

JISC Circular 7/04
on **Regional eLearning Pilot
Projects around Distributed
eLearning**

The Learning Matrix

a project proposal from the Cheshire & Merseyside
sub-region of the Northwest

The Learning Matrix

Introduction

This proposal from the Cheshire and Merseyside sub-region is in response to JISC Circular 07/04 for regional eLearning Pilot Projects. The proposal addresses elements within each of the three themes described in the Circular and has the general aim of providing local access to learning opportunities for those seeking to enter higher education.

The consortium of HEIs and FECs in Cheshire and Merseyside have long experience of working together in partnership. Some collaborations include: the HEIs involved in the Liverpool City of Learning initiative which has been active in facilitating various educational projects on Merseyside since 1993; the DfEE-sponsored LUSID project for the development of a personal development planning software, led by The University of Liverpool; the development of a common framework for Assistant Practitioner foundation degrees across the sub-region, a consortium of four HEIs and eight FECs to create an academic development partnership with the NHS University, membership of Aimhigher partnerships for widening participation; the New Technology Initiative, a consortium of HEIs and FECs funded by the NWDA, that acts as a single gateway to FE and HE across Cheshire and Warrington.

This project proposal builds on the experiences of several previous ICT-related projects and will address some of the challenges that those projects encountered. The Cheshire and Merseyside Modular Scheme (CAMMS) is a protocol agreed between the NHS University consortium in the sub-region to move towards a technology-mediated system for supporting work-based learning in the health and social care areas, whereby students can accumulate credit towards qualifications by studying modules from more than institution. A second project is the Learning Bites project, attempting to provide unified access to credit-bearing e-learning chunks from the HEIs. These projects identified barriers in several areas including inter-institutional access to resources, maintaining and communicating student records as well as obstacles arising from administrative system incompatibility and funding regimes. This JISC project will push at and overcome some of these barriers allowing such initiatives, for which there is a clearly felt need, to go forward more smoothly.

Project Aim: to enable non-traditional students considering progression to HE to access appropriate learning opportunities from a partnership of FE/HE providers via a standards-based electronic interface.

Main objectives:

1. to develop a learner interface, the Learning Matrix, that presents a unified view of, and access to, learning opportunities within the sub-region.
2. to offer a personal development planning facility via the Learning Matrix that provides advice, diagnostic support and reflective opportunities for participant students, and to consider the integration of ePortfolio tools with the LUSID system to support and enhance the use of the interface.
3. to deliver learning opportunities in partner FECs and HEIs that will enhance learner preparedness for HE.
4. to facilitate the exchange of learner records held in a progress file among the HEIs/FECs of the sub-region.
5. to evaluate the systems, tools, information flows, learning experiences from the project to gauge the potential for sustainable future practices.

The project will provide a set of services to partner institutions to allow pre-HE and other students to discover learning packages offered by learning provider institutions, register on courses and access resources. Services will also be made available to support students including placing outcomes for each student in a "progress file" which could later form the basis for an e-portfolio. Students will use PDP services, the records of which will also be stored in their personal files. An authorisation and authentication infrastructure based on Shibboleth architecture will be implemented to give students access to resources with a single sign-on.

Given its objectives, the project is expected to make a significant contribution to the Distributed eLearning strand of the JISC eLearning Programme and, while focused on widening participation to HE, is expected to open up technologies and processes that can be used in a wide variety of lifelong learning situations, including the delivery of continuing professional development opportunities at a

range of academic levels and opening up the possibility of genuine credit accumulation and transfer between institutions across the region. Thus the pilot project is seen as only the first stage in a longer journey to improve access to higher education for all learners.

The project will be seeking to ensure that the learning experience is more seamless than currently, both in terms of improved access to learning materials and also in terms of access to opportunities in a range of partners. The development of a co-ordinating structure, the Learning Matrix, will provide improved access to diagnostic and reflective opportunities via a personal development planning process.

The project will start in January 2005, register students in late September 2005 and produce final reports in March 2006, contributing to all three themes identified in this circular to some degree:

Facilitating progression:

- Learner records compliant with appropriate standards and specifications will be transferable between institutions to assist in admissions and other processes.
- PDP services will be offered and tailored to making choices about HE options.

Collaborative teaching and sharing of resources across institutions:

- The centrally-mediated system will enable institutional collaboration in teaching by offering students a range of alternative learning opportunities, each institution offering different but complementary packages.

Supporting the independent lifelong learner:

- Finding out about courses, modules and classes
- Maintaining a record of learning plans achievements etc. through a compact-based "progress file" of learner records contributed to by the student and the institutions at which they study.

