Executive Summary

Aims and objectives

The terms of reference for the report were to identify the relevant data currently available, assess its quality and review its use in current practice.

Methodology

The report was prepared by Marylou Downie, Property Consultant, and Peter Fisher of Northumbria University. Web sites and publications were used to examine the three main data sources. Discussions were held with interviewees able to supply key information and expert opinion. The report also draws on interviews held in 2001 during the Newcastle University Good Management Practice study, and builds on ideas it introduced.

Review of data sources

Chapters 4, 5 and 6 review the Higher Education Management Statistics (HEEMS), the data from the Higher Education Statistics Agency (HESA) and the Transparency Review in terms of data collection, availability, quality and current uses. Chapter 7 compares HEEMS to the Transparency Review and identifies areas where they overlap or differ.

Performance indicators for higher education space management

Chapter 8 examines the potential use of PIs in space management at three levels of detail. The report discusses the contribution that PIs could make and the criteria that a PI should fulfil to be valuable in strategic space management. PIs based on HEI income, HEI costs, HEI 'profit', FTE student and staff numbers are discussed and a set of PIs are defined and recommended for further testing.

Developing strategic space management for the higher education sector

The report stresses the need to advance the strategic dimension of space management in HEIs and the sector as a whole, linking it better with business decision making. Action is proposed to raise the profile of the contribution of space management.

Recommendations

It is recommended that a report be prepared and submitted to top HEI management to highlight the current shortfall in expenditure on refurbishing and modernising estates linked with the potential financial benefits to be achieved from more sophisticated space management based on sound data. An integrated programme of best practice development is proposed including training in the effective use of HEEMS data. Pathfinder projects would cover issues such as the use of estate benchmarking to link it to the HEI's business, tactical approaches to space management that have secured real benefits, the refinement of PIs and their effective application within HEIs. Finally amendments to HEEMS are suggested to bring it in line with TRACS and make it more effective at the strategic level of space management.

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RECOMMENDATIONS

It is suggested that the Space Management Group consider the following recommendations. The reasons supporting them and a more detailed explanation are provided in the subsequent sections of the report, referred to in brackets.

Raising the profile of space management in higher education

A report should be prepared for top HEI management highlighting the potential financial benefits that could flow from a strategic approach to space management. (Section 0) This should involve:

- analysis of HEEMS data to estimate potential savings from greater space efficiency. (Section 0)
- analysis of HEEMS and TR data at the sector level to highlight the shortfall in expenditure on updating obsolete estates. (Section 0)
- factor and multiple regression analysis to determine the main drivers of total property costs. (Section 0)

Developing best practice

An integrated programme should be developed in cooperation with partners including:

- the provision of effective training for HEI estates managers in the benefits of using HEEMS for strategic space management, leading to
- pathfinder projects designed to encourage, develop and disseminate best practice.

This development programme should focus upon the following:
Strategic Space Management

- encouraging HE Estates Directors to develop a more strategic approach to space management prioritizing liaison with forward planners and making a stronger contribution to the formulation of corporate plans. (Section 0)
- ways of using benchmarking to link the estate to the HEI's business. The two components of this should be identifying business benchmark groups and identifying estate benchmark groups. (Sections 0 & 0)
- appropriate tactical approaches to implementing space management strategy. (Section 0).

Performance indicators

- testing and refining the proposed space management PIs at three levels to discover which are the most useful (Sections 0& 0).
- recommending space management performance indicators to HEIs and adopting selected PIs for use by the Funding Councils. (Section 0)

HEEMS

The PIs should be provided as part of HEEMS and included within the most important 'key estate ratios' (KERS) (Section 0). cont..

HEEMS should evolve its definitions and operation to reflect the advent of the Transparency Review. (Section 0)

HEEMS should develop a separate CD-Rom devoted solely to space management, including data and analysis facilities. (Section 0)

AIMS OF THE REVIEW

The aim of this report is to review the relevant HE data that is currently available, namely Transparency Review, HEEMS and HESA data, and its potential for advancing the Space Management Group's agenda. This involved:

a. identifying the data and its uses

b. assessing data quality
- who provides the data, who manages it and to whom is it accessible?
- what are the definitions of the data collected?
- do they coincide, overlap or conflict?
- identify areas where data availability is a problem and how it might be overcome
- what is the whole picture of practice to date?

c. making recommendations to the SMG for further work to be carried out, including where further analysis of available data would be beneficial and what the benefits will be.

d. considering the possibility of performance indicators to replace the NAO's utilisation rate.

METHODOLOGY

An analysis of the three major data sources, HEEMS, HESA and the Transparency Review was carried out, drawing on their own and related websites and publications.

Discussions were held with the following:

Liam McCabe, Director of Financial Appraisal and Monitoring Services, SHEFC.
Christopher Hedley, Director, Occupiers Property Databank (OPD)

Helen Jenkins, Analyst, OPD
Val Wilson, Head of the Strategic Planning Unit, Northumbria University
Andrew McKirgan, Manager, Strategic Planning Unit, Northumbria University
Mark Baldwin, Estates Planner, Northumbria University
Clare Rogers, Director of Estates, University of Newcastle upon Tyne.
Andy Robson, Statistician, Newcastle Business School.

The detailed interviews conducted for the Newcastle Good Management Practice Project on Space Management (Newcastle, 2002) were a useful source of recent information about the practical aspects of space management and use of the data collections. The report also draws on the ideas about performance indicators (PIs) and making links between the estate and the HEI business, which were developed by Newcastle during that project.

Much of the research work has involved developing ideas about the potential uses of the available data for strategic and tactical space management at different levels within the sector.

HIGHER EDUCATION ESTATE MANAGEMENT STATISTICS (HEEMS)

The Higher Education Funding Councils for England, Scotland and Wales commissioned the Project Team, Occupiers Property Databank (OPD) and GVA Grimley, in 1998 to undertake the following main tasks:

- identify important estate management statistics;
- develop robust definitions of those statistics;
- produce preliminary comparative information for the sponsor institutions; and
- recommend how the Project might be extended to the rest of the sector.

The Project focused on

> the more 'traditional' role of estate management of strategy, maintenance, new development, running costs and effective use of space, and not on some of the wider facilities issues such as service delivery. (HEFCE Report 99/18)

Thirty-nine sponsor HEIs were involved in developing the framework and data definitions, supported by a Steering Group. All HEIs were asked to provide data for 1999, 2000 and 2001.

HEEMS objectives

The approach adopted was needs-driven and based on working principles agreed with the Steering Group, which were to:

- produce an enabling framework which will allow institutions to assemble performance-related data linked to their own objectives;
- identify Key Estate Ratios which most institutions would find helpful;
- use a simple, achievable methodology;
- make the output relevant to the business as a whole;
- develop robust, common-sense definitions;
- build on existing definitions as far as possible;
- prioritise the data requirements to maximise benefits and minimise inputting demands;
- ensure that the results are transparent;

- make the framework capable of being extended to all HEIs; and allow for comparison with other sectors and internationally.

(HEFCE Report 99/18)

Key statistics were identified and combined to produce **Key Estate Ratios (KERs**); for example,

Ratio of Total Property Cost to HEI Income
Capital expenditure per sq.m. NIA

are both KERs.

Data collection and availability

The data is collected by each HEI, annually, using a data template provided by the project team, which assembles and manages the data. Other data items are drawn directly from HESA. The items collected in 2001 are shown in Appendix A. The template is backed up by detailed data definitions, modified each year to improve clarity and utility. The Project Team provides support and guidance to HEIs in the collection phase and also maintains a web-site, www.opdems.ac.uk, which makes available an Annual Report analysing the evolution of the dataset, and updates on developments.

2001 HEEMS Institution Report

All HEIs were provided in June 2001with the Institution Report, a CD-Rom containing the data for 2000. A number of improvements have been made to the analysis facilities offered on the disc, which now enables Estates Directors to access

- the raw data for each HEI
- The KERs for each HEI, and summaries of the sector mean, median, quartiles, and measures of the availability and variability of each
- The results of the “15 most important KERS” for an HEI, set against the sector mean, median and quartiles, and the HEI’s rank in the sector for each.
- The average, median, quartiles and variability of any measure, for a benchmark group of selected HEIs. HEIs can choose to look only at accurately calculated figures, or to include estimations. Up to 20 benchmark groups can be selected, in addition to the national groups provided

The following steps were taken during 2001-2 to involve the HE sector in the development of the data and its use:

- The **HEEMS Steering Group** met three times during the year; its role is to ensure that the initiative meets the needs of institutions.
- The **Pathfinder Group** continued to work on data definitions and provide guidance to the project team.
- A **Client survey** early in 2001 sought to identify issues for 2001 data assembly and reporting.
- Five half-day **Workshops** took place around the country during the 2001 data assembly. They encouraged feedback from and discussion with HEIs, and looked at results and applications for the 2000 report.
- In autumn 2001, three more workshops addressed the practical application of HEEMS. (HEFCE, 2001).

Some HEIs wish to compare data and improve performance at the scale of individual buildings. The EMS building-level pilot project accordingly collected data during 2001, for a limited number of buildings at a volunteer group of a dozen HEIs. There is no immediate prospect of the building level data collection being widened, since HEIs find it difficult to provide information by building. This data is available only to contributing institutions.

A small survey of NHS embedded space was carried out during 2001 but has not so far been published. The amount of space involved is significant and costs are variable, but no further work is planned as yet.
2002 HEEMS Institution Report

The issue of the CD-Rom for the 2001 data is expected in May 2002 and further analysis features are planned, including scatter charts and peer group selection on the basis of features such as similarity in estate size. The period between the data collection date (December) and the Report publication (the subsequent May) is reduced this year, with the benefit that data is more current and therefore useful.

Data Quality

The Annual Report, 2001 states that the response rate has risen from 87 per cent in the first year to 97 per cent in 2001. The quantity and quality of data submitted by individual HEIs varies.

> During 2000, the typical institution was able to submit 60 per cent of all requested data items; in 2001, this increased to 77 per cent… The project team expects that this trend will continue with improvements in internal systems and the extended use of EMS information. (HEFCE, 2001)

The data provided by HEIs is neither formally, internally audited nor audited externally by the Project Team, but the data collection template does include some checks on the inputs:

- it allows users to check for comparability with the previous year's data
- it checks for internal consistency (e.g. that net areas are less than gross areas)
- it calculates some KERs to see if they are within a realistic range and compares them to the previous year's quartiles.

The number of extreme outliers in the data have reduced as systems have become established in many HEIs for data collection. The Project Team queries any outliers before the final data set is reported and excludes any items for which an extreme value cannot be explained. OPD expect that increasing use of the data at School/Faculty level within the HEIs in the future will prompt improved data quality.

Areas where there is potential for serious inconsistency between the figures reported by individual HEIs are:

1. the allocation of expenditure, particularly maintenance spending, to capital or revenue, which Estates Directors have highlighted as a problematic area.

2. the comparability of utilisation data, including frequency, occupancy and utilisation rates. The proportion and types of space included vary significantly, as do the methods used to collect or estimate figures.

