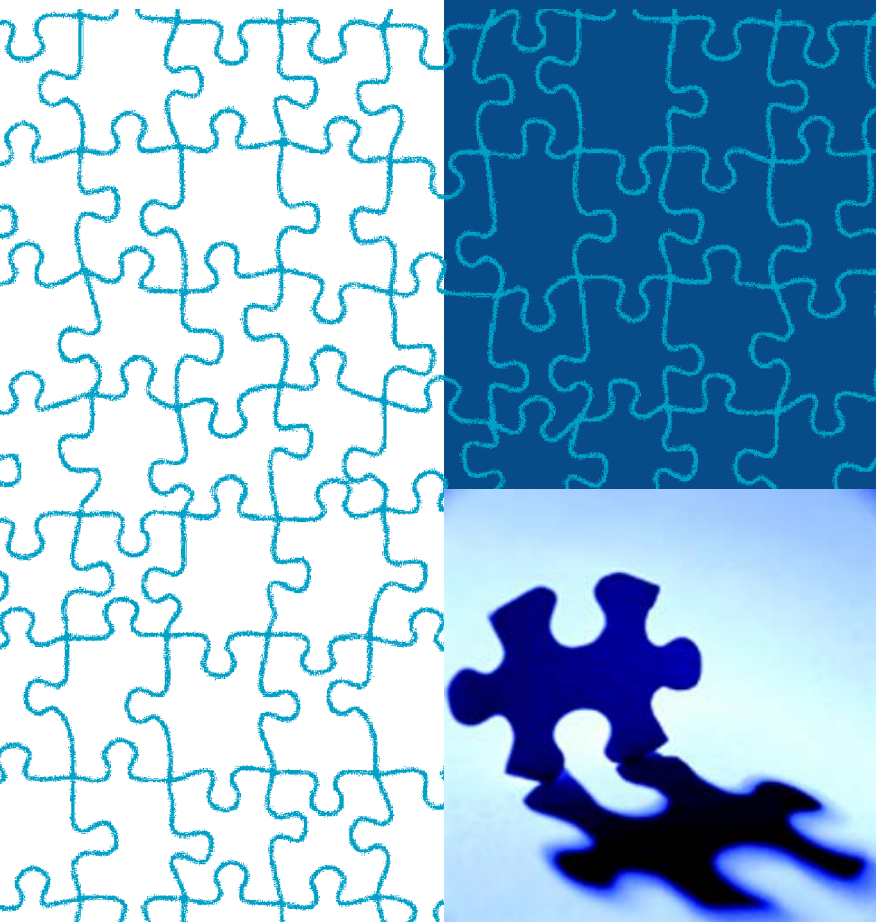


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Collaborating
for Efficiency

Report of the
Capital
Sub-group



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August 2003

ISBN 0-478-08745-4

Catalogue number TE78

Published October 2003

for the Collaborating Efficiency project by
Tertiary Education Commission Te Amorangi Mātauranga Matua

National Office

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Wellington New Zealand

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www.tec.govt.nz

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1 Executive summary

This report summarises the work, findings and recommendations of the Collaborating for Efficiency: Capital Sub-group (the “Capital Sub-group” or “Sub-group”), which was charged with the task of advising the Tertiary Education Commission (“TEC”) on collaborative and efficient use of capital in the tertiary education sector.

The context of the Sub-group’s work is set by the Collaborating for Efficiency project: an effort to diagnose and facilitate potential improvements in the use of resources within the tertiary education sector.

The Sub-group’s work was focused on the following key areas:

- Performing a stocktake of existing capital assets utilised by the public tertiary education institution sector
- Reviewing key practices for managing capital assets
- Identifying opportunities for greater collaboration and efficiency in capital spending
- Making recommendations regarding a basis for improving and monitoring efficient management practices and processes, collaboration and impacts on results, and
- Advising on how the results of the study should be used in the context of key accountability documents.

1.1 Methodology

The Sub-group undertook a survey of public tertiary education institutions (“TEIs”) to:

- gauge current asset usage
- assess the state of asset planning
- assess current asset management practices, and
- identify areas where TEI managers seek additional assistance and training.

It also consulted TEC and the Tertiary Advisory and Monitoring Unit (“TAMU”) on these matters. Members of the Sub-group also provided significant input, based on their own experience and expertise.

1.2 Survey and consultation findings

25 of the total 35 TEIs responded to the questionnaire. The questionnaire's key findings may be summarised as:

- Capital expenditure across the sector is forecast to increase over the next five years from c.\$300m per annum to \$350m per annum. It is not clear at this stage to what extent this expenditure is remedial (catching up from under-spend in previous years) or driven by expansion or other changes in the scope and delivery of tertiary education;
- External sources of funding (particularly borrowings) are likely to be required to meet this increased capital expenditure;
- With the changing tertiary education environment, it is increasingly important to ensure that capital spending is aligned with both TEI strategic direction and the Government's own strategic priorities;
- There is little data available or consistently collected on TEI assets;
- Practice in the areas of capital budgeting, planning, management and performance monitoring varies considerably across the sector:
 - Capability, skills and expertise varies widely;
 - Whilst the record of successful investment is generally reported as good, some TEIs do report mixed success;
- Many TEIs requested more information and training on best practice asset planning and management;
- Students wish to be consulted more extensively and earlier in capital planning processes, to ensure that student needs are better met. Issues of particular concern to students are:
 - Intergenerational issues surrounding the funding of capital assets
 - The need for capital planning to take account of changing student demographics and ethnicity
 - The opportunity to use TEIs' bulk buying power to assist student purchases (e.g. purchases of student computers, other 'tools of the trade')
- Collaboration in the use of existing or planned assets is relatively limited.

1.3 Recommendations

The Capital Sub-group's recommendations concern opportunities for:

- Improved asset management and greater efficiencies in the use of capital and assets by individual TEIs, and
- Collaboration between TEIs to maximise the efficient use of capital assets.

In each case, the recommendations can be categorised as concerning:

- **Capability:** improving knowledge, skills, processes and practice to improve the efficiency and outcomes of investment decisions across the sector; and
- **Incentives:** incentivising TEIs to apply best practice and to manage assets with optimum efficiency.

The Capital Sub-group's recommendations are listed below.

1.3.1 Improved asset management within TEIs

- 1 **(Capability)** Additional research could usefully be performed on the:
 - quality of capital spending evaluation, decision-making and processes in the sector
 - alignment with and success of capital expenditure in meeting both institutional and sector-wide needs
 - efficient use of capital in the TEI sector
 - extent of deferred maintenance, and
 - responsiveness of capital programmes to changes in the TEI environment (demographics, learning paradigms, research, policy, etc.).
- 2 **(Capability)** TEIs should develop systematic and inclusive capital expenditure planning processes, reassessing their existing processes, where necessary.
 - Such planning processes should incorporate consultation with students and take account in capital planning of changing patterns of student ethnicity.
- 3 **(Capability)** TEIs should obtain more training in capital investment decision-making generally, and in particular:
 - the preparation of asset management plans;

- criteria for making capital investment decisions (in a tertiary educational environment);
 - financing of capital assets and management of external borrowings;
 - capital project management;
 - MoE and TAMU could assist in this area by incorporating training in these areas in the senior management training programme, sponsoring development of self-assessment resources and sponsoring training of TEI management by capital investment experts.
- 4 (Capability and Incentives)** TEIs are encouraged to join the AAPPA (Australasian Association of Higher Education Facilities), to:
- have access to the wealth of material currently available at AAPPA on capital asset investment and management, and
 - incentivise efficient capital usage through benchmarking.
- 5 (Capability)** A database of resource material should be developed, to hold in electronic form copies of the tertiary sector material currently available on capital asset investment and management. This resource base should be further developed and updated on an ongoing basis by sector participants. One of the outputs of the Sub-group's work is an initial gathering of such material.
- 6 (Capability)** The current networks of TEI chief financial officers should be further supported and developed, with the intention of disseminating and discussing best practice guidance material, training, and consideration of possible collaborative initiatives.
- 7 (Capability and Incentives)** A formal management system should be established that (for material projects):
- Clearly identifies the drivers of success for each major capital project (including an assessment of key risks) at the project analysis stage;
 - Ensures the ongoing management of a project in terms of the identified drivers and risks (over the useful economic life of the project or at least its payback stage);
 - Provides a reporting system that reviews the outcomes of a project and the attainment of its goals.
- 8 (Capability and Incentives)** Policies to encourage capital efficiency should also be developed, potentially including:
- TEI KPIs be expanded by TEC and TAMU to include measures of capital efficiency;
 - Benchmarking information should be published annually;

- TEIs should ensure alignment of capital expenditure with institutional strategy, and develop efficiency measures for use in capital planning.
- 9 **(Incentives)** TEIs should develop capability to report space usage by activity, and charge for space when appropriate, to encourage efficient use of land and buildings.