Consortium details

Partners: the project aims to involve a wide range of partners across the Cheshire and Merseyside sub-region of the Northwest. Details of the partners and their roles in the projects are provided in the table below. Not all partners will attempt to implement the full set of services developed in this project, but the typical levels of involvement are indicated by the roles described below.

Recruiter/Advisor: identifying learners who may be uncertain about Higher Education and supporting them during their involvement with the project. The level of technical involvement would be little, probably no more than providing an interface to the discovery services. The benefits to these students will be twofold:

- they will have carried out supported reflection on their personal development, identified and carried out further development in at least one area that would be of benefit to them, and
- they will have engaged in a learning process that is designed to enhance their commitment to engage with HE, and prepare them for delivery styles they will encounter within HE.

Full Technology Partner: offering their modules to the network, and implementing services to describe and publish available learning packages for harvesting and to receive and update learner records. They will also be part of the shibboleth authentication framework. It is anticipated that modules will be delivered in "blended" mode and that at the very least there will be day to day course management and information accessed through a VLE.

PDP Provider: providing support for the development and implementation of Learning Matrix PDP services.

Receiver: receiving personal and academic information from Full Technology partners in the form of learner records for potential use in e.g. admissions processes. It is anticipated that the partner would provide an interface to the discovery service, and may wish to explore becoming part of the authentication framework

Host to Matrix central services: partners with more extensive technical resources will host the services used by the network, as well as fulfilling other roles.

Within the project there will be various categories of activities to support the above roles. The project management team will involve technical computing colleagues from partner institutions in collaborative groups who will facilitate interaction of the project processes with standard data management processes, create the Learning Matrix database and integrate and test the Shibboleth software. As part of these activities the technical colleagues will take up the challenge of facilitating access to institutional systems (student record systems, VLE, library etc). We recognise that external consultants may be necessary to expedite the development of the appropriate software linkages, should specific skills be required that are not available from the partners. Such consultation charges would be funded from within the overall costings of the project. In conjunction with these technology experts, academic staff from the Full Technology institutions will be working to facilitate access to, and delivery of, their learning modules.

The project is fortunate in having access to a range of expertise to support activities: The Centre for Recording Achievement will act in an advisory capacity to ensure effective integration of the wider use of PDP and e-portfolios within the FE and HE sectors. The Learning and Skills Council Greater Merseyside, Connexions Greater Merseyside and the Aimhigher Greater Merseyside initiative will both provide intelligence about potential widening participation opportunities, particularly in such vocational areas as Modern Apprenticeships. Each of these Greater Merseyside Organisations will liaise with their partner organisations in Cheshire to maximise impact.

Partner	Role(s)
Liverpool John Moores University	Lead Institution. Full Technology
Connexions Greater Merseyside	Recruiter/Advisor
AimHigher Greater Merseyside	Advisory
Knowsley Community College	Recruiter/Advisor and Full Technology
St Helens College	Recruiter /Advisor and Full Technology
West Cheshire College	Recruiter /Advisor
The University of Liverpool	PDP Provider
Liverpool Hope University College	Full Technology
Edge Hill College	Receiver
University College Chester	Receiver
Liverpool City of Learning	Advisory
Learning Skills Council Greater Merseyside	Advisory
Centre for Recording Achievement	Advisory

Co-ordination

The project will use JISC-approved project methodology to design, manage and report outcomes. Recruitment of suitable staff to manage the project will be particularly challenging, given the early start date, the relatively short project period and the nature of the technical challenges.

Two approaches will be taken to meet these staffing challenges:

- staff will mainly be seconded from existing teams within the partnership, and
- rather than propose project posts with pre-determined job-descriptions, the precise activities of seconded staff will be allocated to match the expertise and time-availability of the individuals (see budget groupings for Project Staff on page 9).

The project will establish a structure to enable active collaboration and sharing of expertise between the Computer Services departments of the various institutions involved. This approach will reduce duplication of effort and accelerate the implementation of technologies in specific institutional contexts. ILT Champions in each FE Partner will be contacted in order to help roll out the project across FE establishments. The JISC Regional Support Centre will also be invited to act as a point of contact for support and sharing of good practice between all partners. The project will be managed via a two-tier structure, as follows:

Project Steering Group: will oversee the strategic management of the project, having the following *terms of reference*:

- to agree a process for the recruitment of project officers.
- to agree a detailed Project Plan for delivery of the project, including milestone outcomes and deliverables.
- to monitor progress against the Project Plan and to agree amendments to the plan and deliverables as may be appropriate.
- to ensure that staffing and other resources are managed appropriately.
- to ensure appropriate evaluation of the project and to approve the final evaluative report.