3. the apportionment of space between Teaching and Research is particularly uncertain since it requires the exercise of judgement and discretion. Two alternative methods are provided for, either by time use or by predominant use. Appendix B details the alternatives. HEFCE, (2001) reports that 50 HEIs apportion by time, 79 by predominant room use and 26 not at all. These variations, plus the element of judgement, could have a significant effect on the comparability of major KERs, between groups of HEIs.

4. three alternative methods are provided for apportioning costs. Once again, comparability may be compromised. Appendix B shows the alternative methods and their use.

For issues 2 and 3 above, HEIs report which method they have used, but the extent to which the calculation is an estimate is still in doubt. Only individual visits to a sample of HEIs could identify the scale of the resulting problems in comparability of data.

HEFCE (2001) reports that the satisfaction survey showed that most users considered the 2001 report an improvement on the previous one, and all found it straightforward to use.

Current uses

The Annual Report (HEFCE, 2001) suggests that the following benefits arise from the KERs

- enhancing property performance;
- linking estate management to the main business;
- demonstrating the added-value of the estates team and raising their profile;
- providing essential input to the estates strategy;
- advancing common interests across the sector;
- keeping in touch with best/good practice;
- awareness of strengths and weaknesses;
- identification and development of priorities; and
- learning from others in discussion groups.

However, recent research (Newcastle, 2002) and feedback from the 2001 workshops, attended by 90 representatives from 70 institutions, suggests that the data's potential as a management information resource, has yet to be exploited. This results from several factors:

- the data quality is still evolving and its imperfections can be used as a justification for deferring serious applications. This issue is diminishing in importance but is still perceived as significant.

- estates departments are short of staff skilled in using this type of data. The traditional estates department skill set involves building management and

tactical space management, rather than the strategic analysis and decision-making for which this data is suited.

- there is no well-developed and widely understood means of using the data to instigate strategic analysis and develop subsequent action to enhance estate efficiency and effectiveness.

- the data can be confusing to interpret – for instance low annual estate spending initially appears desirable, but may indicate a failure to maintain and upgrade the estate. Maintenance spending may look low because it is capitalised.

- The data relating to space is interspersed with a mass of data items which are irrelevant to space management. The overall volume of data is confusing and daunting.

Advantages and disadvantages of HEEMS

Advantages

- A uniquely extensive central collection of sector estates data
- Full availability of whole sector's data to all HEIs
- Wide range of data items
- Well-developed data definitions
- CD-Rom presentation is easy to use for those accustomed to spreadsheet manipulation and is augmented by an increasing number of analysis facilities
- No cost other than provision of own HEI's data
- Professionally managed, with help facility
- Develops annually in response to user needs

Disadvantages

- Data complexity and volume can be daunting, to the extent that its use for space management is still limited
- Data quality is still imperfect, and not wholly transparent although some items are labelled as 'accurate' or 'estimated'
- Not all HEIs contribute all data items
- Data definitions do not coincide with those of the Transparency Review, which limits the possibilities for combining the data.

Encouraging the use of HEEMS

We recommend that encouraging and facilitating wider use of HEEMS data for space management should be a priority, in order to exploit this unique and potentially powerful dataset. It is suggested that:

- work be carried out to develop methods of using HEEMS to enable HEIs to create benchmark groups of similar estates
- a new CD-Rom should be produced annually, incorporating only those KERs relevant to space management, and accompanied by a clear, easy to use analysis procedure, for use by individual HEIs.
- consideration be given to a programme of training aimed at encouraging the use of these tools. This is described in more detail in Section 0.

- the data definitions of HEEMS should be amended to bring them into line with the Transparency Review data collection.

HESA

Established in 1993, HESA has since become the major source for UK statistics about higher education in the UK. HESA collects four main data sets:-

1. Student
2. Staff
3. Finance
4. First destinations

The first three data sources are reviewed below. First destination data is not examined as it does not directly relate to accommodation needs and provision. Information about HESA is available from its web site at www.hesa.ac.uk.

Objectives

HESA has standardised a large section of higher education data and streamlined their collection, analysis and dissemination. The agency produces a range of annual publications at various levels of detail in print and electronic formats. In addition, there is a bespoke data service, which responds to customers' needs that are not met by the regular publications.

Data collection

Collection of student data

The Agency collects data on all students in publicly funded higher education in the UK. HEIs may choose between two alternative structures that are available to collect the same data. The Combined Record Structure, which is more widely used, records 163 fields of data for each student. These fields include for example, A level points score, gender, age, disability, qualification aim and fee payer. Students can be allocated to one or more of 40 academic cost centres according to their subject and full-time equivalence.

Collection of staff data

The 'Individualised Staff Record' collects data on all staff employed to spend 25% or more of their time on teaching and/or research. The purpose is to record the general characteristics of the academic work force within HEIs and nationally. 37 fields of data are recorded including for example gender, date of birth, full-time equivalence, nationality, disability, academic discipline and highest academic qualification. Staff may be allocated to one of 40 academic cost centres or 7 other cost centres. HESA does not collect data on the characteristics of non-academic staff though their costs are reported in the Finance Statistics Returns.

Collection of finance data

The 'Finance Statistics Return' (FSR) is the main source of historical financial information on higher education in the UK. The return is necessary to provide for proper accountability of HEIs via financial monitoring; for management information to support policy formulation, to inform the funding process and to help calculate the UK Balance of Payments. Seven tables of data are required including the Income and Expenditure Account, Balance Sheet and Cash Flow Statement. All

HEIs are required to prepare their annual financial statements in accordance with the Statement of Recommended Practice: Accounting for Further and Higher Education Institutions (SORP) and to comply with UK legislation.

Publications

Publication of student data

The main HESA annual publication relating student data is "Students in Higher Education Institutions" which contains 51 tables (Appendix D: Publications by HESA)

The HESA on-line information service (HOLIS) provides a limited number of annual tables for each of six academic years to 1999/2000:-

- First Year UK Domiciled HE Students by Level of Study, Mode of Study, Gender and Disability. This table shows the national picture only.
- First Year UK Domiciled HE Students by Level of Study, Mode of Study, Gender and Ethnicity. This table is at a national level only.
- All Students by Institution, Mode of Study, Level of Study, Gender and Domicile. This table shows, for each institution, the breakdown of its students by these four factors.
- All Students by Subject of Study, Domicile and Gender. This table shows, on a national basis the breakdown of its students into 19 broad subjects of study subdivided into 162 disciplines.
- Student FTEs by Institution and Cost Centre. This table lists the numbers of 'full-time equivalent' students for each HEI by 40 'cost centres' which relate to academic disciplines or groupings of disciplines.

In addition the "HOLIS Compare" service allows university users to conduct simple on-line comparisons either with data from another HEI of their choice or with the averages from a peer group of HEIs they select. We can learn from this service, for example, that in 1996/97 Cambridge had 421 veterinary students, only 155 of whom were men, while Oxford had none. In the same year both universities had similar numbers of law students and in both male law students marginally outnumbered female.

HESA’s Data Provision Service provides customised data that is not available from the HESA on-line services or its regular publications. Detailed data summaries are supplied based upon specific requirements from the four main data streams:

Publication of staff data

The main HESA annual publication relating to staff is "Resources of Higher Education Institutions". (Appendix D)

The HESA on-line information service (HOLIS) provides a limited number of annual tables for each of six academic years to 1999/2000:-

- Full-time Academic Staff in all UK Institutions by Location of Institution. This table presents the full-time academic staff by nation (e.g. Scotland) by gender and by whether fully financed by the HEI or not; it does not list staff by individual HEI.

- Staff FTEs by Institution and Cost Centre 1999/2000. This table lists the numbers of 'full-time equivalent' staff for each HEI by 41 'cost centres' which relate to academic disciplines or groupings of disciplines.

The 'HOLIS Compare' service does not contain any staff data as yet but Universities may make use of the HESA Data Provision Service to obtain specific tabulations.
Publication of finance data

The main HESA annual publication relating to finance is "Resources of Higher Education Institutions". (Appendix D)

The HESA on-line information service (HOLIS) provides a limited number of annual tables for each of six academic years to 1999/2000:-

- Total Income and Expenditure by Source of Income and Category of Expenditure. Five categories of income and four of expenditure are presented for the whole of the UK.
- Research Income Totals by Institution and Cost Centre. This table consists of research income for each HEI, presented for each of 55 'cost centres'. 8 groups of sources are presented; OST research council grants; UK charities; UK government bodies; hospital and health authorities; UK industry; EU government; EU other sources; Other overseas sources; Other sources.

The 'HOLIS Compare' service does not contain any finance data as yet but universities may make use of the HESA Data Provision Service to obtain specific tabulations.

Data quality

The Agency supplies universities with a full support service designed to facilitate the collection of data and ensure that it is consistent, complete and accurate. HESA publishes and updates coding manuals for each main data set plus related circulars. The extensive web-site provides a full help service for users including the answers to frequently asked questions. Data is supplied to HESA by universities via a secure area of the web site using standardized templates supported by extensive agreed definitions. HESA operates quality assurance procedures accredited by ISO 9002 and data security procedures accredited by BS7799. These data, which have been collected since 1994/5, are accepted as being reliable.

Current uses

HESA data enables universities to benchmark on the basis of the teaching, research and other elements of their business. Benchmarking is discussed at Section 0 below.

TRANSPARENCY REVIEW

The Transparency and Accountability Review was initiated during the 1998 Comprehensive Spending Review and effected by the DfEE grant letter to the UK HE funding bodies in December 1998.

The Joint Costing and Pricing Steering Group (JCPSG), a sector representative group, in its role as advisory group to the review on behalf of the sector, commissioned work to develop a framework for implementation. (http://www.jcpsg.ac.uk/transpar).

The Transparency Review methodology was established by the Transparency Review Report, piloted during 1999-2000. The JCPSG published the Transparent Approach to Costing: Manual of Guidance and Implementation (JCPSG, 2000), providing guidance on the methodology and its implementation.

All HE institutions must report annually to their funding council, from academic year 1999-2000 onwards, using the costing standards established in the Transparency Review Report. JM Consulting Ltd were commissioned by JCPSG to support the sector throughout implementation of the Transparency Review.

Objectives

The Review has two elements, set out in the recommendations of the 'Transparency Review of Research':

> **Recommendation 1**: Institutions should report the costs of Teaching (publicly funded and non-publicly funded), Research (publicly funded and non-publicly funded), and Other activities annually and retrospectively (based on the previous year's audited accounts) to satisfy the requirements for public accountability.

The internal needs of HE institutions are to be furthered by more detailed information, which need not be reported to the Funding Councils:

> **Recommendation 2**: Institutions should calculate costs of Teaching, Research, and Other activities at departmental level and by research sponsor type, both for internal management purposes, and to satisfy needs of sponsors and others.

Data collection

The timetable for reporting has achieved two sets of transparency figures, for the academic years 1999-2000 and 2000-2001. Future reports will be made on 31 January each year.

There is no information available concerning the extent to which more detailed cost information, for instance at Faculty level, is being reported and used internally for institutions' management decision-making, as suggested in Recommendation 2. Although the remit of the JCPSG expires in July 2002, it is likely that some involvement will replace it, aimed at developing local use of the data by institutions. This means that the cost data should improve in quality and become more widely used for internal decision making.