1.3.2 Greater collaboration across the TEI sector

- 10 **(Capability)** A database of TEI and CRI major specialised research equipment be established, to identify opportunities for joint use across providers. Collaboration and higher utilisation of such assets would be greatly enhanced by the establishment of a sector-based fund for purchase of high value research equipment by consortia of providers.
- 11 **(Capability)** MoE and TEC should provide resource support for TEI financial officer networks, particularly in relation to developing collaborative projects.
- 12 **(Incentives)** MoE and TEC should conduct an investigation into whether a market could be established for spare capacity of TEI capital assets.

1.3.3 Other Recommendations

More generally, the Capital Sub-group notes that:

- 13 Each TEI faces the challenge of ensuring alignment of the TEI capital stock with future national training and research needs and an agreed strategic vision for tertiary education.
- 14 Each TEI requires a strategy that goes beyond the five-year focus. It was noted that in the area of capital investment TEIs have to take a longer-term focus, often spanning decades.
- 15 Government should take into account TEI planning requirements when considering major policy changes, as well as the potential impact of policy changes on long-term capital investment.

1.4 Project outputs

The outputs from the Capital Sub-group's work comprise:

- 1** This report.
- 2** A Summary of the Questionnaire Findings.
- 3** An initial gathering of material on capital investment best practice.

2 Introduction

2.1 Background

The project “Collaborating for Efficiency” is concerned with building on the efficiencies gained in the past decade by identifying and sharing good practice throughout the public tertiary education sector. The public sector comprises 35 tertiary education institutions (“TEIs”) that combined provide the vast majority of education and training (and research) carried out in the tertiary education sector.

The purpose of establishing the project was to “provide further opportunity for public tertiary education sector to act in an efficient, collaborative and co-operative manner to improve performance” (Terms of Reference, 2002).

The desired outcomes sought from the Collaborating for Efficiency project were to:

- Strengthen the contribution of the TEIs to the Tertiary Education Strategy
- Establish stronger institutions that are better positioned for strategic change
- Encourage greater collaboration between TEIs
- Establish stronger links with industry and research organisations (including Crown Research institutions)
- Increase responsiveness to students (and other stakeholders)
- Provide higher levels of performance across a wide range of operational and financial performance measures
- Generate the ability to monitor and assess improvements in effectiveness and efficiency, and
- Establish the ability to influence improvements in effectiveness and efficiency through use of various levers (including, in particular, Charters and Profiles).

The project has two roles – diagnostic and facilitative. The diagnostic role relates to the identifying and sharing of “good practice” within and across the public tertiary education sector. The facilitative role relates to assisting TEIs to develop collaborative strategies.

Five sub-groups were formed within the Collaborating for Efficiency project with the purpose of focusing on identified high value areas for collaboration for

efficiency, such as staffing costs, capital assets and capital management, entrepreneurial activity, library services and Māori. The focus of this report is the work of the Capital Sub-group.

2.2 Capital Sub-group

The Government recognises that it is becoming increasingly important that capital spending decisions support the long-term priorities of tertiary education institutions and local and national education strategies.

The public tertiary sector at this time faces important challenges, and associated risks, related to their capital assets and capital management. For example:

- The sector has experienced significant growth in student numbers over the past decade; this growth creates an impetus for increase in the stocks of capital assets used by TEIs.
- Capital investment decisions are long-term in nature. Poor planning and decision-making can significantly impact on an institution's long-term direction and viability.
- The sector currently spends around 12 to 17% of its annual expenditure on new capital assets. Capital costs are typically the second largest cost (behind staffing) for a TEI.
- The sector is a significant investor with fixed assets of \$3.8 billion in 2001, yet the average return on equity is relatively low at 1.6% (2001).
- Variable income and low margins heighten the risk associated with the sector's investment in capital assets; the trend for capital spending to be greater than cash operating resources particularly impacts on the sector's ability to plan for asset replacement. Working in a low margin environment makes capital investment decisions all the more critical, as capital decisions can have a substantial impact on the long-term viability of an institution.
- TEI infrastructure is increasingly costly. IT, new subjects and increasingly complex equipment push up costs. New models for utilising capital assets have emerged with the Centres of Research Excellence where resources are shared by researchers and their institutions.

It is these key trends and considerations that provide the context for the work of the Sub-group. The Terms of Reference for the Sub-group were established by the main Steering Group with input from the Capital Sub-group members.

2.3 Purpose of the Capital Sub-group

The Sub-group was charged with the preparation of a report that would provide the basis for the effective and efficient management of capital across the public sector. In approaching this lofty task, and given the resources and time available, the Sub-group decided to focus on the following:

- 1 a high-level stocktake of existing capital assets of the sector and how this aligns with future sector needs
- 2 aligning investment decisions with a TEI's own goals and strategies, as well as those of the nation as a whole
- 3 guidance on the efficient and effective use of capital including project management of capital projects
- 4 performance measurement, and
- 5 financing options for capital projects.

2.4 Project group

The Capital Sub-group was formed by the Associate Minister of Education from nominations from various institutions, and other interested parties. The Sub-group comprised:

Adrienne Cleland, Chair	Massey University
John Patrick	University of Otago
Kerry Marshall	Eastern Institution of Technology
Bruce Ferguson	Christchurch College of Education
Graham Clarke	Geological and Nuclear Sciences
Ayesha Verrall	NZUSA nominee

Supported by:

Murray Coppersmith	PricewaterhouseCoopers
Geoff Whitehouse	Tertiary Education Commission
Kevin Fisher	Tertiary Advisory Monitoring Unit
Kim Vardon	Massey University
Jo Innes	Stratum Ltd

2.5 Objectives for this report

The primary objectives for the report are to:

- Summarise the work undertaken as requested in the Terms of Reference
- Provide a stock take of existing capital assets
- Review key asset management practices and performance in the TEI sector
- Review the opportunities for greater collaboration and efficiency in capital spending, and
- Make recommendations on a basis for improving asset management within TEIs and collaboration across the sector as a whole.

2.6 Report scope and structure

The report presents an overview for each topic area, a discussion on the current situation based on evidence from a questionnaire (2002) and commentary from members of the project group, followed by related conclusions and recommendations for aspects of the management of capital assets within the tertiary sector.

The remainder of this report is structured as follows:

Section 3	Stocktake of TEI assets: assessing the quality of TEI assets and current capital expenditure intentions across the sector
Section 4	Current TEI asset management practice: evaluating current practice and performance in three stages (planning and decision making, project delivery, ongoing management)
Section 5	Opportunities for collaboration
Section 6	Conclusions and recommendations

2.7 Strengths and limitations of the report

The project team was selected on the basis of sector knowledge and experience, as well as skills in the area of capital appraisal and management. The Sub-group was asked to prepare a report within a short time and with limited resource base. Given these constraints the Sub-group decided to focus on three key outputs - a final report with recommendations, a questionnaire and a related report on survey findings, and a resource guide containing examples of current practice. The focus of the outputs has been on providing material that is useful to government and the senior tertiary financial managers from a practitioner's perspective.

Time did not permit a full discourse on the various issues in the area of capital appraisal or management or detailed research on "best practice" or a theoretical exposé. The Sub-group hopes that the material presented will be seen as a good first step in the process of assisting tertiary sector managers come to grips with the area of capital asset management. This report provides a number of recommendations for taking the work forward. It also identifies some key issues that require further investigation.

Within the reports, the scope and depth of content on particular areas is limited by the availability of information. Gaps in evidence for key areas have been addressed either with supplementary data and comment from the Tertiary Advisory Monitoring Unit of the Ministry of Education (TAMU) or by anecdotal comment from Sub-group members. Three areas from the terms of reference have not been addressed due to lack of available information. These include: system needs, IT needs, and collaboration within TEIs.

The scope and depth of the outputs produced by the group has been limited by the project timing – December to March is a peak workload time for the Project Team members and their finance colleagues within Tertiary Education Institutions. The Sub-group would, however, like to acknowledge the considerable support that tertiary education institution finance officers have provided in terms of the completion of the Sub-group's questionnaire, contributions to the resource guide, and other assistance.

3 Stocktake of TEI assets

3.1 Overview – capital expenditure in the public tertiary sector

The TEI sector is comprised of 35 institutions with total assets under management of \$3.8 billion (book value as at 31 December 2002). Institutions vary in size from Auckland University with an asset base of \$757 million to Telford Polytechnic with an asset base of \$3 million.

The public tertiary sector faces important challenges and associated risks related to their capital assets and capital management. For example:

- The sector has experienced significant growth in student enrolments over the past decade. This growth creates an impetus for an increase in the stock of capital assets used by TEIs.
- Capital investment decisions are long term in nature. Poor planning and decision-making can significantly impact on an institution's long-term direction and viability.
- The sector currently spends around 12% to 17% of its annual expenditure on new capital assets. Capital costs are typically the second largest cost for a TEI.
- The sector is a significant investor with fixed assets of \$3.8 billion in 2001, yet the average return on assets is relatively low at 1.6% (2001).
- Variable income and low margins heighten the risk associated with the sector's investment in capital assets. The trend for capital spending to be greater than cash operating resources particularly impacts on the sector's ability to plan for asset replacement. Working in a low margin environment makes capital investment decisions all the more critical, as capital decisions can have a substantial impact on the long-term viability of an institution.
- TEI infrastructure is increasingly costly. IT, new subjects and increasingly complex equipment push up costs. New models for capital assets have emerged with the Centres of Excellence where resources are shared by researchers and their institutions.

