

# Providing Multimedia Lecture Room Services

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## Introduction

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The Dearing Report stated:

*for the majority of students, over the next ten years the delivery of some course materials and much of the organisation and communication of course arrangements will be conducted by computer*

As this change comes about, staff in higher education will be increasingly involved in the purchase, maintenance and use of multimedia presentation equipment. To address some of the issues that this involvement will raise, a workshop was held on 28<sup>th</sup> April 1997 to discuss 'Managing, Delivering and Supporting Lecture Room Services for the Multimedia Age'. The workshop was attended by 67 people from 49 institutions, and its recommendations form the basis of this document. They are divided into three sections:

- Planning - funding, designing and equipping modern lecture rooms and theatres
- Equipment - choosing and maintaining multimedia presentation equipment
- Support and training- effectively supporting multimedia classrooms and those using them.

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## Planning

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### Costs

There are a number of different costs associated with multimedia lecture theatres, falling into three main categories:

- Capital - theatre construction/remodelling and presentation equipment installation
- Operating - ongoing costs including maintenance and support
- Recurring - replacing or upgrading equipment.

### Capital Costs

Capital costs cover classroom and lecture theatre design, construction and, more generally, remodelling and renovation. The costs of integrating multimedia technology into lecture theatres can be significantly reduced if provision is made for the technology whenever building work is planned. Even if such equipment will not be installed immediately, laying cables, network connections, sufficient power points etc., can all be done whenever a building is being refurbished, at a fraction of the cost of installing them separately.

### Operating & Recurring Costs

Although capital costs may be very large, it is often easier to obtain this initial funding than the ongoing maintenance and support costs. However, these costs must be met if the technology is to be effectively used.

Annual operating costs, which include equipment servicing and maintenance, are usually estimated at around 10% of the initial system cost. As more equipment is put into place, the budget needed for AV systems replacement/upgrade will need to increase significantly. This budget should include provision for day to day operating costs, such as replacing LCD projector bulbs, which can cost up to £400. When maintenance contracts are agreed,

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details of response time and availability of replacement equipment need to be clearly stated. Apart from simple problems such as a faulty bulb, it is unlikely that LCD projectors and similar equipment will be repaired on site. Therefore it is important that maintenance contracts include the immediate provision of replacement equipment while the original unit is being fixed.

In addition, the cost of providing a trained technician to support the equipment on a day to day basis must be considered. Moving and installing portable equipment, routine maintenance and troubleshooting and providing technical support for LCD projectors and associated equipment, all require skilled labour.

Recurring costs cover replacing and upgrading equipment. Multimedia presentation equipment has advanced considerably over the previous twelve months, and new technologies, such as Digital Light Processor projectors, are likely to emerge over the next twelve months. It is important when purchasing new equipment that it will last both in terms of durability and technology, and that replacement parts will still be easily available in the foreseeable future.

Given the pace that the technology is changing, leasing rather than buying should also be considered, allowing sites to upgrade equipment more frequently.

## Design

LCD projectors are the most likely piece of equipment to be used to give multimedia presentations. They have different requirements of a lecture theatre than the overhead and slide projectors which theatres are currently set up for. In particular, the projector needs to be relatively close to the screen, and so may block students' line of sight, and it should project at 90 degrees to the surface of the screen to minimise distortion. It is important that whenever new buildings are designed or old ones refurbished computing and AV staff are involved from an early stage to address these issues and discuss their requirements with Estates departments.

As more equipment is installed, security issues become increasingly important. Risks associated with each room should be assessed and appropriate action, such as secure housing for equipment, taken.

## Recommendations

Sites should be encouraged to put in place appropriate wiring as theatres are upgraded, even if the presentation equipment is not yet available. It is very important that in doing this Estates departments liaise with computing and AV staff.

It is difficult to plan for periods of equipment stability much beyond 3 years. In light of this one possible model of funding is to lease equipment.

Sites should have a plan for equipment security.

To enable funding cases to be written successfully, procedures need to be put in place in institutions to measure cost benefit. Case studies of good practice and examples of business plans could be very usefully exchanged.

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# Equipment

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Although sites should consider developing strategies for fully equipping all teaching rooms for multimedia delivery, this will obviously take some time. While rooms are being equipped, lecturers must be fully aware of what facilities are available in which rooms. Inconsistent provision is a problem regarding timetabling, and affects the confidence of lecturers in feeling able to guarantee equipment availability. If lecturers are unsure of what equipment is available they will design their lectures around the lowest common denominator, e.g., 35mm slides or overhead projectors.

A database of all classrooms and their equipment will allow better utilization of facilities, and the process of timetabling should reflect which classes require multimedia technology. This will, of course, only be effective if all departments also specify what courses need multimedia rooms. When booking rooms, a single service should be available allowing the whole range of facilities (rooms, computers and AV equipment) to be booked in a single step. Providing rooms with network connections etc., is not sufficient if all the LCD projectors are in use elsewhere.

