

Good practice in space management and the potential financial benefits

An analysis of space utilisation levels has been undertaken at the University of Wales, Swansea. The study included a major review of space management policies and procedures. The co-operation and support of the University and the sponsorship of the project by the funding body has resulted in a set of findings and recommendations that are of benefit to all academic staff and students in the higher education sector. They have been issued as a good practice note by the funding councils and this report highlights some of the key findings of relevance to universities and colleges.

1. Introduction

1.1 Space costs represent a major expenditure, generally second only to the salary budget of colleges and universities. The effective use of space resources is essential if the financial viability of institutions is to be ensured.

1.1.1 Benefits that stem from the efficient use of accommodation include the:

- provision of high-quality accommodation appropriate to the current requirements of lecturers, researchers and students;
- application of modern construction techniques and specifications that reduce building maintenance and operating costs;
- commissioning of contemporary building designs able to promote images of dynamic institutions in an increasingly competitive market place;
- making available maximum funding to support staffing levels, salaries and the updating of specialist teaching and research facilities;
- releasing land and buildings that may be sold in order to generate an additional income stream.

This paper offers practical guidance for those seeking to realise the benefits of using space resources efficiently.

1.1.2 The review:

- identifies five key priorities that can assist the cost effective use of accommodation;
- offers seven strategies of proven relevance that support effective space management policies and procedures;
- recommends an approach to support the preparation and implementation of an “action plan for change”;



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- describes the calculation of target space efficiency levels based on the need to balance space costs and space income;
- outlines the capturing of space requirements using a tested and successful curriculum-based approach;
- outlines the use of a modelling approach for evaluating possible estate scenarios which takes into account existing timetabling constraints, future space efficiency levels and cost benefits.

Space requirements are the product of course delivery methods and research requirements. The active involvement of academic staff is essential to improve space management. This document aims to assist the discussion of estate planning. A wider recognition is required of the contribution made by estates in ensuring the financial wellbeing of colleges and universities. The operation of campuses as dynamic and responsive centres of learning and research should be reviewed.

2. The challenge

Why is space management important?

The annual cost of space in the higher education sector averages over £200 per square metre of the gross internal area.

Space costs are significant for a number of reasons:

- 2.1 revenue-generating space generally represents less than half the gross internal area of an institution;
- 2.2 space utilisation levels associated with teaching accommodation remain low in many universities and colleges. Space efficiency levels based on space utilisation levels of less than 20% are not uncommon. The cost implications of such low efficiency levels are considerable. The following paragraph illustrates the implications.

2.3 Cost implications of low utilisation

An annual space cost of £200 per square metre of the gross internal area can represent a substantial overhead cost. If it is assumed 50% of the gross internal area is revenue-generating space and space costs are loaded onto this element of the estate, the annual cost is doubled to £400 per square metre. An average workplace area of 4 square metres represents space costs of £1600. At a space utilisation level of 20% the required income per used workplace is £8000 a year. This cost excludes furnishings, equipment, consumables and the salaries of lecturers and researchers.

The calculation of space costs raises the questions of why space use has not improved more substantially over the last decade. A number of reasons can be identified:

- 2.3.1 Space utilisation surveys are considered by some staff to be of limited relevance to the planning of estates. Justifications for this view vary. The surveys generally measure the use of only teaching and learning accommodation.

- 2.3.2 Traditionally the calculation of room frequency and seat occupancy rates assume a peak working week. The sample week may not represent the work patterns of a teaching year. The impact of student wastage and absence rates on space utilisation surveys are usually ignored. The result is that in some colleges and universities a space utilisation survey has not been undertaken for many years.
- 2.3.3 Timetable data has often been used instead of space utilisation data as a basis for space planning. Timetabling is a predictive activity. Academic staff should, and do, overestimate group sizes and required room hours, assuming the attainment of enrolment targets. Once in place there is little incentive or resources available to update timetables and to ensure data is accurate and consistent. The use of timetable data overestimates space utilisation levels and future space requirements.
- 2.3.4 A variety of management strategies have been introduced to support the use of teaching and research accommodation. These include the use of centralised or distributed timetabling systems and space charging. The claimed benefits of such strategies have often not been achieved because the techniques have not been tailored to the needs of the institution and the objectives of the exercise.
- 2.3.5 The creation and maintenance of a database detailing the age, layout, type of activities and condition of the estate is often not considered to be a sufficiently high priority to justify the resources required. It has frequently not been possible to compare quality of accommodation with space utilisation levels and this has hampered the targeted improvement of an estate.
- 2.3.6 The estates themselves may be of poor quality and designed for outdated teaching and research requirements. Changes in patterns of student enrolment and course delivery methods can conflict with an existing room profile.
- 2.3.7 The most fundamental reason constraining space efficiency, however, is the limited involvement or engagement of the academic community in the process – especially in terms of representing their curriculum-based need for space. This is largely because they often do not consider the designing of courses for a given price or the management of physical resources to be part of their remit.