A full analysis of the status of capital assets over the 1996 to 2001 period is attached as Appendix 3 "An analysis of Capital Expenditure in the Tertiary Sector." Further analysis of the 2002 year (provisional results) and the future outlook is provided in the Sub-group report entitled "Questionnaire Findings – Capital Sub-group."

The discussion below is based on evidence generated from the questionnaire findings and supplementary data from TAMU.

3.2 Quality of assets

The vast majority of respondents to the questionnaire agreed that the type and mix of fixed assets used by their institutions fully supported the delivery of the services and curricula offered.

70% of respondents considered the current state of assets were “fit for purpose” with 20% unsure and 10% concerned with the state of some assets.

However, the survey also revealed that there was little post project review of the results of significant capital expenditure projects and, where there had been a review, there appeared considerable concern about whether capital projects had fully achieved the outcomes set for the project. The survey also suggested some concern with the state of existing assets, although the reason for this was not clear and further work would be required to investigate this issue more fully.

The questionnaire also identified a desire by TEI management for training in the aspect of the assessment of non-financial decision-making criteria and asset planning more generally. TAMU also commented that, from its review of documentation provided in support of major capital projects, it sees a general need for there to be more rigour in capital appraisal and that an increased focus on post project appraisal was important to ensure that the desired outcomes from projects are achieved.

3.3 Capital spending intentions

The level of capital expenditure that was forecast over the period 2002 to 2005 (estimated as ranging from between \$349m to \$397m per annum – ref. Appendix 3) is expected to be high and increase from the levels of the last five years (which averaged around \$300m per annum). Some of the capital spending forecast growth will reflect recent Waitangi Tribunal settlements with the three wānanga.

The total amount of capital spend is currently above depreciation levels, indicating some growth in capacity. TEI sector assets remain heavily invested in land and buildings (i.e. around 80% of current fixed assets). The proportion of new space vs. replacement space is not known. From the survey increases are expected in IT, library resources and equipment spend. Over the four-year period to the end of 2005, TEI investment in IT is set to more than double.

The Sub-group notes that there was little useful information that could be gained from the questionnaire on the items or types of specialised assets in use and the degree to which TEIs were using specialised assets. Further work would need to be commissioned to examine this topic in further detail.

3.4 Key conclusions

The level of capital spending is set to increase over that experienced in recent years. In terms of financing of growth, clearly TEIs will need to look to external sources of finance, such as debt, for between 5 and 20% of the required new expenditure.

Little data exists on the capacity being built and its alignment with the nation's strategic goals.

In the vast majority of cases, TEIs considered that assets were adequate to ensure delivery of services. Possibly the more important question was whether the assets were fit for purpose. Again the answer is generally yes, though there are signs that there are some concerns with the state of existing assets. More work would be required to investigate the reasons for the various concerns.

Although there is evidence of long term planning in the sector, the vast majority of participants in the questionnaire indicated that their institutions did not have long-term asset plans. Most participants identified the need for greater support in terms of asset management and planning. A question posed by Sub-group members was the extent to which TEIs are planning asset replacement. This is important given that a number of TEI assets date back to the 1970s.

3.5 Recommendations

The Sub-group recommends that:

- Additional research could usefully be performed on the:
 - quality of capital spending evaluation, decision-making and processes in the sector
 - alignment with and success of capital expenditure in meeting both institutional and sector-wide needs
 - efficient use of capital in the TEI sector
 - extent of deferred maintenance
 - responsiveness of capital programmes to changes in the TEI environment (demographics, learning paradigms, research, policy, etc.).

4 Current TEI asset management practice

This section summarises the findings of the research undertaken on current asset management practice by TEIs. It covers:

- 1 The planning and management of capital investment
- 2 Performance and efficiency in implementing investment projects
- 3 The ongoing performance and efficiency with which capital resources are used by TEIs.

4.1 Planning and management of capital expenditure

In many respects, capital investment decisions are among the most important financial decisions made by managers. They involve the allocation of scarce resources, which means that the institution must satisfy itself that it will use the resources in the best possible manner. Managers have responsibility for ensuring that individual investment decisions are congruent with the institution's objectives and aligned to the institution's strategy. This can be facilitated by the use of asset management plans and a robust process for assessing individual investments, as well as managing existing investments over their life cycle.

It is also becoming increasingly important that TEI capital investment aligns with Government's strategic priorities for tertiary education as future funding allocations will be dependant on the Government's stated priority funding areas.

4.1.1 Research results: Planning

The majority of TEIs surveyed indicated they had a plan for future capital spending, with most planning either 3 to 5 years out or 5 to 10 years out.

However, only 8 out of 25 respondents indicated that they prepare detailed asset management plans. Where an asset management plan is prepared, it is regularly maintained and updated.

4.1.2 Research results: Capital expenditure decision making

Half of the TEI respondents to the survey indicated they use a business case template to assist with the preparation of business cases for capital investment. The majority (over 75%) of TEIs apply financial criteria to evaluate a proposal. The majority also apply non-financial criteria, with strategic fit being the criterion most often applied. All TEIs indicate that risk is considered and incorporated in the analysis to some extent.

A variety of financial measures are used across the TEI sector, some of them relatively unsophisticated. TAMU commented, from its review of requests for permission to borrow, that the quality of analysis contained in proposals and business cases also varied (some being excellent, some clearly not). TAMU often requires additional work to be undertaken to improve the analysis initially presented.

TAMU also comments that a number of proposals are presented with negative Net Present Values, often apparently without appreciation by the institution in question of the financial implications of such a situation.

TAMU's overall conclusion is that the sector appears weak on project appraisal and on post-project evaluation and feedback. Respondents identified key impediments to a more rigorous analysis as:

- resources/time to undertake the analysis
- lack of skills and expertise.

TEIs identified the following key factors as areas in which critical improvements could be made:

- Alignment with the strategic plan
- Risk analysis
- Ensuring appropriate people capability
- Using appropriate evaluation criteria.

Students suggest participation in capital expenditure decision-making would be assisted and more effective where there are clear plans for future services and capital investment required to support these services. Suggestions for avenues for student participation include:

- At the governance level, through student representation on Councils and their subordinate committees
- Through contributing to specification of user requirements during the design process.

4.1.3 Research results: Financing of capital expenditure

TEIs currently finance the majority of large-scale capital projects from operating cash flow. There is, however, a trend towards external financing, particularly as previous cash reserves have been exhausted.

Within the tertiary sector, the level of external financing is modest, relative to the total value of assets involved. As at 31 December 2002, the net book value of fixed assets in the sector (provisional reported results) totalled approximately \$3.8 billion whilst borrowing totalled \$124 million. Although borrowing for the sector remains fairly low by private sector standards, at around 3% of total fixed assets, for some individual institutions borrowing can be as high as 30% of total fixed assets.

The level of borrowing, although low by private sector standards, is increasing over time and, based on the questionnaire findings, is likely to become an increasing source of financing. Borrowing is currently regulated by government through the borrowing approval requirements of the Education Act 1989. For large borrowing TEIs are required to prepare a business case in support of borrowings. TAMU provides guidance on the preparation of business cases and reviews proposals from TEIs. Copies of the relevant guidance material are contained in the Resource Guide.

In relation to the use of non-Crown finance, it should be noted that TEIs generally have fairly fine operating margins and do not have total control over their asset usage. These two specific sector issues highlight the need for very careful financial management in relation to external borrowings.

4.1.4 Feedback from students

Student needs are specific to context and best articulated by student representatives at each particular campus. However, student representatives identified a number of key issues of common concern to students. These included:

- The need to take into account intergenerational issues in consideration of the funding of capital projects. Students identified the need for good long-term asset planning, consideration of smoothing capital spending from year to year, and the need for planning to reflect demographic and other changes. The need to consider borrowing as an option was also identified.
- The need to take into account non-financial factors in capital decision making, such as:

- Student needs include buildings that provide support services and common areas that are not income-generating aspects of the university. These needs include addressing issues of access for students of all abilities and providing facilities for students who are parents.
- In order for an institution to make itself more attractive to Māori it needs to acknowledge the diverse realities that the Māori student population is drawn from. Māori needs can be diverse and go beyond the need for appropriate facilities designed for their needs (such as marae, student common rooms and inclusion of Māori design concepts in building design). It includes consideration of areas of learning and means of delivery, as well as facilitating or enabling appropriate support structures for students.
- Key Māori stakeholders with an interest in tertiary education include: local iwi, roopu (Māori student groups), and student families. If an institution really wants to hear the Māori voice in all its forms then it must establish processes that allow these various voices in a manner in which the institution can hear and feed into decision making. Given demographic trends and increased choice to Māori students, it will become increasingly important for institutions to prove themselves responsive to student needs. It should be noted that a separate Collaborating for Efficiency Sub-group specifically dealt with responsiveness to Māori. Their findings are available in the *Report of the Māori Responsiveness Sub-group* as part of this series.
- There is a need to include students in capital decision making, not only at a governance level, but through representation in capital project planning and through representation on the various building and other representative committees of council.
- It was felt that thought could be given by institutions in utilising their bulk buying power to assist students with high cost purchases such as computers or other “tools of the trade”. It was noted that there are examples of TEIs extending their consideration of student needs by using their purchasing power to provide discounts on costly text books and even discounted clothing.