The uses of portable equipment may provide a pragmatic short-to-medium term strategy for some rooms. A 'multimedia trolley' may include, for

example, a computer (Pentium or equivalent) with CD-ROM drive and network card, suitable presentation software e.g., PowerPoint (which should be standard across the site), a WWW browser, speakers, an LCD projector, (800x600 resolution, with computer and video inputs) and a VCR. Additionally a full set of connecting leads should be provided, with instructions, so that other computers can be easily connected.

Another factor affecting user acceptance of new equipment is the interface. There is a wide range of multimedia presentation equipment currently available, all of which, perhaps inevitably, have different interfaces. Where a single site has a wide range of equipment, the amount of training and support required is increased, and users will be more reluctant to use it. It makes sense, where possible, to provide standard equipment across campus.

## Recommendations

Sites should maintain a database of equipment in all rooms across campus.

Facility booking should be a service spanning a range of services (rooms, computers, AV).

Portable equipment may provide a pragmatic short-to-medium term strategy for some rooms.

Standardisation of equipment will increase lecturer's confidence.

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## Support and Training

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The Dearing Report summed up the need for increased staff development saying

*We recommend that all institutions should, over the medium term, review the changing role of staff as a result of Communications and Information Technology, and ensure that staff and students receive appropriate training and support to enable them to realise its [sic] full potential.*

Support and training for multimedia presentations covers a wide variety of topics and affects a range of people. Lecturers will require training to create and then deliver courses, support staff must be available at all times to provide backup and they

will need training as new equipment becomes available.

Where equipment is available, it may not be used if lecturers do not feel comfortable with it. Staff development programmes should be available at all levels, providing sufficient training that the users feel competent to prepare multimedia material and deliver it. Training in the use of multimedia projectors, for example, should leave the user familiar with the interface and able to set up and attach a computer and deal with the most common problems. Although the aim should be for 'self-drive' of equipment, users should also feel that backup is available if they require it, and details of how to contact support technicians should be displayed in each room.

Some aspects of creating and delivering multimedia presentations can be supported at a wider level, through cross-departmental support for specific facilities such as videoconferencing suites, and more generally through national services. National services can provide a wide range of support, particularly in the preparation of material, for example the National Video Facility at the University of Manchester.

Central services within an institution can be very effective in supporting staff. Sites need to set standards of service — what is supported as a minimum and what can be provided beyond that — through Service Level Agreements (SLAs).

## Recommendations

Sites should put in place staff development programmes at a range of levels to make staff comfortable with the technology available.

Support lecturers by:

- individual support initially — staff tend to be at institutions for some years and thus one-to-one may be effective
- have a strategy towards self-drive of equipment

Sites should be encouraged to set up cross-departmental support for facilities, such as video conferencing.

National facilities should be promoted within sites. These can provide support and expertise for lecturers creating their own presentations and departments requiring advice on equipment and training.

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## Summary

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Multimedia technology is here to stay. New students are growing up in an increasingly computerised, multimedia world and will expect nothing less from educational establishments. Aside from the gimmicks, new technologies do offer the chance to improve the quality and flexibility of higher education. However, the implementation of such technologies will require a significant investment.

New building and refurbishment of existing facilities should be done with this in mind, and computing and AV staff should be consulted at an early stage. Equipment must be chosen with care to provide both value for money and technological durability. Leasing should be considered as an alternative to purchase, providing predictable maintenance expenditure and a viable upgrade path.

Finally, no amount of capital investment will be worth while without a commitment to further annual resources to provide training and support across departments.

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## Further Reading

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Managing, Delivering and Supporting Lecture Room Services for the Multimedia Age. AGOCG Workshop, Loughborough. 28th April 1997

<http://www.agocg.ac.uk:8080/agocg/TechReports/report32.html>

Multimedia Presentations Workshop Report  
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<http://www.man.ac.uk/MVC//SIMA/present/present.html>

Choosing an LCD projector. Sue Cunningham, Manchester Visualization Centre, University of Manchester.

<http://info.mcc.ac.uk/MVC/SIMA/articles/LCDtoc.html>

Institutional Support for Multimedia Classrooms A Two Year Study, 1993-95

Kathy Christoph, Brian Duffy and Tom Wise, Division of Information Technology, University of Wisconsin-Madison

<http://www.wisc.edu/learntech/grp/mmcrprt.html>

Master Classrooms: Classroom Design with Technology in Mind.

Kathryn Conway, The Institute for Academic Technology, University of North Carolina

<http://www.iat.unc.edu/publications/conway/conway1.html>

Students Assess Computer-Aided Classroom Presentations

Dr. Martha C. Sammons, Wright State University, Dayton, Ohio

<http://www.thejournal.com/past/may/55sammons.html>

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<http://www.leeds.ac.uk/educol/ncihe/>

Barker, P.G., (1996). Tools to Support Electronic Lectures, Aspects of Educational Technology - Volume XXIX: Implementing Flexible Learning, edited by C. Bell and A. Trott, Kogan Page, London.