Table 1 shows the data requirements for each institution. The treatment of estate costs is described below. They will in future years be embedded in the larger 'infrastructure cost' which will include many other items, but in the cost reports made so far, they stand alone, since the collection of the wider range of costs has not yet been attempted.

Table 1: Transparency Review data reported by each institution.

	£000
Total expenditure (including exceptional items) per audited financial statements for [Year]	X
Adjustments	
Infrastructure	X
Cost of capital employed	X
Exceptional items	X
Net adjustments	X
Total costs	**XX**
Teaching: publicly funded	X
Teaching: non-publicly funded	X
Research: publicly funded	X
Research: non-publicly funded	X
Other	X
Total	**XX**

Source: HEFCE circular letter 17/00, Annex A

The infrastructure adjustment

The TRACS Manual defines an institution's Infrastructure as:

- Estates (land and buildings)
- Physical infrastructure (roads, grounds, boiler plants etc.)
- Equipment (including scientific, computers, and general)
- Vehicles
- Furniture (fixtures and fittings)

(Section C7 2, JCPSG, 2000)

It identifies "three elements …required to maintain an adequate infrastructure:

a) a charge to reflect the consumption of asset value (or the benefits from use of the asset)[1]
b) a long-term maintenance charge to reflect the cost of maintaining asset condition as originally specified (subject to normal wear and tear)
c) a periodic, and planned renewal and up-grading investment to ensure that assets remain fit for current purpose with respect to developing requirements of teaching, research …"

When these are added to annual operating cost, the total reflects the full economic cost of the estate, as illustrated in Figure 1.

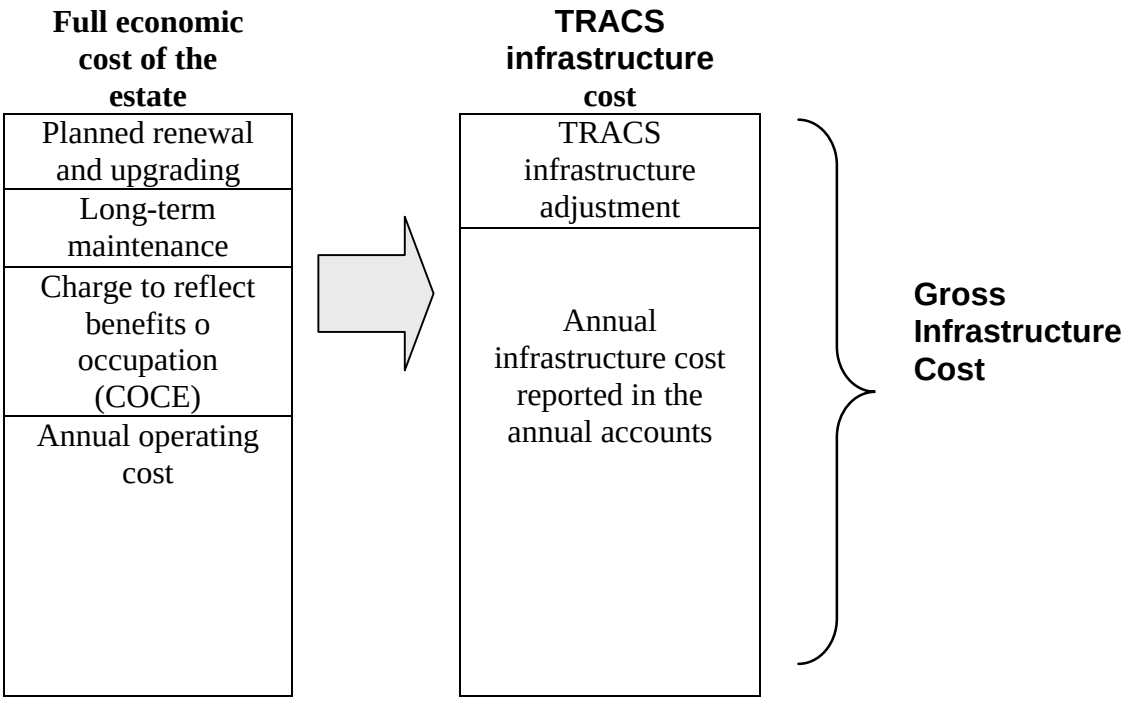
[1] TRAC also characterises this first of the three elements as the estate's share of the Cost of Capital Employed (COCE).

Each institution reports annually, in its statement of accounts, some elements of the annual infrastructure cost, but in many instances this falls short of the full economic cost of infrastructure. Moreover, different approaches to accounting mean that institutions may report different elements of the cost. Since the TRACS approach seeks to identify the full economic costs of infrastructure, each institution is required to report an 'infrastructure adjustment' to supplement the figure in the accounts. Figure 1 illustrates the approach. As far as the estate is concerned, the outcome is the estimated gross estate cost, inclusive of COCE, maintenance and long term upgrading of the estate to support its fitness for purpose.

The TRACS Manual identifies the following reasons why institutions' accounts may not reflect the full economic cost of the estate:

- There may be maintenance backlogs, so annual expenditure figures are too low.
- Many institutions carry their assets in the accounts at cost, or depreciated replacement cost, rather than at Open Market Value (for existing use). Many were gifted to them, or have been fully written off in the books. In all these cases, depreciation allowed for in the annual accounts, calculated as a percentage of the buildings' valuation, will be inadequate to reflect the cost of capital employed (COCE).
- Depreciation policies vary.
- Few institutions allow fully for planned renewal and upgrading of the estate to support fitness for purpose.

Figure 1 The TRACS method for reporting the full economic cost of the estate



TRACS asks institutions to calculate a depreciation figure based on a percentage of the estate's insurance value, the latter acting as a proxy for rebuilding cost. Although convenient, insurance values are inappropriate since they may be distorted by a large proportion of historic listed buildings, which are unduly expensive to replace, and by excess estate capacity. There is no point in budgeting to update an estate that is larger than needed (Newcastle, 2002). It is almost certainly true therefore that the annual full economic cost of the HE estate produced by the TR is an over-estimate, since excess capacity is substantial.

Table 2: Transparency Review 1999-2000 full costs

	Scotland (1)		**UK**	
Full Costs	£'000	%	£'000	%
Publicly funded teaching	650,187	42.3	5,870.848	43.6
Non-publicly funded teaching	84,354	5.5	710,832	5.3
Publicly funded research	402,258	26.2	3,288,223	24.4
Non-publicly funded research	214,206	14.0	1,563,634	11.6
Other	184,477	12.0	2,042,320	15.1
Total costs	1,535,482	100.00	13,475,857	100.00
Cost Adjustments				
Total expenditure per audited financial statements	1,418,514		12,559,703	
Infrastructure adjustment	**32,292**	**2.3**	**327,032**	**2.6**
Cost of capital employed	101,161	7.1	620,751	4.9
Exceptional items adjustment	(16,485)	(1.2)	(31,629)	(0.2)
Net adjustments	116,968	8.2	916,154	7.3
Total costs	1,535,482		13,475,857	

(1) This excludes Bell College of Technology, UHI Millennium Institute and Northern College of Education.

Table 2 shows that the UK sector's infrastructure adjustment for the last year reported, when it related only to the estate, constituted 2.6% of total costs, a figure of £350m for the year. This is a measure (albeit subject to the reservations expressed above) of the shortfall in spending by the sector, which relates to its maintenance backlog and failure to update the estate for current purposes. It could be argued that, assuming income cannot be increased, the estate should be reduced in size to eliminate this shortfall, This enables the 'affordable' size of the HEI estate to be determined.

Data quality

The TR standards require internal audit, (costing standard 7, Section C8 JCPSG, 2000), but there is no requirement for external audit, nor is it planned. Responsibility for signing the final TR figures lies with the head of the institution.

The internal audit service must review and comment on the adequacy of the management systems for ensuring that the costing method complies with the Transparency Review recommendations. These are part of the wider institutional audit process, involving audit trails between summary reporting and base data, to demonstrate the reliability of the reported costs.

> Auditability means that the reported figures should be reconcilable to the institution's externally audited annual accounts; traceable; supported (verified) by surveys; and supported by managers' statements that they fairly reflect cost attribution. (www.jcpsg.ac.uk)

The JCPSG guidance recognises that some elements of costing involve judgement and

discretion. Among these is the thorny issue of allocating space between teaching, research & other uses. This is not auditable in the sense of being 'externally verifiable' and the JCPSG guidance focuses on

> ..judgement based on risk, materiality, and the appropriateness of the methods used, in other words, a normal systems-based audit.

This implies that the TR costs produced "should fairly reflect the full economic costs of the activity." Audit should take into account the TR's five-year period for establishing robust costing methods. It should report tests for 'reasonableness' (Section C2 page 31 of the Guidance Manual) to its Audit Committee. The audit report to the Committee should include:

- key assumptions
- supporting evidence that cost drivers for larger items of cost reasonably represent the actual use or benefits from those resources
- any other checks on the….. cost attribution figures in addition to the results of tests for reasonableness
- results of verification methods…..

Any uncertainty about the reliability of the TR data relating to estates results from

- the possibility that estates records at a particular institution are out of date or lack detail
- the very significant difficulty in allocating space between T, R and O uses, especially where it has multiple uses. These mirror similar issues discussed in relation to HEEMS data in Section 0 point 3.
- The use of insurance costs as a proxy for replacement cost.

The reliability of the infrastructure element of costs, and its allocation between the three business components of T, R & O, is not yet established. Discussions with individuals involved suggest there is probably considerable room for improvement.

Data availability

A guarantee of confidentiality was made as a condition of data submission. This holds firm despite requests from government departments to use the data. It limits the application of the data to use by

- the funding councils which can analyse it both at sector level and at use it to compare HEIs.
- individual institutions which can analyse it internally within an HEI.

Advantages and disadvantages of the data

Advantages:

Sector level:

- The data is the first sector-wide attempt to identify the full economic cost of the estate
- Since the first two years' data sets include an infrastructure adjustment excluding all but the estate, it is possible to derive a figure revealing the scale of difference between annual costs reported in the accounts and the full

economic cost of the estate. This is 2.6% of total reported cost, approximately £350m per annum for the whole UK HE estate in 1999-2000.

HEI level:

- The data provides a means for the funding councils to compare the range of differences between full economic estate cost and annual estate spending.
- The relationship between estate cost and income from T, R & O can be examined.

Within HEIs

- The magnitude of the infrastructure adjustment reported over the last two years indicates the shortfall in estate spending required to run, maintain and upgrade the estate for current purposes. Since there is likely in most cases to be a significant shortfall, this concentrates university management attention on the size of estate that is affordable, given the institution's level of income.
- The data provides a potentially powerful management tool for scrutinising the full economic cost of the estate used by faculties, departments or institutes.
- TR provides estate cost data that can be related to business factors such as the income from T, R and O at the level of any of the above cost centres.

Disadvantages

- The data is still being developed, in the context of a five-year programme. It is likely that there are many approximations involved.
- There are serious practical difficulties in allocating space and its cost to T, R & O. There are almost certainly differences in approach between and within HEIs.
- Using a percentage of insurance cost as a proxy for depreciation means that the resulting figures are probably unrealistic, especially where the estate has over-capacity or many historic buildings.
- The confidentiality guarantee made to institutions limits the uses of the data for comparing HEIs' estates, including benchmarking. HEIs only have access to their own data.