4.1.5 Policy context

The Government’s current strategy documents are aimed at a rolling five-year planning horizon. The Government’s move to provide more forward planning is a positive step, which will assist TEIs in their ability to plan in the short term.

Nevertheless, many large capital investment decisions must take a longer-term perspective, in some cases spanning many decades. Policy planning does not currently consider these time-horizons, although a major proportion of capital expenditure (particularly on buildings) falls outside of the five-year policy horizon.

4.1.6 Key conclusions

The Sub-group's key conclusions on current TEI practice on asset planning and decision-making may be summarised as:

- Whilst most TEIs plan for capital expenditure, only a minority maintain a detailed asset management plan
- TEIs take into account strategic and other non-financial considerations when planning capital expenditure
- The quality of evaluation of capital expenditure proposals, and the financial evaluation criteria, vary widely across the sector
- Borrowing levels are currently relatively low, but are likely to increase with increasing capital expenditure across the sector
 - Given TEIs' general low margins, this indicates an even greater need for very careful appraisal, monitoring and financial controls over capital expenditure
- TEIs indicated a desire for more guidance on best practice and training, where possible
- Student input into capital expenditure planning and decisions would be facilitated by clearer planning processes
 - Students also identified a need for greater consideration of student needs in general, changing demographics and the needs of Māori
- The Government's policy horizons do not currently match the planning horizons for major capital assets (particularly land and buildings).

4.1.7 Recommendations

The key recommendations of the Sub-group are that:

- The development of Government policy take into account the longer time horizons which major capital projects must address
- TEIs should ensure alignment of strategy and capital expenditure
- That TEIs develop systematic and inclusive capital expenditure planning processes

- That guidance and assistance (with the aim of both improving and standardising practice across the sector) be sought by TEIs on:
 - Preparation of asset management plans
 - Capital expenditure assessment and decision making
 - Financing of capital assets and management of external borrowings
- TAMU and TEC could provide assistance through:
 - Sponsoring the development of self-assessment resources (similar to the approach taken by the Higher Education Funding Council for England; refer to the Resource Guide), and governance and management training for managing capital assets
 - Providing further material in the Resource Guide
 - Sponsoring training of TEI management by experts in the field of capital management
- That institutions themselves reassess their current processes for ensuring effective consultation with stakeholders (including students and Māori) prior to important decisions on investment in capital assets.

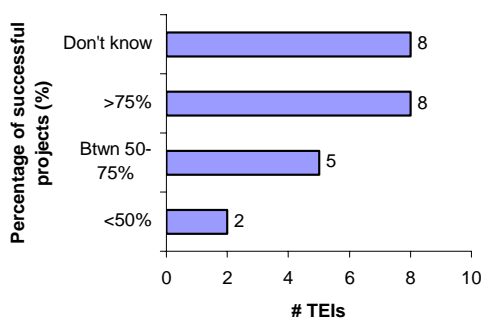
4.2 Project delivery performance and efficiency

This section considers TEI performance in successfully delivering capital investment projects.

4.2.1 Research: project delivery

Figure 1 below sets out the survey responses to the question as to whether projects achieve their intended goals. Performance in project delivery is clearly mixed, with two institutions suggesting that less than 50% of capital projects were successful.

Figure 1: Percentage of successful projects



Of equal concern is that 8 of the TEIs responding to this question were not able to evaluate how successful capital expenditure projects had actually proven to be.

The key reasons for failure in implementing capital projects were identified as:

- Lack of top management involvement
- Lack of internal expertise
- Inadequate risk identification, and
- Poor planning.

Other factors identified by the research were that the sector had weaknesses in:

- Ensuring that lessons from problems were learnt and relayed to the institution
- Projects were reviewed to ensure appropriate strategic alignment.

In relation to the efficiency of capital projects, a TEI must ensure that it optimises the resources needed to undertake or complete a capital project. Efficiency is not concerned with which capital projects a TEI should undertake, but with ensuring that the benefits associated with embarking on a project are achieved with an optimal (“efficient”) level of resource inputs, i.e. in a cost efficient manner. The requirements to achieve efficiency include:

- Identifying options for achieving the required capital outputs. For example, considering different configurations for building and equipment that would yield the same benefits, but with different resource costs
- Considering alternative options for ownership and access such as comparing leasing, purchasing and rental of the required capital resources. In addition, options such as “in house” and outsourced capital development need to be considered, along with consideration of joint venture ownership/access

- Establishing the capacity requirements and operating characteristics of the capital project. For example, ensuring that projects are not “over specified” in relation to their intended use, nor that significant over capacity (or conversely constrained capacity) is built into the capital assets
- Developing and monitoring a robust capital project plan, expenditure forecast and timeline for all major capital projects. This will contribute to ensuring “on time” availability of the capital project and also enable progress with expenditure to be managed.

4.2.2 Key conclusions

- Project management skills and practice could be improved in the TEI sector
- There is insufficient monitoring and evaluation of the success of capital projects.

4.2.3 Key recommendations

The Sub-group recommends that:

- TEIs are encouraged to monitor and report internally on their success in delivering capital projects
- TEIs should seek training in capital project management and monitoring. TAMU could also assist in this process
- TEIs should assist each other by providing examples of best practice and of lessons learnt, via the Resource Guide.
- A formal management system should be established that (for material projects):
 - Clearly identifies the drivers of success for each major capital project (including an assessment of key risks) at the project analysis stage
 - Ensures the ongoing management of a project in terms of the identified drivers and risks (over the useful economic life of the project or at least its payback stage), and
 - Provides a reporting system that reviews the outcomes of a project and the attainment of its goals.
- That TEC /TAMU sponsor the development of self-assessment resources (similar to the approach taken by the Higher Education Funding Council for England; refer to the Resource Guide), and training on aspects of high-level project management for sector senior managers.

4.3 Ongoing asset performance and efficiency

This section considers the ongoing measurement and analysis of asset performance and efficiency in the TEI sector.

4.3.1 Background

At a macro level, the scope of performance measurement and performance measures can be summarised as:

“Instruments and processes for Councils and managers to navigate their TEI to future success”

That is, performance measurement will incorporate:

- Systems and processes to plan performance and to measure performance, and
- Performance measures/indicators to plan and report on performance.

A robustly developed and operated performance measurement system, together with a carefully selected portfolio of performance measures can be an important contributor to and have a very positive impact on TEI performance as a result of:

- Influencing TEI management (and Council) behaviour towards improving its performance on the identified performance indicators
- Providing a framework for achieving focus on “what matters” to the TEI
- Being the basis for determining the key areas for performance feedback
- Enabling the prioritisation of areas for performance improvement
- Reinforcing an organisational culture, as expressed through the portfolio of performance measures.

4.3.2 Research: Performance measurement and efficiency

TEIs reported that they use a range of financial and non-financial measures to assess and report capital efficiency. KPIs listed in the questionnaire are fairly high level and rudimentary indicators. TEIs also reported using a variety of performance measures for monitoring asset utilisation rates, with the majority monitoring room utilisation rates.

TAMU’s current financial KPIs for the sector do not have any measure related to asset efficiency, although they do acknowledge that “income as a percentage of total assets” does say something about the efficiency in the use of resources.

The polytechnic sector endeavoured to produce a set of KPIs in the early 1990s that would enable them to chart performance across the sector at a high level. Over a period of years this produced some useful information but ran into difficulties when some institutions declined to participate. At various times individual polytechnics have carried out benchmarking exercises using a selected group of institutions against which to measure aspects of their performance.

The Benchmark Survey Report (AAPPA, 2002) provides benchmark data and benchmark trends for key areas of facilities management e.g. replacement costs, area provided per EFTSU, cost of maintenance per m², expenditure on refurbishment, cost of cleaning per m², energy consumption per m², cost of security. Benchmark data is updated each year; the 2002 data is compiled from TEIs in Australia (36), New Zealand (17) and Hong Kong (3).

A few observations from the Capital Sub-group membership included:

- The need for each institution to have clear financial performance targets to measure asset effectiveness and efficiency
- That incentives need to be created for asset efficiency. It was acknowledged that asset efficiency would only become important if there was TEI senior management “buy in” to the need for asset efficiency. It was noted that incentives can be generated internally through improved reporting on efficiency to councils, the adoption of internal asset efficiency policies, and through external benchmarking
- That TAMU should review its own asset efficiency targets with the aim of raising the best practice target levels to those which are more in line with best practice, rather than current sector norms

Additional information on current asset efficiency measurement is found in section 4.3 of the Report on Questionnaire Findings and in Appendix 3 of this report on “An Analysis of Capital Expenditure in the Tertiary Sector – 1996 to 2001”.

