 and May 1966 [2], there are three applications from local government, three from universities, but 30 from business and primary and secondary industries. The New Zealand economy took to computers rather quickly, held back mainly by import license restrictions.

TBD: types of usage, including service bureaus

TBD: short case studies (EDS, Databank...)

ACADEMIA AND PROFESSIONALIZATION

TBD: Start of computing services and teaching in universities, technical colleges (and maybe schools?)

TBD: Start of Computer Science as a discipline

TBD: Origin and growth of NZCS

LOCAL CONTRIBUTIONS

TBD: Local contributions to the technology

ECONOMIC IMPACT

TBD: in the context of the NZ economy decoupling from the UK

SOCIAL IMPACT

TBD: in the context of increasing privacy concerns and the Wanganui computer

CONCLUSION

TBD

ACKNOWLEDGMENTS

TBD

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