Current uses

Little is known about the extent to which this data is being used by HEIs to support decisions about their estates. Newcastle (2002) report the use of data produced for the TR, to create performance indicators at Departmental and Faculty level, as part of an extensive estate review.

COMBINING HEEMS AND TRANSPARENCY REVIEW DATA.

There are several differences in the way these two data collection systems have defined their data items. The most fundamental is the split between 'Teaching, Research and Other', which impacts on the way space is allocated to different elements of the HEI business. A second area of difference concerns the components of estate costs. These are now reviewed in more detail.

Contrasting HEEMS and TR subdivisions of the estate into 'Teaching, Research and Other'.

Both data collection processes involve subdividing an HEI's estate into three parts, known as T, R & O. There is therefore a risk that they are assumed to coincide, but in fact the differences are fundamental.

TR's approach to T, R and O.

The TR aims to identify the costs of HEI business and to this end requires that all costs, including the cost of the estate, should be divided into four strands defined in the 'Transparent Approach to Costing (TRAC): Volume II Reference Manual', (JCPSG, 2000). These are the 'core activities' of Teaching (T), Research (R), and Other (O) The costs of Support (S) are collected separately and apportioned between T, R & O.

The four categories are very roughly summarised in Table 3. 'Cost drivers' are factors which cause a change in the cost of an activity. The TRAC guidance manual stipulates that four to six robust cost drivers need to be used by institutions when apportioning Support costs to T, R or O. Floorspace occupied by a department is one possible cost driver, as are student numbers; staff numbers; or total expenditure.

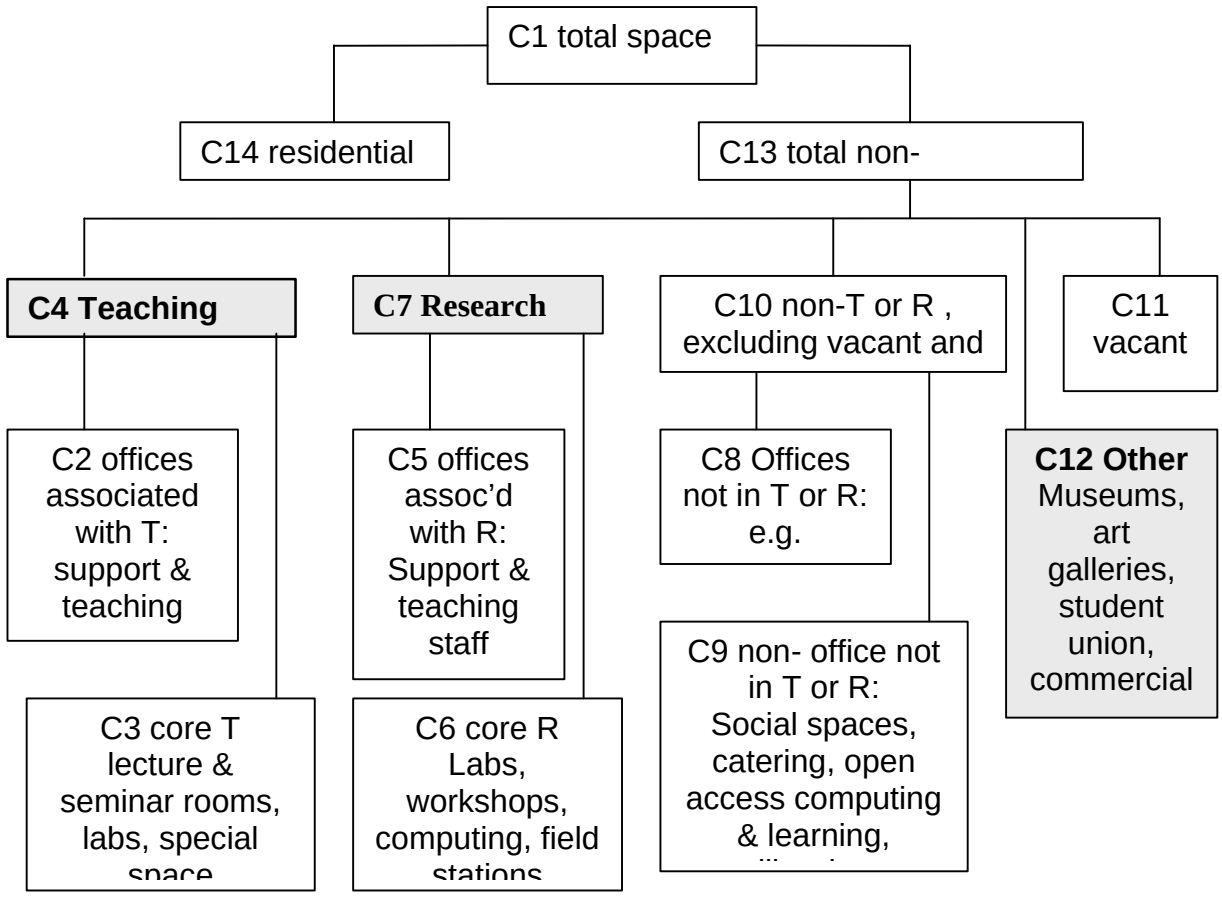
Table 3: Transparency Review cost categories

T	Teaching delivery, assessment, student admissions and pastoral care
R	Frascati research, fieldwork, laboratory, studio, classroom work, management of projects, research reporting
O	Consultancy (commercial and public sector non-Frascati work) Teaching Companies Scheme. Other non-Frascati services including testing and clinical trials, work carried out through trading units/commercial companies, residences and catering
S	Support costs consist of: the cost of the support time of academic staff, the costs of support staff, the support elements of non-staff costs in academic departments, the total costs of support or service cost centres and the cost adjustments

This means then that the full economic cost of the estate, including the relevant infrastructure adjustment, is apportioned between T, R and O. However, although it would be ideal to apportion this cost by their share of floorspace, difficulty in allocating floorspace to its uses, leads in some cases to a different cost driver being used, for example staff costs.
The HEEMS approach to T, R and O.

Whereas the Transparency Review defines T, R and O for the purpose of collecting costs and then apportions estate costs between them, without necessarily using floorspace as the allocation mechanism, HEEMS is directly concerned with subdividing the floorspace of the estate into categories. Figure 2 illustrates the subdivision of non-residential space into five main categories, of which T, R and O constitute three. However, these differ fundamentally from the TR categories, since many items related to teaching, such as open access computing facilities and libraries, are included in a separate category, C10. The 'Other' category here, C12, means space occupied for national purposes such as museums and art galleries, a meaning quite different from that used by the TR, which relates it to consultancy income. TR's 'Other' income would be earned in HEEMS' 'Research' space.

Figure 2: HEEMS space categories.



Differences between HEEMS and TR estate cost definitions

Newcastle University (2002) considered the differences between the TR and HEEMS cost outputs. These have resulted from their different origins and objectives and have not been resolved, although there has been communication between the data collectors. The TRACS approach (JCPSG, 2000) is described in detail in Section 0. To recap: it augments the estate costs, as stated in the HEI's accounts for the year, with an adjustment to ensure the full economic cost allows for:

a. the benefits from use of the asset[2],
b. long-term maintenance in the condition originally specified
c. periodic, planned renewal and up-grading to maintain fitness for current purpose

The EMS statistics are orientated more towards the running costs of the estate, although they do include costs that overlap with, but are not identical to, all three elements specified by TRACS. Using the same order as the three TRAC elements above:

a) Total Property Cost (TPC)[3] specifically includes an amount (the rateable value) as a proxy for COCE, although due to the intermittent updating of rateable values, it is an unreliable proxy.

[2] TRAC also characterises this first of the three elements as the estate's share of the Cost of Capital Employed (COCE).

b) There is potential for overlap between the long-term maintenance expenditure, defined by TRAC and EMS' TPC.

c) EMS data includes a figure for "Capital expenditure on estates and buildings" which is the rolling average of the last three financial years' capital expenditure on the estate, obtained directly from HESA. The figure is broken down by each HEI into 2 elements, firstly new building work[4], including extensions and net additions to floorspace, and secondly 'other expenditure[5]', which includes major refurbishment, and coincides with the TRAC concept of updating to maintain fitness for purpose.

HEEMS also provides a figure[6] for the cost to upgrade buildings in condition categories C and D, to categories A and B. however, this is a capital figure, and not directly comparable with the annual infrastructure adjustment provided by the Transparency review.

A potential indicator for estate spending shortfall

TR estates costs attempt to take into account the need for reinvestment, albeit based on insurance value. The EMS data shows actual spending only (plus an unreliable COCE proxy) and does not assess its adequacy. As pointed out by Newcastle (2002):

> all HEIs should make an assessment of the difference between estate spending and a more realistic assessment of the level of long-term maintenance and updating necessary to support the estate's fitness for purpose.

Ideally, an indicator should be produced at institutional level across the sector, expressing the difference between spending (the HEEMS figures) and the notional level of investment required to support the estate's fitness for purpose (the TR figure). However, the overestimation of updating expenditure inherent in the TR figures as presently constituted from their basis in insurance value, means they do not provide a practical measure for this purpose.

PERFORMANCE INDICATORS FOR HE SPACE MANAGEMENT

A new and more appropriate performance indicator(s) is required to replace the room utilisation rate previously suggested by the National Audit Office. The case was made by Newcastle (2002) for using performance indicators to link the estate to HEI business. This was proposed at the HEI level and within HEIs, to benchmark at faculty, school or departmental level. Their use at three levels is now reviewed:

PIs for use by SMG/HEFCE

PIs are needed at this level to monitor the space management of the sector, thus ensuring value for money in public expenditure. PIs at this level should provide a strategic view across the sector showing the full range of performance between HEIs. For this purpose SMG also needs to be familiar with the use of PIs in benchmarking by HEIs.

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[3] HEEMS data category D26
[4] HEEMS data category D25, C13(a)
[5] HEEMS data category D25 C13(b),
[6] HEEMS data category D20b

PIs for benchmarking by HEIs

PIs are needed at this level to allow HEIs to compare their space management with the full range of performance across the sector. More importantly, an HEI will want to concentrate on using PIs that allow it to benchmark its performance against its close competitors or against a group of HEIs which it aspires to match. Benchmarking may relate to the overall use of space by the HEI and its component businesses or it may compare their current estate sizes, quality and cost profiles. At this level the HEI will need to divide its activities at least between teaching and research and probably again into groups of academic subjects. Benchmarking should help the HEI make strategic decisions such as the overall scale of estate needed, the number of campuses required, any new building or the sale of assets.

PIs for internal space management by HEIs

PIs are needed within HEIs as a guide to decision making when managing the estate, when allocating space and considering investment in, say, refurbishment. At this level the HEI will need to subdivide its data to reflect its organisational structure to permit the examination of space use by particular faculties, schools, institutes etc.

Assessing the potential of PIs

Many possible performance indicators can be identified, for instance drawing on the HEEMS and TR data, and there may be others. It is likely that different numbers of PIs would be useful at the three different levels; internal benchmarking is likely to warrant more detail than assessment at sector level. The advantages and disadvantages of alternative PIs can be assessed in theory, using criteria such as those suggested in Section 0. This exercise is attempted in Sections 0 to 0 below. There is however little information available about the usefulness of individual PIs in practice, although work being carried out at Newcastle University may shed light on the issue at HEI level and for internal use.