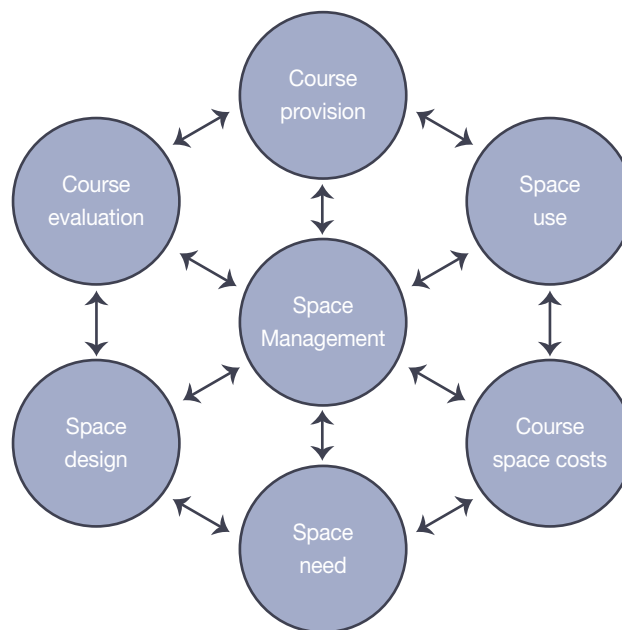
This note discusses how you can achieve improvements in space use and space management can be achieved.

3. What are the challenges?

The effective management of space is an integral part of a strategy designed to produce a responsive and successful centre of learning and research. The following diagram illustrates some of the links between the use of space resources and the wider aspects of strategic planning in colleges and universities.

3.1 Context for space management

The following diagram suggests some of the relationships influenced by the use of physical resources.



3.2 Course provision

A key requirement is that space is recognised as a curriculum issue rather than simply an estate matter. Various techniques and approaches have been used by estates and senior management to improve space use, such as room booking systems and the creation of pooled space. Unless academics view space as an integral part of curriculum planning and delivery and take an active role in managing accommodation, then improvements in the use of space will be limited.

The importance of active academic engagement cannot be overstated. In terms of teaching delivery, for example, the key questions facing academics are what, how and where to teach. Responses to each of these questions have implications for space utilisation levels and course costs.

Decisions by staff concerning when accommodation is required are clearly driven by staff availability, attitudes, expectations and established work patterns. The concentration of demand for space into a selectively small part of the total teaching week has a major impact on space utilisation levels and associated costs.

The teaching methods selected by staff reflect judgements concerning the type of approach most appropriate to the abilities of students, the course content and the objectives of a study programme. A simple example illustrates the possible implications of chosen course delivery systems for the use of space resources. An academic decision to hold two classes of 25 students using an investigative approach requires different space resources from a single formal lecture for 50 students exploring the same subject matter. Decisions concerning delivery systems need to take into account not only a consideration of student abilities, course objectives and the subject matter but the use of resources to ensure the financial viability of courses.

Improving the use of space resources should not in any way challenge the core professional responsibilities and expertise of academic staff. It is essential, however, that resource costs should be taken into account in planning course programmes. Courses must be both educationally and financially viable, particularly when public funding does not match demand.

3.3 Space use

Space utilisation surveys are the primary means of assessing how intensively and cost effectively an estate is used. Space utilisation surveys represent a very powerful means of identifying possible improvements in space efficiency and defining opportunities to enhance timetabling strategies and procedures.

New techniques enable a range of factors, including student absence, to be incorporated into the analysis of space utilisation. Space modelling based on the survey data can take into account a range of constraints and generates room profiles associated with predicted space efficiency levels. The use of modelled room profiles can assist the specifications of new and renovated buildings. Stellae has developed and uses a unique space modelling system to develop the effective estates of universities and colleges.