4.3.3 Efficiency management practice

There are a number of systems used by TEIs to manage assets. There is a trend to address space utilisation with room booking and timetabling systems (e.g. Syllabus Plus), and space management systems (e.g. Tecom, Aperture)

A high number of TEIs (a third of those surveyed) were unsure whether their capital projects had been successful in terms of outcomes sought, while a further third indicated that 25% to 50% of projects under management had been unsuccessful. The main reasons given for the success or failure of capital projects related to: top level management involvement, expertise in project management, identification of risks, good up front planning, effective monitoring of projects, and the ownership of outcomes.

Opportunities for improvement in the capital project management were identified based on being rated as “fairly or very important”, and less than moderately effective. The critical few opportunities for improvement include:

- Accountabilities and responsibilities are defined
- Projects are reviewed to ensure strategic alignment
- Projects are stopped when no longer relevant
- Lessons are learnt and fed back to the TEI.

4.3.4 System needs and information technology needs

Although both system needs and information technology needs were included in the Terms of Reference, the Group did not address either of these areas given time constraints. Some resource material is available as part of the resources gathered during the collation of the Resource Guide.

4.3.5 Performance measurement and efficiency: Key conclusions

Capital efficiency is not an area of key consideration despite the approximately \$4.0 billion of assets under current management by the sector. TEIs could benefit from doing further work as a group on the development of indicators for the NZ tertiary education sector and or consider joining AAPPA as a group to enable benchmarking of performance.

TEIs are beginning to be more systematic about how they manage for the efficient use of capital assets. There is a trend to address space utilisation with room booking and timetabling systems and space management systems.

4.3.6 Recommendations

The Sub-group’s key recommendations are:

- That tertiary sector performance indicators include measures of capital (asset) efficiency. That the set of key performance measures and data indicators will allow more effective evaluation of the state and utilisation of the nation's investment in capital (in the sector), and planning for maintenance, replacement and expansion of capacity
- That TEIs as a group establish key benchmarking ratios and collect information on this or, alternatively, New Zealand TEIs join AAPPA and contribute to their bench marking survey
- That TEIs be encouraged to develop measures of capital efficiency to use in their planning
- TEIs should develop capability to report space usage by activity, and charge for space when appropriate, to encourage efficient use of land and buildings.

5 Opportunities for collaboration

5.1 Overview

Inter-organisational collaboration is recognised as a key growth strategy for the modern organisation. Experts suggest the number of alliances in the US alone has increased at a rate of 20% over the past 10 years. Despite the growing interest and perceived benefits, collaboration success is not always assured – a number of recent studies note failure rates of 50% to 60% in the first year, another study found that for every 10 alliance negotiations that end in agreement, only two will survive more than four years (Kelly, Schaan and Joncas, 2002).

A comprehensive study of start-up alliances between technology companies, found the key challenge related to relationship issues between partners. (Kelly, Schaan and Joncas, 2002).

When exploring critical success factors and performance measures for Co-operative Research Centres in Australia, Zhao (2002), identified “mutuality” as the single most critical factor. He suggests a range of key performance measures for monitoring mutuality results and processes, such as, understanding, trust, and benefits.

The literature offers a range of suggestions for improving the management of collaborations, these suggestions can be summarised to six key pointers:

- Ensure the collaboration fits both partners’ strategic direction and needs – it offers real value for all partners
- Develop a rigorous selection system; based on strategic criteria, cultural compatibility / ability to work together, collaboration capability and synergistic processes
- Ensure early “buy in” from the people who will implement the collaboration – involve them as early as possible in planning and negotiations
- Build up collaboration capability – infrastructure, leadership, “boundary spanners”, and day-to-day managers. The boundary spanner (relationship facilitator) role is seen as “pivotal”
- Clear understanding e.g. expectations, metrics and evaluation; sharing of information and assets; division of value added or loss
- Leave “wobble-room” for agility and flexibility or ability to exit the relationship

5.2 Discussion on the current situation

The Government is placing increased emphasis on a more strategically aligned, responsive and collaborative sector. There is evidence that the sector is rising to the challenge in this area.

The survey suggests that there is some co-operation between TEIs in the use of assets, but that this is still relatively limited.

5.2.1 A TEI perspective

The TEI perspective is based on evidence gained from the “Questionnaire Report: Collaboration for Efficiency - Capital Sub-group, 2002” and case studies presented in the “Resource Guide for Managing Capital Assets, 2003.”

TEIs identify examples and suggestions for greater collaboration for the asset categories of: land, buildings, information technology, library, equipment and specialised assets.

Tangible advantages include: financial, improved asset utilisation, improved product and service quality. In addition, TEIs describe a range of intangible advantages e.g. access to better facilities and resources, better interaction with the community, sharing of knowledge and skills.

A general concern in TEIs regarding collaboration (not just in relation to capital assets) is the potential costs to the institution in terms of redundancies, revenue loss and decreased activity. This was noted in a UK report by the HEFCE (“Evaluation of Collaboration in the Higher Education Sector”). That report also notes that collaboration has been encouraged by the establishment of a fund to protect institutions from the fiscal risk of streamlining programmes.

The main barriers to collaboration include the TEI sector context and attitudes, the effort required to set up and sustain collaborative initiatives, physical limitations such as timely access to specialised equipment, and lack of information of collaborative opportunities. There is also concern that the fact that the proceeds of asset sales do not necessarily return to the selling TEI does not incentivise the TEI use assets efficiently (from a sectoral point of view).

5.2.2 A CRI perspective

There is limited evidence of collaboration and partnerships between TEIs and CRIs. Where it does occur it involves sharing facilities and is typically arranged at the individual level.

The majority of people support the concept but recognise that the logistics are not straightforward. CRIs would be happy to piggyback off a TEI initiative for a major equipment database.

The key to success is changing the culture and mindset of both CRI and TEI staff. Collaboration most often occurs at the grass roots and with the younger scientists and academics

5.3 Key conclusions

There are two areas where collaboration, in relation to improving asset efficiency in the tertiary education sector, is possible and can be promoted:

- In the sharing of experience and best practice in asset management, and
- In actual sharing of specific assets.

There is increasing evidence that TEIs are developing collaborative initiatives with other TEIs and with other stakeholders. TEIs and other stakeholders report a number of benefits and challenges when developing collaborative initiatives. The sector needs to approach any opportunities with clear idea of strategic benefits and the resources to manage any effective collaborative undertaking. There are risks associated with collaboration and key drivers of success. One key driver of success is senior management buy-in.

There is a role for central government agencies to facilitate collaboration by providing guidance, facilitate sharing of knowledge and experience and centralised resources.

5.4 Recommendations

The Sub-group recommends that:

- TEC/TAMU actively promote the sharing of best practice asset management through:
 - The Resource Guide set up as part of this project
 - Providing resource support for TEI financial officer networks, particularly in relation to developing collaborative projects
- A database of TEI and CRI major specialised research equipment be established, to identify opportunities for joint use across providers. Collaboration and higher utilisation of such assets would be greatly enhanced by the establishment of a sector-based fund for purchase of high value research equipment by consortia of providers

- MoE and TEC should conduct an investigation into whether a market could be established for spare capacity of TEI capital assets.

6 Conclusions and recommendations

This section draws together and summarises the key conclusions and recommendations set out in the report.

6.1 Conclusions

The Sub-group's key findings may be summarised as:

- Capital expenditure across the sector is forecast to increase over the next five years from c.\$300m per annum to \$350m per annum. It is not clear at this stage to what extent this expenditure is remedial (catching up from under-spend in previous years) or driven by expansion or other changes in the scope and delivery of tertiary education
- External sources of funding (particularly borrowings) are likely to be required to meet this increased capital expenditure
- With the changing tertiary education environment, it is increasingly important to ensure that capital spending is aligned with both TEI strategic direction and the Government's own strategic priorities
- There is little data available or consistently collected on TEI assets
- Practice in the areas of capital budgeting, planning, management and performance monitoring varies considerably across the sector
 - Capability, skills and expertise varies widely
 - Whilst the record of successful investment is generally reported as good, some TEIs do report mixed success
- Many TEIs requested more information and training on best practice asset planning and management
- Students wish to be consulted more extensively and earlier in capital planning processes, to ensure that student needs are better met. Of particular concern to students are:
 - Intergenerational issues surrounding the funding of capital assets
 - The need for capital planning to take account of changing student demographics and ethnicity
 - The opportunity to use TEIs' bulk buying power to assist student purchases (e.g. purchases of student computers, other 'tools of the trade')
- Collaboration in the use of existing or planned assets is relatively limited.

6.2 Recommendations

The Capital Sub-group's recommendations concern opportunities for:

- Improved asset management and greater efficiencies in the use of capital and assets by individual TEIs, and
- Collaboration between TEIs to maximise the efficient use of capital assets.

In each case, the recommendations can be categorised as concerning:

- **Capability:** improving knowledge, skills, processes and practice to improve the efficiency and outcomes of investment decisions across the sector, and
- **Incentives:** incentivising TEIs to apply best practice and to manage assets with optimum efficiency.

The Capital Sub-group's recommendations are listed below.