We therefore suggest that work should be carried out to:

a. identify potential PIs for each of the 3 levels:
   - sector level analysis
   - inter HEI comparison
   - intra HEI comparison

b. test the practical usefulness of the chosen PIs by:
   - identifying and studying current uses
   - testing the sensitivity of each PI, using the HEEMS data where possible

Issues of sensitivity have not been addressed to date. A short example, shown in Table 4 illustrates that PIs may not be a straightforward measure of efficiency gains. PIs with space as the numerator will react in direct proportion to space efficiencies, but where space is the denominator, the PI will exaggerate the effect of space change. This raises the question whether all PIs should use space as the numerator, for instance replacing 'income per square metre' with 'square metres per £1000s income'.

Table 4: Example illustrating the sensitivity of different PIs to space efficiency gains.

YEAR 1	**YEAR 2** Income and students are unchanged, but space use has been made more efficient
Income £200K	Income £200K
Student FTE 200	Student FTE 200
Space 100sq.m	Space 80sq.m **a 20% reduction in space**
Income per sq.m	
= £200K/100 sq.m. = **2**	= £200K/80 sq.m. = **2.5** **Year 2 PI shows a change of 25% on year 1**
Sq.m. per student FTE	
= 100 sq.m./ 200 FTE = **0.5**	= 80 sq.m./ 200 FTE = **0.4** **Year 2 PI shows a change of 20% on year 1**

Criteria for choosing a PI

To be useful and effective in space planning, performance indicators should meet the following criteria:-

- be directly linked to the business of the HEI,
- highlight space as a prime variable,
- be easily comprehended by decision makers and those affected,
- be reasonably stable from year to year to permit planning.
- be constructed from reliable data sources
- react proportionately to space efficiency gains

Since the usefulness in practice of different types of PI at different levels is not known, the following sections discuss the potential usefulness of PIs in theory only.

PIs based on income

This PI relates an HEI's total income to the size of its non-residential estate. This PI seems to meet all the above criteria and would permit simple benchmarking between HEIs. It could be used by HEFCE to monitor progress nationally and responds directly to space efficiency. It relates to the needs of the business and focuses simply and clearly on space. Disadvantages related to this measure include that it ignores the adequacy of spending needed to achieve upgrading of the estate. It also takes limited account of differences between relatively high-income high-cost research and relatively low-income low-cost teaching. An HEI could perform well on this PI but could nevertheless be occupying inadequate quality space. Overall the significant strengths of income based PIs outweigh their disadvantages.

PIs based on cost

The capital cost of upgrading the estate to satisfactory standard

HEEMS asks each HEI to provide an estimate of the cost of upgrading the whole of its estate to a minimum standard known as grade B. This is a very direct measure of the quality of the HEI estate and the cost of upgrading it to a reasonable level. This PI however takes no account of the ability of the HEI to pay for upgrading and there is no point in upgrading space that is in fact surplus to the needs of the business. To correct this fault the PI may be expressed as a percentage of the HEI's income.

The extra annual cost required to refurbish and modernize the estate

How much extra would UK HE need to spend annually to ensure the long-term refurbishment and modernisation of its existing estate? The estate element of the TRACS Infrastructure Cost requires adjustments to be made to the accounts to cover depreciation, long term maintenance and periodic planned renewal and upgrading. A PI could be constructed to show the shortfall between this figure and what is presently being spent. The HEEMS total property cost figure is deducted from the TRACS estimate to arrive at this figure. (for a more detailed explanation see Section 0) This PI would show whether the sector is presently spending enough to secure the long-term future of its buildings.

The figures from Table 2 show that the infrastructure adjustment for 1999-2000 constituted 2.6% of total costs, a figure of £350m for the year. This then is an estimate of the extra annual figure that HEIs collectively should be spending to operate and upgrade their estate. Bearing in mind that HEIs spent around £1250m in 1999-2000 (HEEMS, 2001), it suggests that the sector’s estate is far larger than it can afford to support in the medium to long term.

It would also show how large the shortfall is nationally and the degree of variation between HEIs. In addition this PI would demonstrate the annual cost consequences of closing the gap nationally and for HEIs. The TRACS adjusted estate figures will, however, be too high where there is over capacity or where the buildings are 'expensive to replace' historic buildings. The HEEMS definition of 'total property costs' is not fully compatible with TRACS since it uses rateable values as a proxy for the cost of capital and also uses a three year rolling average of capital spending. Transparency Review data is confidential and its use would have to be carefully considered and presented in an anonymous form.

PIs based on 'profit'

A PI based on 'profit' could be constructed as follows. From the total HEI income, non-infrastructure costs and estate costs are deducted. The remainder or 'surplus' is divided by

the total size of the estate to arrive at a figure in £s per square metre. This PI includes both the income and cost aspects of the HE business and thus allows for differences in costs between teaching and research. This PI relates strongly to business logic. Space efficiency would, however, tend to be lost amongst movements in other variables and, as a residual sum, this figure would tend to vary greatly from year to year. For many HEIs this PI may well be negative.

PIs based on intensity of use of space

Frequency of use of teaching space

This PI is based upon the frequency of occupation of teaching accommodation. Many HEIs already carry out such surveys but this is often where teaching space is in shorter supply. Where teaching space is generously provided, frequency may be less and also less often measured. The advantage of this PI is that it measures the good use of teaching space within HEIs. A disadvantage of this PI is that does not account for different types of teaching; for example open-learning and where staff offices are used for teaching small groups. The data is collected by HEEMS, but the sample of rooms included in the survey varies so much between HEIs that comparisons are probably not ell-founded. In addition, this measure is not linked to the income or costs of the business and excludes significant sections of the estate.

Utilization rates for teaching space

A Utilization rate PI measures not only the frequency of occupation of rooms but also the numbers of seats actually occupied by students. The advantage of this PI is that it measures the actual occupancy of teaching space by students, which may be of interest to managers within HEIs. Apart from the problems mentioned above in relation to frequency, this measure also suffers from the non-attendance of students. Classroom sizes have to be provided for full attendance and this may only be achieved early in the semester or perhaps before an exam. When a large assignment is due, attendance may fall sharply but the classroom size cannot be practically adjusted for this. This measure therefore relates more to teaching and learning than space. Booked utilisation rates avoid many of these problems, but still ignore significant sections of the estate.

PIs based on FTE student numbers

Undergraduate and taught postgraduate students

This PI divides the total floorspace devoted to teaching by the total number of FTE students. This can be done for a whole HEI or for subdivisions within an HEI. As students are the consumers of an HEI's teaching business, this measure has much to recommend it. Students can be classified into bands according to the income they generate so this PI relates strongly to income. In addition some types of students need specialized types of space and thus often more space. A disadvantage is, however, that an HEI could perform well on this PI but could nevertheless be occupying inadequate quality space. While this is a useful PI it should not be used in isolation.

Research students

A PI can relate the FTE numbers of research students to the space used for research. Research students are a major part of the research business of an HEI and their numbers relate to income. Research students are however only a section of the research business. There is a range of practice between disciplines and Schools in the allocation of space to research students. This PI may thus be useful in some circumstances but should not be used in isolation.

PIs based upon FTE staff numbers

Teaching staff

A PI could be adopted relating the FTE numbers of teaching staff to the space used for teaching. The numbers of teaching staff relate strongly to the numbers of their students and the latter provides the better PI. Teaching space includes classrooms, laboratories and the proportion of academic offices used for teaching. This proportion will vary widely with the amount of research done and the use of offices for small group teaching. This measure would have very little linkage with the income of the business.

Research staff

This PI relates the FTE numbers of research staff to the space in which they operate. This would include both FTE members of academic staff involved in research and research associates. Research floorspace includes office space used for research and core research space such as laboratories. This PI may thus be useful in some circumstances but should not be used in isolation.

Central support services staff

This PI relates the numbers of central support staff to the floorspace they occupy. Under HEEMS the offices of support staff within schools or faculties are measured as part of either the teaching or research space. HEEMS provides a separate classification of other non-teaching or research space. Under TRACS however 'other' is the third business /income arm of the HEI after teaching and research. In the medium term it may be that all space will be properly apportioned to these three TRACS businesses. In the short term however this simple measure of central services use of floorspace is needed.

Recommended performance indicators

It is recommended that the PIs shown in Table 5 be considered and tested for use at different levels within HE:

Table 5: Performance Indicators recommended for use in the HE sector.

The main PI	**HE EMS data items ***
Total income per square metre of total non residential space (or its inverse, space per unit of income)	D1 (C13) / D12 (C13)
Subsidiary teaching PIs	
Teaching income per square metre of teaching space (or its inverse, space per unit of teaching income)	D1 (C4) / D12 (C4)
Teaching space in square metres per student FTE	D12 (C4) / D4 (C4)
Subsidiary research PIs	
Research income per square metre of research space (or its inverse, space per unit of research income)	D1 (C7) / D12 (C7)
Research space in square metres per research student FTE + research staff FTE	D12 (C7) / [D4 (C7)+D5 (C7)]
Subsidiary support services PI	
Support space in square metres per member of support services staff FTE.	D12 (C10) / D5 (C10)

Subsidiary maintenance and depreciation PIs	
% of total non-residential floorspace in condition grades A & B.	D20a C13
Cost to upgrade the whole non-residential estate to Condition B, as % of total non-residential HEI income	D20b C13 / D1 (C13)
Suitability of space to support its existing function: % of GIA in Grades 1 & 2	D21 C13
Difference between full economic cost of estate (TR) and Total Property Costs (HEEMS), as % of non-residential HEI income	TRACS[†]- D26(C13) / D1 (C13)

*Some HEIs report D13: Room Area, instead of D12: NIA floorspace.
[†]TRACS full economic cost of estate infrastructure

DEVELOPING STRATEGIC SPACE MANAGEMENT FOR THE HE SECTOR

Estates services within HE

The tradition of estate management within the sector has tended to be building and engineering led and concerned with service provision, problem solving and the delivery of priorities set by other managers. Many in the sector believe that links between the forward/ business planning function and estates service within HEIs are often tenuous or non-systematic. This belief has been confirmed by previous research (Newcastle University, 2002). The reasons for this could include a restricted remit for the estates service, a lack of staff or finance and the pressure of day to day delivery where funding is normally tight. While HEFCE has required HEIs to submit their Estates Strategies periodically, these documents have often lacked a strategic dimension and real precision. It is fair to say that estates matters have rarely been regarded as a priority by the senior management of HEIs except in relation to specific new developments (e.g. building, new campus development etc.)

The advent of data sources for space management

The development of better data via HESA, HEEMS and the Transparency Review now provides some of the tools needed to correct this problem. It should be possible for an HEI to demonstrate the need for any action it may propose in terms of how the estate as a whole will improve its performance and better support the business.

Asking important questions about space management

The estates service within HE needs to ensure that space issues make a full contribution to strategic decisions made by HEIs. The effort of the service needs to be more strongly linked to long term business goals. This process can begin by asking some serious questions such as:-

- How much space does UKHE and each HEI really need?
- How much space can UKHE and each HEI afford?
- What quantity of space should UKHE and each HEI aim to occupy?
- What quality of space should UKHE and each HEI aim to occupy?
- What are the costs and business benefits of adjusting the size or composition of the estate?
- What practical obstacles would prevent or delay the optimum estate being fully delivered?