3.4 Course space costs

The target space efficiency level may be based on the need for space costs to be balanced against space income. This process, which relates space utilisation levels to financial viability, provides an objective basis for identifying space requirements without referring to standard space norms or a standard teaching year. It has been successfully applied in a range of institutions. The linking of space utilisation to required workplace income has an additional benefit in that academic staff recognise the relationship between space costs, course costs and the financial viability of study programmes.

3.5 Space needs

Buildings can be designed or adapted to be flexible and meet the needs of users more appropriately. This in turn can reduce maintenance and operating costs. An effective means of identifying these real needs is through a formal space need assessment process. The approach tested when developing this paper involved capturing the curriculum needs of users and translating them into space requirements. This approach is highly effective at identifying mismatches in space provision, and in establishing a means by which matters can be resolved. This approach has been used with considerable success in a variety of institutions.

4. How can the cost-effective use of space be promoted?

The following issues represent five key priorities that will promote the effective use of space.

4.1 Leadership

The effective management of an estate needs to be recognised as a mission-critical task. It is appropriate that the individual responsible for leading and co-ordinating the development of the estate is a member of the senior executive, supported by an appropriate management structure and timetabling unit. The efficient use of space should be generally recognised as an important priority. Policy guidance notes should be available to all staff and recognised as relevant to the design and revision of course programmes.

4.2 Information

Comprehensive, reliable, accurate, up-to-date and accessible information is essential for efficient space management. Resources should be available to support the recording all aspects of an estate, including the regular monitoring of space utilisation, space costs and future accommodation needs.

4.3 Management techniques

Policies and procedures of proven effectiveness that support the efficient use of space need to be identified, adopted and promoted throughout institutions. Management processes need to be regularly reviewed. Space charging for example, must be set at a level consistent with required income that takes into account space utilisation levels. Other techniques that can be evaluated in the context of an individual institution include space allocations, space needs assessments, financial space utilisation levels and timetabling procedures.

4.4 Design

Plan and adapt space to meet current and future needs. The monitoring and modelling of space requirements is essential in formulating and evaluating possible estate developments. The cost of replicating facilities suggest how the investigation of immediate practical issues can form the basis for agreed policies and procedures. The results of an appropriate space needs assessment exercise can have major financial benefits for an institution.

4.5 Innovation

Long-term, co-ordinated and flexible estate strategies should be formulated rather than relying on reactive, short-term approaches to space planning defined at the local or departmental level. An effective, dynamic and integrated strategic plan helps to ensure the responsiveness of the institution to such factors as changing enrolment patterns and course delivery methods. A well conducted space needs assessment should capture these changing demands.

5. Strategies to promote effective space management

The seven strategies associated with successful space management supporting the above priorities, are summarised below:

- 5.1 Form a clear vision of the needs and priorities of the institution, and identify a leader of appropriate status and foresight to be responsible for progress. Space planning programmes should be supported by a space management committee and appropriate resources.
- 5.2 Adopt a proactive approach to space management. This requires that all academic staff fully understand the benefits to be gained from effective space management.
- 5.3 Coordinate databases, committee structures and lines of communication. There are a series of immediate measures that can usually be put in place. Make sure the base data is in place and can be accurately updated.
- 5.4 Identify current and future space needs on a proactive rather than a reactive basis. This needs to be a 'bottom-up' approach based on information derived from student, module and course record data.
- 5.5 Review timetabling procedures to ensure that a fully co-ordinated approach supports the use of all accommodation and is compatible with the needs of all staff and students.
- 5.6 Establish the total size of the estate that is appropriate for the needs of the institution. This does not mean that there should be no new building activity or re-modelling and refurbishment work, but the overall aim should be to reduce the amount of space to a level compatible with the long-term educational and financial interests of the institution.

Space utilisation surveys often reveal an efficiency level of less than 25%. Such levels represent a substantial increase in course costs and a significant reduction in teaching preparation time and research resources.

- 5.7 An action plan for improving space management should be prepared and include a target space utilisation rate to generate specified financial benefits over an agreed timescale.

Improvements in space management and space utilisation are not simply based on introducing the 'mechanics' or 'tools' to achieve change. They require academic staff to view space as an educational issue rather than simply an estates or support service.

Institutions need to see improvements in space management as an opportunity, not a threat. A smaller and better-designed estate, better matched to users' needs, can considerably enhance the success of an institution, both in terms of student achievement and research activities.