6.2.1 Improved asset management within TEIs

- 1 **(Capability)** Additional research could usefully be performed on the:
 - quality of capital spending evaluation, decision-making and processes in the sector
 - alignment with and success of capital expenditure in meeting both institutional and sector-wide needs
 - efficient use of capital in the TEI sector
 - extent of deferred maintenance
 - responsiveness of capital programmes to changes in the TEI environment (demographics, learning paradigms, research, policy, etc.)
- 2 **(Capability)** TEIs should develop systematic and inclusive capital expenditure planning processes, reassessing their existing processes where necessary.
 - Such planning processes should incorporate consultation with students and take account in capital planning of changing patterns of student ethnicity.
- 3 **(Capability)** TEIs should obtain more training in capital investment decision-making generally, and in particular:
 - the preparation of asset management plans

- criteria for making capital investment decisions (in a tertiary educational environment)
 - financing of capital assets and management of external borrowings
 - capital project management
 - MoE and TAMU could assist in this area by incorporating training in these areas in the senior management training programme, sponsoring development of self-assessment resources and sponsoring training of TEI management by capital investment experts.
- 4 (Capability and Incentives)** TEIs are encouraged to join the AAPPA (Australasian Association of Higher Education Facilities), to:
- have access to the wealth of material currently available at AAPPA on capital asset investment and management, and
 - incentivise efficient capital usage through benchmarking.
- 5 (Capability)** A database of resource material should be developed, to hold in electronic form copies of the tertiary sector material currently available on capital asset investment and management. This resource base should be further developed and updated on an ongoing basis by sector participants. One of the outputs of the Sub-group's work is an initial gathering of such material.
- 6 (Capability)** The current networks of TEI chief financial officers should be further supported and developed, with the intention of disseminating and discussing best practice guidance material, training, and consideration of possible collaborative initiatives.
- 7 (Capability and Incentives)** A formal management system should be established that (for material projects):
- Clearly identifies the drivers of success for each major capital project (including an assessment of key risks) at the project analysis stage
 - Ensures the ongoing management of a project in terms of the identified drivers and risks (over the useful economic life of the project or at least its payback stage)
 - Provides a reporting system that reviews the outcomes of a project and the attainment of its goals.
- 8 (Capability and Incentives)** Policies to encourage capital efficiency should also be developed, potentially including:
- TEI KPIs be expanded by TEC and TAMU to include measures of capital efficiency
 - Benchmarking information should be published annually

- TEIs should ensure alignment of capital expenditure with institutional strategy, and develop efficiency measures for use in capital planning.
- 9 **(Incentives)** TEIs should develop capability to report space usage by activity, and charge for space when appropriate, to encourage efficient use of land and buildings.

6.2.2 Greater collaboration across the TEI sector

- 10 **(Capability)** A database of TEI and CRI major specialised research equipment be established, to identify opportunities for joint use across providers. Collaboration and higher utilisation of such assets would be greatly enhanced by the establishment of a sector-based fund for purchase of high value research equipment by consortia of providers.
- 11 **(Capability)** MoE and TEC should provide resource support for TEI financial officer networks, particularly in relation to developing collaborative projects.
- 12 **(Incentives)** MoE and TEC should conduct an investigation into whether a market could be established for spare capacity of TEI capital assets.

6.2.3 Other Recommendations

More generally, the Capital Sub-group notes that:

- 13 Each TEI faces the challenge of ensuring alignment of the TEI capital stock with future national training and research needs and an agreed strategic vision for tertiary education.
- 14 Each TEI requires a strategy that goes beyond the five-year focus. It was noted that in the area of capital investment TEIs have to take a longer-term focus, often spanning decades.
- 15 Government should take into account TEI planning requirements when considering major policy changes, as well as the potential impact of policy changes on long-term capital investment.
- 16 Having spent some time in considering various aspects of capital efficiency, collaboration and management (and acknowledging the time available to the group) the Capital Sub-group decided to focus its time on producing three outputs. These included a Resource Guide for sector practitioners, a questionnaire and subsequent summary of findings, and a Final Report to the CFE Steering Group (for use by Government and consideration by sector participants).

Appendices

Appendix 1: Definitions

The following definitions have been established for the project. The definitions have been adopted from the project Terms of Reference (2002), NZ Infrastructure Asset Management Manual (AAPA, 1996) and Firm Foundations – A Study of New Zealand Business Practice and Performance (Ministry of Economic Development; Knuckey and Johnston, 2003)

Asset	A physical component, which has value, enables services to be provided and has an economic life of greater than 12 months. (AAPA, 1996)
Asset Management System (AMS)	A system (usually computerised) for collecting analysing and reporting data on the utilisation, performance, lifecycle management and funding of existing assets. (AAPA, 1996)
Asset Management Plan (AMP)	A plan developed for the management of one or more infrastructure assets that combines multidisciplinary management techniques (including technical and financial) over the lifecycle of the asset in the most cost effective manner to provide a specified level of service. A significant component of the plan is a long-term cash flow projection for the activities. (AAPA, 1996)
Asset Management Strategy	A strategy for asset management covering the development and implementation of plans and programmes for asset creation, operation, maintenance, rehabilitation / replacement, disposal and performance monitoring to ensure that the desired levels of service and other operational objectives are achieved at optimum cost. (AAPA, 1996)
Capital	<p>“Capital” is expenditure on assets which generate a benefit for institutions of greater than one year e.g. purchase of land and buildings, teaching and research equipment, IT</p> <p>This definition of capital excludes spending on human capital, investment activities, library services, capitalised course development costs</p>
Capital expenditure (CAPEX)	Expenditure used to create new assets or to increase the capacity of existing assets beyond their original design capacity or service potential. Capex increases the value of an asset. (AAPA, 1996)
Capital spend	“Capital spend” includes items anticipated to be acquired under finance leases and excludes capitalised course costs.

Collaboration	<p>Collaboration is defined as “an alliance or relationship that is strategic or tactical, and that is entered into for mutual benefit by two or more parties having compatible or complementary business interests and goals.” (Muson,2002, p20). The scope of collaboration incorporates a range of mutual relationships, such as, strategic alliances, partnerships, joint working arrangements, and networks. The Project Group considered two aspects of collaboration:</p> <ol style="list-style-type: none"> 1) Sharing of good practice processes and results 2) Doing things jointly e.g. pooling resources, contracts with suppliers, development of networks <p>Collaboration may be: Within public TEIs Between TEIs Between TEIs and other key stakeholders e.g. iwi, local government, industry, research organisation (incl. CRIs)</p>
Good practice	<p>Good practices are considered beneficial to business practice Knuckey and Johnston, (2003) define these practices in Firm Foundations - a recent study on New Zealand business practice</p> <p>“These are practices that in combination consistently appear to provide organisations who adopt them with an advantage over those that do not” (p23)</p>
IT	Information technology
Specialised assets	<p>These are assets that are purchased to undertake course teaching or research that are specialised in nature e.g. aeroplanes, science equipment, and where ready market does not exist outside of tertiary education institutions, Crown Research Institutions</p>
Roopu	Māori Student Association/Group

Appendix 2: Terms of Reference

Purpose

The Sub-group will prepare a report that will provide the basis for the effective and efficient management of capital across the public tertiary education sector.

Introduction

The public tertiary education sector currently spends around 15% of its annual expenditure on capital items. Capital investment decisions are long-term in nature and can significantly impact on an institution's long-term direction and viability. It is becoming increasingly important that capital spending decisions are made in an effective and efficient manner, which will support the long-term priorities of the tertiary institution and local and national education priorities.

Definition

For the purpose of the working group "capital" will include expenditure on assets, which generate a benefit for the institution of greater than one year. It shall include items such as:

- Purchase of land and buildings
- Spending on equipment, IT, and
- Capitalised course development costs (to a limited extent).

It shall exclude:

- Spending on human capital
- Investment activities (i.e. spending on deposits and other securities)
- Library services

Scope

It is intended that the group look at best practice for managing and dealing with capital costs and investment and the management of opportunities for greater collaboration and efficiency in capital spending.

Efficiency

It is expected that the following topics will be covered:

- A high level stocktake of existing capital assets of the sector and how this aligns with future sector needs
- Aligning investment decisions with a TEI's own goals and strategies, as well as those of the nation as a whole
- Guidance on the efficient and effective use of capital including project management of capital projects
- Performance measurement, and
- Financing options for capital projects.

Collaboration

The group will review collaboration and partnerships in capital investment, including an assessment of any benefits.

Key considerations

In developing the report the Sub-group will take into account:

- The need to develop stronger institutions that are better positioned for strategic change
- The need to enhance collaborative opportunities both within institutions and between TEIs, including considering the cost vs. benefits of collaboration
- The strategic directions elaborated in the Tertiary Education Strategy and Statement of Tertiary Education priorities and the need to enhance sector capability to meet those priorities
- The needs of stakeholders (particularly students) for responsive services
- Opportunities arising from relationships with iwi, local government, industry and research organisations (including Crown Research Institutes) as appropriate
- The ability to monitor and assess improvements in effectiveness and efficiency
- Identifying innovative practice in the sector
- “Best practice” in both a New Zealand and international context;

Plus for capital

- The need for a more strategic and long term approach to capital investment

- The need to align investment with Government funding priorities, and
- The need for the sector to improve decision making around capital investment decisions.