Benchmarking HEI estates

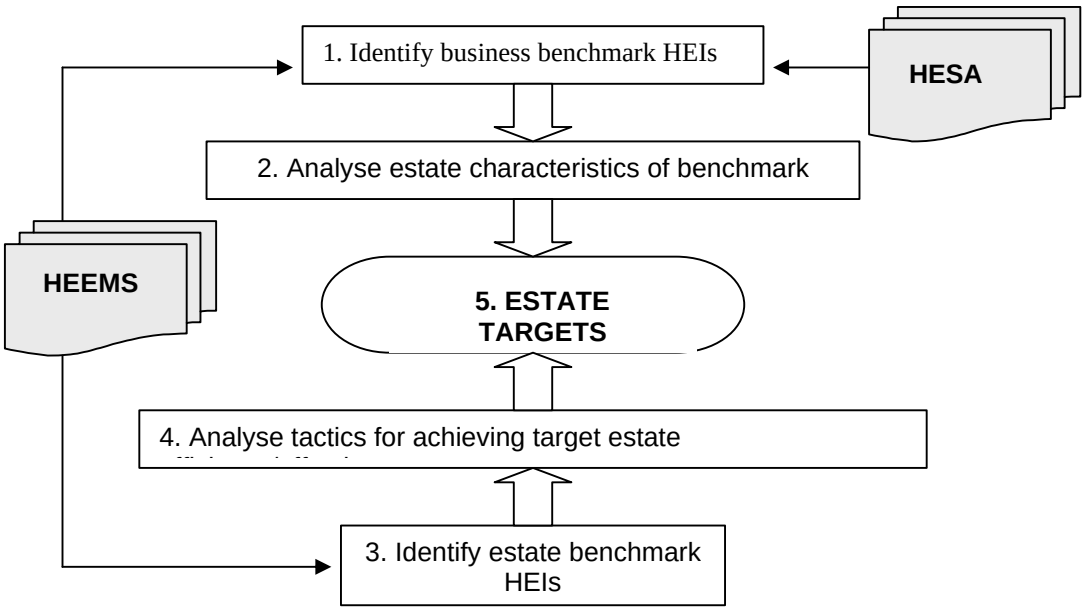
Figure 3 below illustrates a methodology for applying benchmarking to space management in the HE sector.

Step 1 is a 'top down' or strategic analysis to identify the institution's business competitors or peers. It is suggested that benchmarking an individual HEI's estate should be based on the principle that the estate supports the institution's business. This coincides with the idea developed in the Space Management Guidelines (Newcastle, 2002) that the target size and quality of the estate is governed by its mission and 'what the business can afford'. On the basis that the estate should be competitive with those of the business benchmark group, this provides a benchmark group of estates for comparison and for setting estate efficiency and effectiveness targets.

Step 2 is therefore to analyse the characteristics of the benchmark group of HEIs, their businesses, estates and use of space. To carry this out, the benchmark group would be compared on the basis of the PIs adopted by the HEI for the purpose. Where, for example, an HEI is keen to increase the quality, appeal and image of its buildings, to match its perception of the benchmark group, it would include PIs relating to the condition and functionality of floorspace.

Step 3 involves a complementary 'bottom up' or tactical approach, benchmarking by estate characteristics, measured by HEEMS. A benchmark group is selected on the basis of physical estate similarities rather than comparability of university business. Appendix C suggests ways in which this might be carried out. This process lacks a well-understood and validated method and work is needed to investigate the application of quantitative techniques for this purpose.

Figure 3: Benchmarking HEI estates on the basis of their business



Step 4 consists of reviewing the tactics used by HEIs in this benchmark group to achieve greater estate efficiency. The aim is to see how far these tactics could apply to the HEI in question and assist in improving the contribution of space to business objectives. Such tactics could include investment to both refurbish and reduce the space occupied by a faculty. Similarly the sale of a campus could pay for the refurbishment of buildings enabling a higher density of occupation, disabled access and lower running costs.

Step 5 brings together these two strands. In combination the top down and bottom up approaches can be used to arrive at targets for the estate to achieve; such targets might cover for example size, condition, consolidation and image. Based on comparison with HEIs with similar businesses (step 2), targets can be set designed to achieve improvements in space quantity, quality or cost within a certain time period. Thus, for example, an HEI may discover that its income per square metre is the lowest in its benchmark group, indicating an over provision of space; it may then set a target to dispose of or even demolish an amount of floorspace by a set date. Other estate targets can be adopted based on the experience of HEIs with similar estates (step 4). Thus, for example, the same HEI may discover that demands for more open access IT space can be resisted if all the study bedrooms are wired.

The benefits of more effective space management

Proposed report to Vice Chancellors

In order to encourage more interest in strategic space management, it is crucial that HEI top management is informed of the likely benefits and supports the approach. To increase their awareness, it would be desirable and possible at this stage to produce a brief report for Vice Chancellors and Finance Directors. This would quantify nationally, and with anonymous examples, the potential financial benefits that would flow from different rates of improvement in space efficiency. The analysis would be based on HEEMS and TR data. It should aim to raise the profile of the space issue, explain the proposals of the SMG to further develop space management and secure the support of the leaders of the sector.

An example of space management analysis

To provide an example of the type of material such a report might contain, an initial investigation was carried out.

The total non-residential income of each HEI[7] was divided by its total non-residential floorspace[8] arriving at a figure expressed in £s per square metre. All HEIs were ranked on this PI and divided into quartiles. The results were as follows, and are illustrated by Figure 4 and Figure 5.

- Highest value £2,970 per sq. m
- Highest value in the 3rd quartile £1,026 per sq. m
- Median £846 per sq. m
- Highest value in the 1st quartile £714 per sq. m
- Lowest value £226 per sq. m
- Standard deviation £392 per sq. m

[7](HEEMS data item D1,C13)

[8] (HEEMS data item D12,C13) The few HEIs that had either data set missing were excluded from the analysis.

Figure 4: The distribution of HEI non-residential income per square metre, for 145 HEIs, 1999-2000

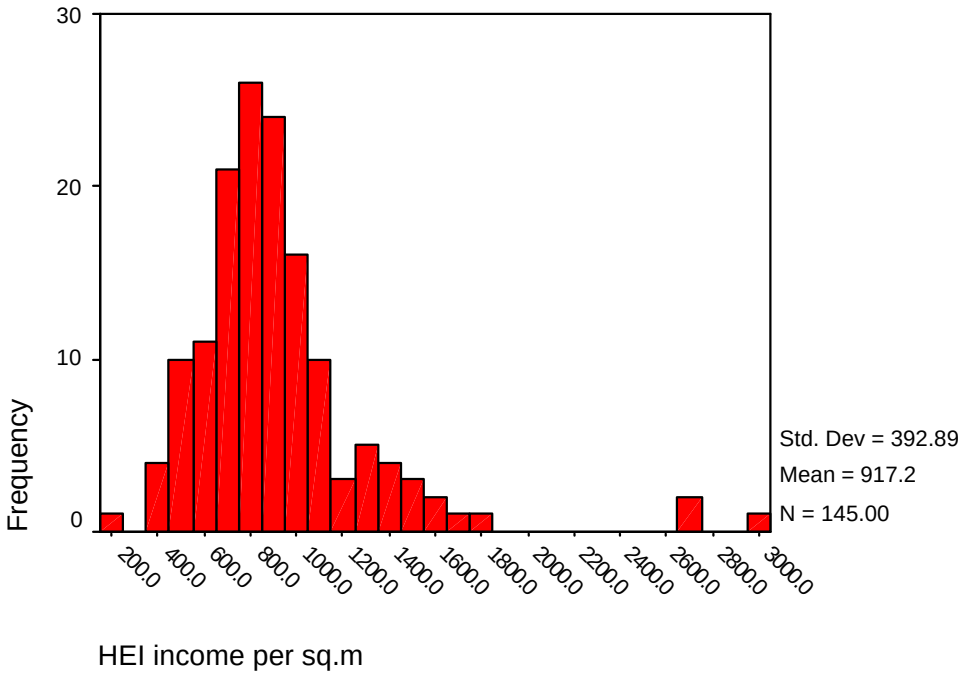
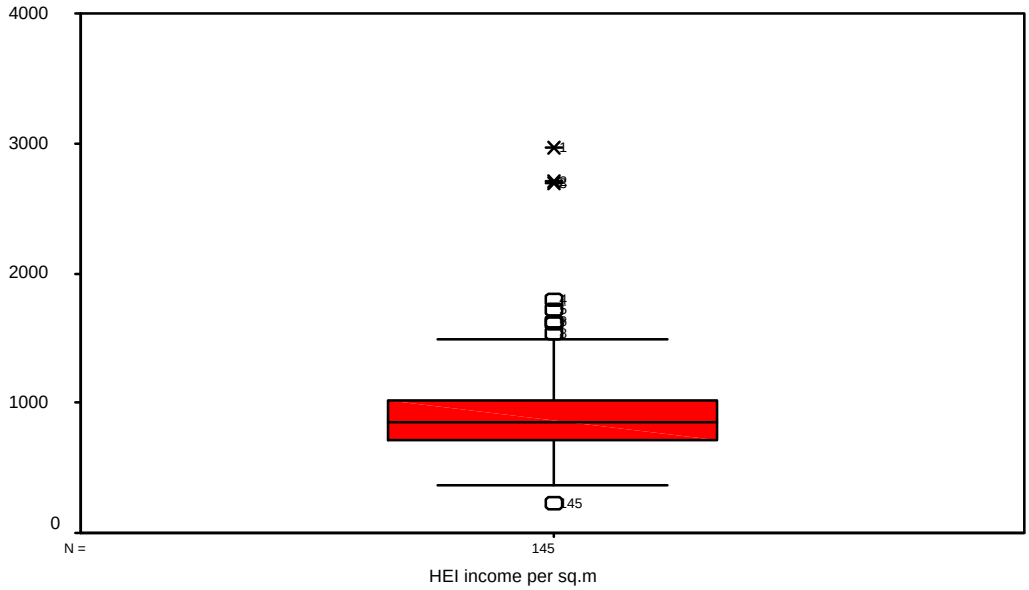


Figure 5: Boxplot showing the quartiles of HEI non-residential income per square metre, for 145 HEIs, 1999-2000



Th st
quartile probably could achieve space efficiencies.

For each HEI in the lowest quartile the necessary space reduction was calculated to increase their income/space PI to £714 per sq.m. (i.e. to move them to the current top of the lowest quartile).

This figure was then multiplied by each one's 'total non residential property costs' figure[9], to estimate the annual savings that would result. The outcomes of this analysis are:

for the 37 HEIs in the lowest quartile

- the income /space PI of each would rise to £714 per sq. m
- this would involve a total reduction of 323,261 sq.m. or 8,736 sq.m. per HEI;
- the reduction in total annual property cost would be £16.9m or £456,000 per HEI.