Appendix 3:

An analysis of capital expenditure in the tertiary sector (1996 to 2001)

Introduction

The following paper analyses some of the trends evident in the tertiary sector in its use of capital assets. Capital assets include expenditure on land, buildings, and equipment used by TEIs. In most cases these expenditures are recorded net of depreciation.

The analysis draws on data available from TAMU's database.

Overview

The TEI sector is comprised of 35 institutions with total assets under management ranging from \$757 million (Auckland University) to \$3 million (Telford Polytechnic). Of the 35 TEIs, gross revenue ranges from \$416 million per annum to \$3 million per annum.

The sector as a whole is characterised by having fairly fine margins with adequate but minimal cash reserves. In this type of environment the effective management of institutions becomes critical.

Given the nature of the business of these entities, i.e. the provision of tertiary education, fixed assets are a large resource input. Although distance of mixed mode delivery is increasing in importance, by and far the vast majority of students remain taught from fixed campus locations utilising traditional bricks and mortar.

Of the annual spend each year TEIs tend to spend approximately 12 to 17% of their annual spend is on new fixed assets.

The sector has experienced significant growth. Student numbers almost doubled over the last decade and increased 22% in the period 31 December 1996 to 31 December 2001. This growth in activity has been the main impetus behind the increase in the stock of fixed assets utilised by TEIs.

Although not captured in the currently available statistics, leasing of assets has become more prevalent. Operating lease arrangements are reported through increased occupancy costs (statement of financial performance) but are currently accounted for as off-balance-sheet arrangements. Some supporting fixed assets are also provided off-balance-sheet by related or supporting trusts. This activity remains a small component of the overall assets utilised by the sector, though leasing is growing in importance.

This analysis utilises data from the 1996 to 2001 period. This period has been selected as a number of TEIs did not include Crown assets in their annual financial statements prior to 1996. The latest audited information for TEIs as at the date of this paper was 2001. 2002 and budgeted information for 2003 are discussed in the CFE – Capital Sub-group’s questionnaire findings sub-group.

Fixed asset usage

Currently TEIs have fixed assets with a value of approximately \$3.8 billion. This figure is compiled from TEI annual reports as at 31 December 2001. Table 1 below highlights where in the sector capital assets are currently used in aggregate and on a per EFTS basis:

Table 1

Measure (\$NZ million)	University	Polytechnic	Colleges of Education	Wānanga	Total
Fixed Assets	2,880	762	153	27	3,822
Total Assets	3,176	877	189	66	4,307
Equity	2,684	720	165	59	3,628
EFTS	110,119	65,490	8,185	8,260	192,054

This is shown in pictorial form in the charts below:

Chart 1(a) Sector distribution of capital

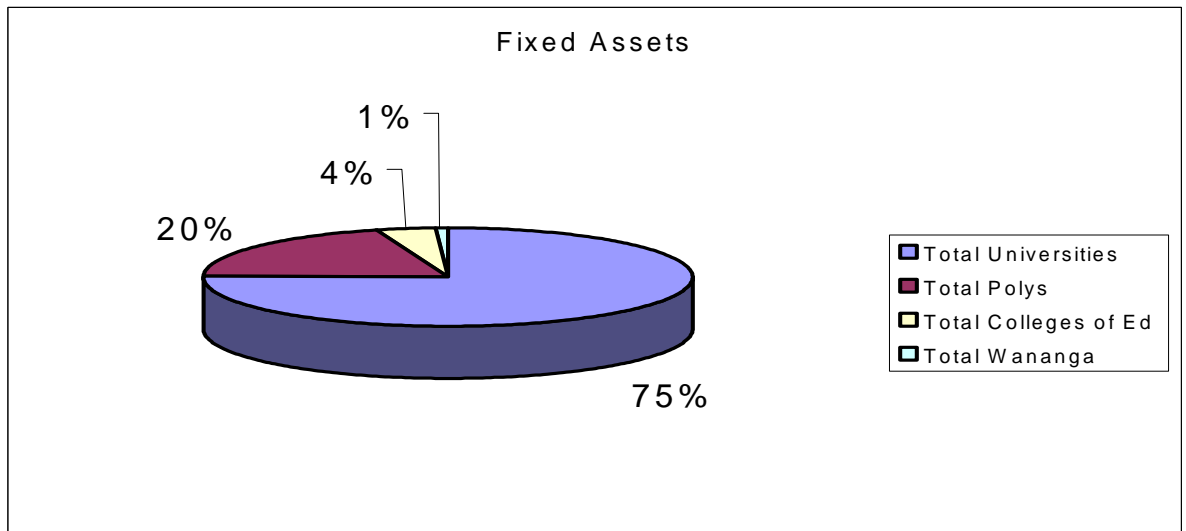


Chart 1(a) Sector distribution of Equivalent Full Time Students ("EFTS")

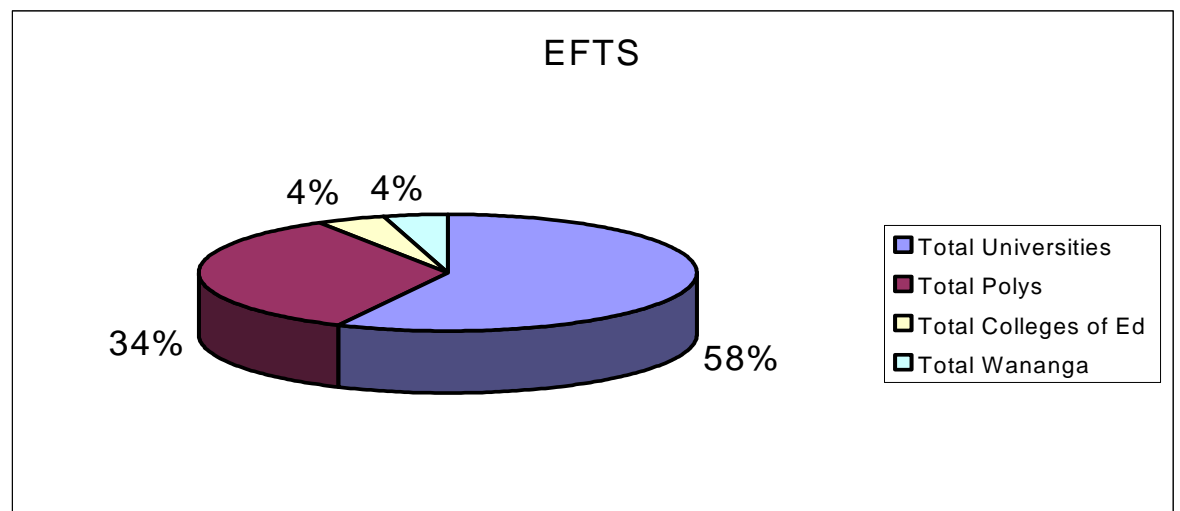


Table 2 below provides further information on the capitalisation per EFTS of the various tertiary institution sub sectors.

Table 2 – fixed assets per EFTS

Measure (\$NZ)	University	Polytechnic	Colleges of Education	Wānanga	Total Sector
Mean	26,151	11,641	18,686	3,281	19,901
Median	26,792	10,623	20,260	3,266	
Range	14,346 to 33,672	3,922 to 17,375	16,606 to 23,590	2,818 to 5,247	3,922 to 33,672

Clearly, TEIs are capitalised at different levels. As would be expected, universities are better capitalised than polytechnics reflecting factors such as their higher levels of learning (i.e. degree and postgraduate), research focus, and predominance of higher cost programmes such as medicine, dentistry and sciences. The three wānanga as at 31 December 2001 are clearly less-capitalised than other TEIs. The Government is in the process of providing additional capital funding to the wānanga and results for future periods should reflect this.

The variations in capitalisation can be due to a number of factors. The main determinants are the:

- type of programmes being offered (i.e. sciences are more capital intensive than arts programmes)
- level of tuition (i.e. higher levels on the education framework often require higher input costs)
- mode of delivery (i.e. distance or mixed mode programmes may require lower capital assets)
- history of development (some universities received large donations of assets, some TEIs have been in operation longer than others)
- mix of activity (i.e. level of entrepreneurial or research activities)
- position of an institution in the Department of Education capital funding cycle
- TEI's ownership/lease policy, and
- accounting policy differences.

Approximately 80% of TEI fixed assets are reported to be land and buildings. TEIs currently use a number of different valuation methods for these assets. Common valuation methods include: historic cost, deemed historic cost, and valuations (mainly based on ODRC valuations but also on market valuation or government valuation). The values reported in the table above are net of depreciation. TEIs utilise a number of different depreciation rates on like assets and also utilise different capitalisation rates on expenditure. To some extent these differences reflect the differences in size of institution.

The proportions of different types of asset used by TEIs have not changed substantially since 1996. The largest new expenditures have been on new land and buildings and related equipment. This has largely, however, reflected growth in student numbers. The available data shows some reduction in investment in library resources, but it is likely that this reflects changes in valuation methodology over the period.