The drivers of the annual running costs of university estates

What is being spent annually on maintenance, repair, cleaning, insurance, energy etc. and what factors are most significantly linked to these costs? Are these costs, for example, clearly linked to the age and condition of the buildings and thus what savings could flow from refurbishment? These questions could be explored using factor analysis and multiple regression based on existing data sets. This is a clearly defined and relatively quick project, which it is recommended should be carried out in the short-term, and the headline results should be dissemination to Vice Chancellors as part of the report described in Section 0.

The impact of trends in higher education on space needs

What are the dominant business trends in UKHE? Such trends may include, for example, the numbers of students in full and part-time study, the distribution of subjects studied, the numbers of staff employed of different types, the use of open and distance learning etc. How are such trends most likely to impact on the requirement for HE space in the medium term? Trend analysis of HESA student and staff data could provide some information about these issues, but it is not clear how they translate into space requirements, especially since the space implications of issues such as on-line learning, and new methods of working in the HE context are little understood. It is therefore recommended that this research, although important, should be deferred to the medium term in favour of other projects that are more likely to produce significant short-term benefits.

Quantitative methods for benchmarking estates

Statistical and qualitative techniques have been developed for business benchmarking, as described in Appendix C. These have not as yet been applied to questions of space management. This is an important part of the overall strategic approach, and as such constitutes an important gap in practice. It is recommended that an exercise be undertaken to examine the practicality of applying these techniques and the benefits that might result.

Working with partners to develop ideas and best practice

It is important that space management techniques are developed hand in hand with its practitioners, the estates and other staff of HEIs. It otherwise runs the risk of failing to engage estates directors and HEI senior management in its application. An integrated programme is therefore proposed, designed to:

- further develop the ideas of strategic space management within UK HEIs,
- identify practical problems of improving space performance in real contexts,
- identify and refine best practice,

[9] HEEMS data item D26, C13

- disseminate information and provide training,
- develop the capacity of space managers to contribute to strategic decision making within HEIs.

The programme will include workshops, training, consultation with practitioners, surveys and reports; communications and publications should be managed via the HE Estates web site.

Preparation for workshops

The purpose of these workshops will be to engage Estates Directors or their senior staff with the process of strategic space management and the use of PIs based on business related data. It is proposed that a series of initial workshops should be held, offering the opportunity to benchmark a delegate's own estate. These would need to be carefully planned to ensure that the content was right and likely attendance was high. Attendance should be free to HEI delegates prepared to co-operate with a subsequent follow up survey.

Content of the workshops

- A demonstration of using HESA/ HEEMS data in benchmarking HEIs and HE estates. This should use the dedicated space-management CD-Rom recommended in Section 0.
- Lessons to learn from the Newcastle University case study
- Hands on training in benchmarking using data from HESA and HEEMS
- A benchmarking exercise for delegates own HEI using data from HESA and HEEMS
- Identifying potential improvements to space management within each delegate's HEI.
- Estimating a target estate size for each delegate's HEI.
- Quantifying potential financial benefits to HEIs.
- Feedback from delegates on their experience of using data to develop a strategic view.

Follow up after the workshops

- The results of the workshops would be collated and circulated to delegates.
- A list of survey issues would be circulated to delegates.
- Delegates would have time to reflect on the issues and discuss them with colleagues.
- A telephone survey would collect their views of the issues.
- The results of the survey would be analysed and a summary circulated, with recommendations for best practice and subjects needing further development .
- Consideration would be given to the possibility of holding another workshop at this stage.

Pathfinder projects

- Following the workshops, bids would be invited for managing a series of pathfinder projects and producing a coordinated report identifying the most significant developments in space management techniques and practice.
- Bids would be invited from HEIs for pathfinder projects designed to apply strategic space management to an HEI and develop or refine SM techniques.
- Such projects might include, for example, how to select benchmark estates using HESA/HEEMS data, the use of benchmarks internally within an HEI; or justifying a proposed 'research hotel' via an analysis of space used by research students across an HEI.
- Pathfinder projects would be selected and funding awarded on the basis of explicit criteria, and would be subject to monitoring, milestones, and time-limited reporting.

- The report on the projects would be published and seminars held to disseminate the lessons learned.

The programme would be evaluated and the need for further work assessed.

REFERENCES

HE Estate Management Statistics (2001) EMS Data Definitions February 2001

HEFCE (2001) Estates Management Statistics Project Annual Report 2001.

IPD Occupiers Property Databank GVA Grimley Estates Management Statistics Project Report 99/18 (www.hefce.ac.uk)

JCPSG (2000) The Transparent Approach to Costing: Volume II Reference Manual, JCPSG July 2000.

Websites:
www.aude.ac.uk
www.elwa.ac.uk
www.heestates.co.uk
www.hesa.ac.uk
www.hefce.ac.uk
www.jcpsg.ac.uk
www.opdems.ac.uk
www.opd.co.uk
www.shefc.ac.uk
www.scop.ac.uk

Appendix A: HE Estate Management Statistics data requirements December 2001

Ref	Specific Data Focus	C1.	C2.	C3.	C4.	C5.	C6.	C7.	C8.	C9.	C10.	C11.	C12.	C13.	C14.
		Total HEI	Teaching			Research			Support			Vacant non-residential	Other	Total non-residential	Residential
			Offices	Other	Total	Offices	Other	Total	Offices	Other	Total				
D1.	HEI Income	4H			4H			4H					4H	4H	4
D2.	HEI Expenditure	4H												4	4
D3.	Student headcount	4H			4H			4H							
D4.	Student FTE	4H			4H			4H							
D5.	FTE staff	4			4*			4*	4	4	4		4	4	4
D6.	Number of sites													4	
D7.	Number of buildings	4												4	4
D8.	Site area													4	
D9.	Grounds area	4													
D10.	Playing fields area	4													
D11.	Gross internal area	4												4	4
D12.	Net internal area (or D13)	4	4	4	4	4	4	4	4	4	4	4	4	4	4
D13.	Room area (or D12)	4	4	4	4	4	4	4	4	4	4	4	4	4	4
D14.	Specialist academic area			4			4								
D15.	Area Cleaned													4	
D16.	Frequency rate			4											
D17.	Frequency rate coverage			4											
D18.	Occupancy rate			4											4
D19.	Tenure													4	4
D20a	Building condition													4	4
D20b	Building condition: cost to upgrade													4	4
D21.	Functional suitability													4	4
D22.	Date of construction													4	4
D23.	Number of bedspaces														4
D24.	Insurance replacement value	4												4	4
D25.	Capital expenditure on estates	4H												4H	4H
D26.	Total property costs	4			4			4			4	4	4	4	4
D27.	Rateable value													4	
D28.	Rates paid													4	
D29.	Insurance premium	4												4	4
D30.	Service charge (net)	4												4	4
D31.	Energy costs	4												4	4
D32.	Water & sewerage costs	4												4	4
D33.	Total maintenance/repair costs	4												4	4
D34.	Cleaning costs	4												4	4
D35.	Internal property management cost	4												4	4
D36.	Externally provided property management costs	4												4	4
D37.	Property management staffing	4													
D38.	a) Energy consumption b) Water consumption	4 4												4 4	4 4
D39a	Current cost of legislative compliance	4												4	4

Ref	Specific Data Focus	C1.	C2.	C3.	C4.	C5.	C6.	C7.	C8.	C9.	C10.	C11.	C12.	C13.	C14.
		Total HEI	Teaching			Research			Support			Vacant non-residential	Other	Total non-residential	Residential
			Offices	Other	Total	Offices	Other	Total	Offices	Other	Total				
D40.	Method of staff apportionment														
D41.	Method of space apportionment	4													
D42.	Method of costs apportionment	4													
D43.	Space charging system													4	
D44.	Central timetabling %			4											
D45.	Frequency rate calculation			4											
D46.	Occupancy rate calculation			4											
D47.	Assessment of building condition	4												4	4
D60.	Total facilities costs	4												4	4
D61.	Security and porterage costs	4												4	4
D62.	Central post room and internal distribution services costs	4												4	4
D63.	Transport costs	4												4	4

** *Items D5/C4 and D5/C7 are being collected together this year as a single total for all academic staff. It is likely that the distinction between teaching and research staff will be reintroduced at a later date, through the development of HESA returns and the work of the Joint Cost and Pricing Steering Group.*

H *These items use data drawn directly from HESA*

Source HE Estate Management Statistics (2001) EMS Data Definitions December 2001

Appendix B: Staff, space and cost apportionment issues

The following are the December 2001 EMS data definitions guidance on apportionment of these three data items.
Staff apportionment was not attempted for the last 2 years. The availability of 2 methods of apportioning space and 3 of apportioning cost, could lead to non-comparability of figures from individual HEIs.

The number of HEIs using each method, in the 2001HEEMS Report (HEFCE, 2001), is shown in brackets alongside each alternative.

Definition D40 Method of staff apportionment

Temporarily withdrawn

Definition D41 Method of space apportionment

There are various methods of calculating space allocation. Specify which of the approaches set out below is closest to the one you have used. It would be preferable if the time use basis could be used if possible.

T allocation on the basis of the **time use** of individual rooms.

(50 HEIs)

P allocation on the basis of the **predominant use** of individual rooms.

(79 HEIs)

(26 HEIs do not apportion)

Definition D42 Method of cost apportionment

There are various methods of calculating costs. Specify which of the approaches set out below is closest to the one you have used.

B Working from building-specific data and combining this with space use information. This should approximate to the most accurate data possible.

(28 HEIs)

S Working from site-specific data and combining this with space use information. This will be more accurate than E but less accurate than B.

(28 HEIs)

E Taking the total costs for the whole **estate**, allocating an overall costs per square metre.

(77 HEIs)

(32 HEIs do not apportion)

Appendix C: Methods of benchmarking

There are many different ways of creating benchmark groups of HEIs against which any particular institution can compare its business or its estate. Approaches can be intuitive or analytic, quantitative or qualitative. It is possible to select several benchmark groups and use them for different purposes or as checks on one another. There is a fundamental choice between benchmarking with comparable HEIs, or HEIs that are dissimilar but represent aspirations. Some approaches are outlined below. In practice, several benchmark groups may be used , arrived at by different methods.

a) Quantitative approaches to business benchmarking

These should ideally be based on the three elements of University business: Teaching, Research and Other, as defined for the Transparency Review. The data sets shown in **Error! Reference source not found.** can be used to represent the strands of the business. Appendix D shows the publications offered by HESA, which support this business benchmarking process.

Table 6 HESA data sets for use in benchmarking HEIs by their business.

TEACHING	RESEARCH	OTHER
Student FTEs in 19 subjects of study	Income for 55 cost centres and 8 sources.	HEMS % income from other services rendered to total income
Student FTEs by Institution and Cost Centre for 41 cost centres	Income from 8 groups of sources	HEMS % ratio of residences & catering income to total income
Student FTEs in 162 disciplines	HEMS market share data	HEMS % ratio of miscellaneous income to total income
Income from 4 funding categories		

All UCAS courses are coded by subject of academic study. These codes are grouped together by topic into 170 subject lines, which are then aggregated into 21 broad subject groups. UCAS offers a benchmarking service to HEIs, based on subjects.
The comparison techniques available include cluster analysis and the ‘least squares of differences’ approach.

Cluster analysis.
This statistical technique would identify groups of HEIs where the variables (e.g. student numbers by subject, research income by cost centre) are closely correlated, with members of the group, but have a low correlation with HEIs outside the group. It would not be feasible to apply to all 169 taught disciplines and 55

research cost centres, but would be applied to larger subdivisions of each data set. It is however probable that some HEIs would 'float' with no clearly identifiable group membership.

Least squares
This approach is used by UCAS to compare applications from different universities. It pairs up the HEI with any other and calculates the difference between FTEs in each discipline, giving for instance +10 for physics FTE, -22 for chemistry FTE. The numbers for all disciplines are then squared and added to give a total for each other HEI. The one with the lowest 'score' is most similar and a set of HEIs with similar 'business' can be selected by their scores. The approach can be expressed by:

$$\text{Score} = ? \ (x_i - y_i)^2$$

where x_i = the percentage or number of student FTEs in each category at the subject HEI
y_i = the percentage or number of student FTEs in each category at the comparator HEI

This method is in use for benchmarking by HESA FTEs, but judgement would need to be exercised in weighting the scores based on T, R and O data.

Comparison with the sector average
This can use any of the datasets describing the elements of the business. It is easy to calculate and to understand. However, it ignores the diversity of the sector.

b) Qualitative approaches to business benchmarking

The UCAS website, www.ucas.ac.uk suggests qualitative ways of selecting a benchmark group:

> you may wish to employ the HEFCs' performance indicator groups, include those institutions which applicants to your institution also apply to, or specify institutions with a similar profile to your own or those located within a region or defined geographical area.

Comparison with the sector leader
Other HEIs can be judged to be the sector leaders in either the whole sector or the 'market segment' perceived most relevant. This might for instance consist of large urban ex-Polytechnics' or the 'Russell Group'. Such comparison is clear and exact, but the selection of a market sector and its components is subjective and criteria need to be identified to select the sector leader. These elements of subjectivity detract from the usefulness of such groupings.

Comparison with similar institutions
Similarity may be based on geography (similar population centre or proximity), history or perceived student profile and type of provision. This may be subjective unless some quantitative method is used and may ignore important but unconsidered factors.

Benchmarking estates.

There are very many factors which could be used for estate benchmarking: estate size, number and location of campuses, age of buildings, condition of buildings, total property costs and more. Although HEEMS provides a wealth of data for this purpose, techniques have not been developed for using it systematically to choose benchmark groups.

Most of the quantitative techniques used for benchmarking HEIs' businesses could be applied to the available quantitative data describing estates, i.e. HEEMS and the Transparency Review figures, although the latter are not currently available for this type of comparison. This exercise is recommended in Section 0.

Appendix D: Publications by HESA

Students in Higher Education Institutions: List of Tables

Table 0a	All Students by Institution, Mode of Study, Level of Study, Gender and Domicile
Table 0b	All Students FTE by Institution and Level of Study
Table 1a	Full-time Undergraduates by Qualification Aim, Domicile, Subject Area, Location of Institution and Gender
Table1b	First Year Full-time Undergraduates by Qualification Aim, Domicile, Age Group, Subject Area, Location of Institution and Gender
Table 1c	Full-time Postgraduates by Qualification Aim, Domicile, Subject Area, Location of Institution and Gender
Table 1d	First Year Full-time Postgraduates by Qualification Aim, Domicile, Age Group, Subject Area, Location of Institution and Gender
Table 1e	Part-time Undergraduates by Qualification Aim, Domicile, Subject Area, Location of Institution and Gender
Table 1f	First Year Part-time Undergraduates by Qualification Aim, Domicile, Age Group, Subject Area, Location of Institution and Gender
Table 1g	Part-time Postgraduates by Qualification Aim, Domicile, Subject Area, Location of Institution and Gender
Table 1h	First Year Part-time Postgraduates by Qualification Aim, Domicile, Age Group, Subject Area, Location of Institution and Gender
Table 2a	Full-time Undergraduates by Subject of Study, Domicile and Gender
Table 2b	Full-time Postgraduates by Subject of Study, Domicile and Gender
Table 2c	Part-time Undergraduates by Subject of Study, Domicile and Gender
Table 2d	Part-time Postgraduates by Subject of Study, Domicile and Gender
Table 2e	All HE Students by Subject of Study, Domicile and Gender
Table 3a	First Year Full-time First Degree Students by Subject of Study, Age and Expected Length of Programme
Table 3b	First Year Full-time Other Undergraduate Students by Subject of Study, Age and Expected Length of Programme
Table 4a	First Year Full-time UK Domiciled First Degree Students by Subject of Study and Highest Qualification on Entry
Table 4b	First Year Full-time UK Domiciled Other Undergraduate Students by Subject of Study and Highest Qualification on Entry
Table 4c	First Year Part-time UK Domiciled First Degree Students by Subject of Study and Highest Qualification on Entry
Table 4d	First Year Part-time UK Domiciled Other Undergraduate Students by Subject of Study and Highest Qualification on

Entry
Table 5a Full-time UK Domiciled Students by Domicile, Location of Institution and Level of Study
Table 5b Part-time UK Domiciled Students by Domicile, Location of Institution and Level of Study
Table 6 Overseas Domiciled Students by Domicile, Location of Institution and Level of Study
Table 7 Undergraduate Sandwich Course Students by Subject of Study, Level of Study and Gender
Table 8a Full-time Undergraduates by Institution and Subject Area
Table 8b Full-time Postgraduates (Research) by Institution and Subject Area
Table 8c Full-time Postgraduates (Taught) by Institution and Subject Area
Table 8d Part-time Undergraduates by Institution and Subject Area
Table 8e Part-time Postgraduates (Research) by Institution and Subject Area
Table 8f Part-time Postgraduates (Taught) by Institution and Subject Area
Table 8g All HE Students by Institution and Subject Area
Table 9a Full-time and Part-time Undergraduates at each Institution
Table 9b Full-time and Part-time Postgraduates at each Institution
Table 10a First Year UK Domiciled HE Students by Level of Study, Mode of Study, Gender and Ethnicity
Table 10b UK Domiciled HE Students by Level of Study, Mode of Study, Gender and Ethnicity
Table 11a First Year UK Domiciled HE Students by Level of Study, Mode of Study, Gender and Disability
Table 11b UK Domiciled HE Students by Level of Study, Mode of Study, Gender and Disability
Table 12 HE Qualifications Obtained at each Institution
Table 13 Subject of HE Qualifications Obtained
Table 14a HE Qualifications Obtained in the UK by Mode of Study, Domicile, Gender and Subject Area
Table 14b HE Qualifications Obtained in England by Mode of Study, Domicile, Gender and Subject Area
Table 14c HE Qualifications Obtained in Wales by Mode of Study, Domicile, Gender and Subject Area
Table 14d HE Qualifications Obtained in Scotland by Mode of Study, Domicile, Gender and Subject Area
Table 14e HE Qualifications Obtained in Northern Ireland by Mode of Study, Domicile, Gender and Subject Area
Table 15a Qualifications Obtained - Higher Degrees by Subject Area at each Institution
Table 15b Qualifications Obtained - Other Postgraduate Qualifications by Subject Area at each Institution
Table 15c Qualifications Obtained - First Degrees by Subject Area at each Institution
Table 15d Qualifications Obtained - Other Undergraduate Qualifications by Subject Area at each Institution
Table 15e All Qualifications Obtained by Subject Area at each Institution

Resources of Higher Education Institutions: List of Tables

Finance Tables

Table 1	Income Received by each Institution by Source
Table 2	Income of each Institution from Funding Council Grants, Tuition Fees and Education contracts
Table 3	Income of each Institution from Research Grants and Contracts and for Other Services Rendered
Table 4	Income of each Institution from Other General Income and Endowment and Investment Income
Table 5	Total Income and Expenditure by Source of Income and Category of Expenditure 1998/99 - 1999/2000
Table 6	Expenditure of each Institution by Activity
Table 7	Staff Costs of each Institution by Activity
Table 8	Other Operating Costs of each Institution by Activity
Table 9	Academic Departmental Cost Centres' Expenditure of each Institution
Table 10	Academic Services and Administration and Central Services Expenditure of each Institution
Table 11	Research Grants and Contracts Expenditure of each Institution

Staff Tables

Table 12	Summaries of Academic Staff Numbers for all UK Institutions by Principal Source of Salary and Mode of Employment
Table 13	Academic Staff of all UK Institutions by Gender, Clinical Status, Grade, Principal Source of Salary, Mode of Employment and Primary Employment Function
Table 14	Sources of Finance of Academic Staff of all UK Institutions by Gender, Grade and Mode of Employment
Table 15	Full-time and Part-time Academic Staff by Location of Institution, Principal Source of Salary, Clinical Status and Primary Employment Function
Table 16	Full-time Academic Staff by Departmental Group, Grade, Primary Employment Function and Gender
Table 17	Full-time Non-clinical Wholly Institutionally Financed Staff by Departmental Group, Grade and Age
Table 18a	Full-time Academic Staff by Cost Centre, Principal Source of Finance, Grade and Gender
Table 18b	Full-time Academic Staff by Cost Centre, Age and Principal Source of Salary
Table 19a	Summaries of Full-time Academic Staff in all UK Institutions by Clinical Status, Primary Employment Function and Principal Source of Salary
Table 19b	Summaries of Academic Staff in all UK Institutions by Age, Gender and Mode of Employment
Table 20a	Inflow and Outflow of Full-time Wholly Institutionally Financed Academic Staff by Clinical Status, Employment in Previous

	Year, Destination, Grade and Primary Employment Function
Table 20b	Inflow and Outflow of Full-time Wholly Institutionally Financed Academic Staff by Clinical Status, Age, Grade and Primary Employment Function
Table 21	Academic Staff of UK Nationality by Mode of Employment, Primary Employment Function, Gender and Ethnicity
Table 22	Academic Staff of UK Nationality by Mode of Employment, Primary Employment Function, Gender and Disability Status

Other HESA Publications

First Destinations of Students Leaving Higher Education Institutions

Contains data on the destinations of graduates and includes employment rates and institution level data.
Higher Education Statistics for the UK

Presents an overview of HE from a statistical perspective and includes data on applications, participation, finance, staffing, student awards and student loans.
Statistics Focus

Contains more in-depth analysis and commentary than other HESA publications. Each issue provides a number of informative articles written from a quantitative point of view and so compliments other HESA products.
Insight - A Statistical Guide to Undergraduate Study

Aimed at potential students, this publication provides factual and unbiased information about universities and colleges in the UK.
Higher Education Management Statistics - Sector Level

This publication includes data on applications & admissions, participation in HE, student population and qualifications obtained. Also included are destinations of graduates data, impact on population information and data on the funding of HEIs in the UK.
Higher Education Management Statistics - Institution Level

This publication contains sections on financial profiles, unit expenditure, research statistics, student population profiles, first destinations and a section containing UCAS data.
HE Finance Plus

Contains the entire finance statistics returns of almost all publicly-funded HEIs in the UK and includes detailed income and expenditure information and balance sheet details.
HE Planning Plus

Contains data relating to students, staff, finance and non-credit-bearing courses.
Research Data-packs

This range of publications provides vast tabulations concentrating on particular aspects of HE. They are aimed at academic or policy researchers.

Source: www.hesa.ac.uk