Investment in information technology has been largely constant over the period 1996 to 2000 but appears to have increased substantially in 2001. However, the figures provided may be distorted by one-off projects and leasing of technology.

Spending on fixed assets

Given the large growth rates in student numbers (Equivalent Full Time Students having increased by 22% over the 1996 to 2001 period) we have seen significant growth in capital expenditure.

On an annual basis capital expenditure has been running at around \$300m to \$320 million per annum. This compares to the average depreciation bill of approximately \$150 million per annum. In essence TEIs are spending around twice on fixed assets over the last six years than their rate of asset depreciation. This suggests a net increase in the asset stock.

There is no consistent data source on building space so no analysis can be done on whether the new expenditure is resulting in a net increase in teaching space. Further, no data currently exists on space utilisation so, again, no statements can be made as to whether there have been efficiency gains in the use of existing assets. Anecdotal evidence suggests that asset utilisation is receiving increased attention at an individual institution level due to financial imperatives.

In 1990 with the advent of the EFTS funding system capital spending was assessed at being approximately \$1,030 per non-extramural EFTS. Current spending in recent history have ranged from \$1,500 to \$2,100 per EFTS per year.

Table 3 below illustrates the areas of student growth and fixed assets growth for each public TEI sub-sector.

Table 3 – Assets and EFTS Growth

Category	University	Polytechnic	Colleges of Education	Wānanga	Total Sector
Fixed asset growth rate	18%	32%	31%	1,505%	23%
EFTS growth rate	13%	25%	26%	830%	22%
Fixed Assets per EFTS (1996)	\$25,162	\$11,005	\$19,970	\$1,809	\$19,798
Fixed Assets per EFTS (2001)	\$26,151	\$11,641	\$18,686	\$3,281	\$19,901

Total EFTS numbers over the period 1996 to 2001 grew by 22%. Of this growth, approximately a quarter was in international students. Total fixed assets reported by the tertiary education sector grew by 23% over this same period.

Looking at the sector growth comparisons we can see that asset growth rates exceeded EFTS growth across the various sub-sectors. This led to a general increase in fixed assets per EFTS. The largest growth rates in fixed assets per student occurred in the Wānanga sector that grew significantly but off a small asset base. Recent provision of establishment grant monies to the three TEI wānanga will lead to an improved capitalisation rate in this sector in future years.

Funding of asset growth

Table 4 below provides a six-year summary of capital spending by sub sector and the related source of funding.

Table 4 – Capital Spending and financing (1996 to 2001)

Activity (\$ million)	University	Polytechnic	Colleges of education	Wānanga	Total
Opening balances	113	47	23	-3	187
Net cashflow from operations	1,097	334	59	13	1,503
Capital spend	-1,349	-412	-63	-30	-1,855
Net borrowing	60	49	4	0	113
Equity injection	11	41	2	49	102
Sale of fixed assets	215	20	3	0	238
Other	0	-14	-1	-4	-20
Closing liquid assets	147	65	27	25	264
NCF/Capex	81%	81%	94%	43%	81%

Over the last decade capital expenditure in the sector has exceeded net cash flow generated from operations. In the early 1990s the additional capital expenditure required to provide for growth was funded largely from cash flows from operation and a run down in cash reserves in the sector. From about 1996 the cash position stabilised and cash reserves recovered in 1999 due largely to a couple of years of lower capital spending and higher levels of net borrowing (through 1998 and 1999). Cash reserves have again been falling throughout 2000 and 2001 due to increased levels of capital spending; however, reserves remain currently at levels higher than the mid-1990s.

Looking at the breakdown of total sector cash flows it is apparent that over the period 1996 to 2001 around 80% of new capital expenditure was funded from cashflow from operations, a further 10% from asset sales, 5% from borrowing, and 5% from equity funding.

Total sector debt funding (borrowing and finance leases) have increased as a percentage of total sector fixed assets from around 1.8% in 1996 to approximately 4.1% in 2001. As a sector these borrowing percentages remain very low compared to private sector borrowing levels. Interest costs as a percentage of total costs remain at around 0.3% of total costs. This reflects to some extent the seasonal nature of some borrowing.

The borrowing picture for individual TEIs can be quite different, with individual TEI borrowing ranging from small amounts through to 36% of fixed assets. Approximately half of TEIs currently borrow to some extent. There is no clear or readily available information on the amount of assets financed through operating leases. Anecdotal evidence suggests leasing has been growing as a means of financing fixed assets.

The capital expenditure picture at the sub-sector level is also quite different from the TEI average. All TEIs rely heavily on cashflow from operations as the major source of funding. However, in terms of other funding sources, the university sector (which undertook 73% of the capital spend over the period under review) has also relied on asset sales as a means of funding new capital expenditure. Asset sales were an avenue not available to other TEIs to a significant extent. The polytechnic sector (responsible for 22% of capital expenditure over the period) has relied more heavily on borrowing and equity injections as their secondary source of funding over the period. The colleges of education have relied more heavily on cashflow than other segments, while the majority of the wānanga capital spending has been through equity funding (wānanga were less well capitalised than other sectors in 1995).

Another factor worth considering is the sector's future capacity to fund capital expenditure from reserves. Of the \$264m held in cash reserves, over 90% is held by 16 (of 36) institutions and 83% by nine institutions. Cash coverage at a sector level in 2001 was 12% of total annual cash operating expenditure. Cash reserves are only likely to be available to fund capital expenditure at a minority of TEIs.

Efficiency and effectiveness

Little data is available on asset utilisation and the effective and efficient use of resources. Some broad indicators exist. The main ones available are useful as a descriptor of the sector only. The following is an analysis of these broad indicators

Asset returns

The traditional indicators of return on equity and return on assets can be constructed for the sector. In broad terms they do provide an indication of the financial return the Crown and other stakeholders are receiving from assets invested in the sector. The main indicators for 2001 show:

Return on assets (i.e. surplus to total assets)	1.6%
Return on equity (i.e. surplus to total equity)	1.9%
Revenue to fixed assets employed	63 cents for each dollar invested in fixed assets

These returns have been fairly constant over the period since 1996. Compared to private sector returns the ratios appear fairly minimal. To some extent this reflects the business the sector is engaged in. Tables 5 and 6 illustrate the returns being generated by sector, and by number

Table 5: Sector returns (2001) i.e. return on assets

Sector	Weighted average	Return
Total sector (36)	1.6%	-3.9% to 13.6%
Universities (8)	1.7%	-1.1% to 3.6%
Polytechnics (21)	0.6%	-3.9% to 12.5%
Colleges of Education (4)	2.2%	1.5% to 3.0%
Wānanga (3)	6.7%	4.3% to 13.6%

Table 6: Distribution of institution returns (2001) - ROA

Return	Number of TEIs
Negative	10
0 to 1%	2
1 to 1.6%	4
1.6% to 5%	15
5% plus	5

Clearly, some TEIs are in a position to generate significant returns on assets employed. Why this is the case requires further analysis. It should be born in mind that the sector does not enjoy a level playing field in terms of capitalisation. These variations in capitalisation can be due to a number of factors including:

- the type of programmes being offered (i.e. sciences are more capital intensive than arts programmes)

- the level of tuition (i.e. higher levels on the education framework often require higher input costs)
- mode of delivery (i.e. distance or mixed mode programmes may require lower capital assets), and
- a number of other historical factors (i.e. some TEIs have “inherited” their capital structure and asset base and must manage with the structure they find themselves with, while other TEIs enjoy newer assets).

A comparison can be made among TEIs but there are various reasons for the differences in relative performance and any material variances from the norm need to be thoroughly investigated.

Information availability

Many of the questions around asset utilisation and asset efficiency cannot be answered given the limitations of the current available data. A recommendation from this review of data is that more information needs to be collected on the way New Zealand tertiary institutions use their assets. Tertiary education institutions currently manage over \$3.8 billion of fixed assets and little consistent data exists on the effectiveness or efficient use of this resource.

Some benchmarking is available from the AAPPA, which provides a comparison among Australasian tertiary institutions. APNZ also used to maintain a database of information but this data collection has been discontinued. Further work needs to be commissioned to formulate a series of useful KPIs. Annex One provides a possible list of additional indicators that could be adopted. In addition to this work there would be merit in gaining commitments from TEIs to agree a consistent methodology for valuing and reporting assets, including a common approach to depreciation and capitalisation levels.

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Appendix A: Possible indicators to measure capital efficiency

Indicator	Example KPI
Space usage	Square metres of space per EFTS Square metres of teaching space per EFTS
Utilisation of teaching space	Percentage of teaching space utilised between 8am and 6pm and percentage of space utilised outside of normal hours.
Property cost	Property cost per square metre – broken down in to property types i.e. lab, general teaching space, etc.
Survey of customer satisfaction	Survey of student reaction to quality of facilities and head of department comment on fit for purpose space.
Average age of student and staff computers	

Additional information

\$ value of leased assets under usage
Current space square meterage – total and teaching space
Total property cost broken down into rentals/leases, management, utility costs
Total value of unutilised assets