Membership of the Project Steering Group will be:

- an independent chair.
- a senior representative from each partner institution/organisation (13)
- the Project Manager.
- a JISC representative.

The Project Steering Group will meet at least three times during the project period. The venue for meetings will be Liverpool John Moores University.

Project Management Group: will oversee the operational management of the project, having the following *terms of reference*:

- to report to the Project Steering Group.
- to devise the Project Plan for approval by the Project Steering Group and to propose any amendment to the plan should this be necessary.
- to manage the general operation of the project, including the proper management of resources.
- to ensure the achievement of stated milestones and deliverables.

Membership of the Project Management Group will be:

- the Project Manager (chair)
- the Project Technical Co-ordinator
- the Project Academic Co-ordinator
- a representative from each partner FEC and HEI with detailed knowledge of the operational aspects of the project (8)

The Project Management Group will normally meet at least monthly during the project period. Each partner FEC/HEI will host the meetings at least once.

Anticipated benefits for students involved in the pilot can be summarised as follows:

- exposure to a taste of Higher Education, supported by professional advice.
- introduction to e-learning with appropriate induction.
- undertaking personal development planning with HE-related objectives.
- undertaking a second learning package informed by their PDP outcomes.
- enhanced preparedness and confidence about progressing to HE.
- development of a progress file to be used in HE admission.

Project description

Scenario: the learner experience

Jenny is a student at Knowsley Community College. She is wondering about going to University but no one in her family has HE experience and she is unsure what to do. Jenny is approached by her college tutor and invited to join a six-month project that will try to help her prepare for HE while she is finishing off her college studies. She agrees to participate and is given some help with getting started from a college tutor, who has himself received staff training about the nature of e-learning and learning styles.

Jenny logs into her college network and finds that there is a section about Learning Matrix on the college student intranet. She notices that there is information about "HE preparation courses at several colleges and, unsure about what she wants, she clicks for "guidance" which takes her to a personalised page. There she finds a range of options inviting her to think about herself and her learning (Personal Development Planning). She is led through a set of simple questions and gradually a picture is built up about her objectives and her personal skills. One point is clear: to study the area that she is becoming interested in (marketing) at University is going to require better writing skills. Jenny notes these conclusions in her PDP file stored in the Learning Matrix.

Using links in the page navigation, Jenny finds a writing skills programme that is offered mainly via the web but requires her to attend three group sessions in Liverpool. The writing skills programme is provided by Hope College, and she can see that there are places still available. She clicks to request enrolment, provides some information in a simple form and is told that her enrolment will be confirmed within the next two days. An email to her preferred address arrives the next day confirming she is on the course and directing her back to her Learning Matrix area. Since she is at home, she finds that she is asked to choose her college from a list and then logs in with her college credentials. She now sees details of the course she is registered on in her personal area, and clicks to gain access to Hope's learning systems, where all the information she needs about the course is available. She is enrolled on the short programme and joins a virtual tutor group of about ten other students from across Cheshire and Merseyside. Much of the learning materials are accessed and interacted with via the web.

Jenny attends the three evening sessions that form part of the course and really enjoys the atmosphere, and the confidence the little course is giving her. When it's over, she finds the information about the course has been updated to include her marks for a piece of submitted work and confirmation of how well she did. She decides to mark this information as "available for inspection". She also decides to use a PDP tool to make a statement about her writing skills and makes that available as well. At this stage Jenny has completed the project but is free to continue to develop her PDP file or register on any other courses available.

Later, Jenny decides to apply to a Liverpool John Moores University, who accessed her progress file to supplement her application.

Detail. The project will build a set of central services to support inter-institutional cooperation in course delivery and exchange of student information. In the first instance the project will allow students to search or browse a set of learning packages offered by network member institutions. They will start the process by using Personal Development Planning services specifically aimed towards helping with choosing and preparing for HE. They will then be able to enrol online on a learning package, should places be still available, receiving module information and access to appropriate electronic resources through their existing login, using Shibboleth if that proves possible. On completion of a learning package, usually involving mixes of online and face-to-face teaching activities, the student's learner records in a compact-based progress record will be updated with relevant information. These learner records will be subsequently available to network institutions to help with transitions into HE. An overview schematic of the services and their users as envisaged for this project is shown in Figure 1 overleaf.

For this pilot, the number and nature of modules will be carefully selected in order to minimise exposure to the kinds of administrative difficulties that have prevented progress in past projects. The learning blocks will be owned and delivered by the institutions that offer them into the project; they will not be shared. Thus it is not anticipated that there will be IPR implications from operating the project.

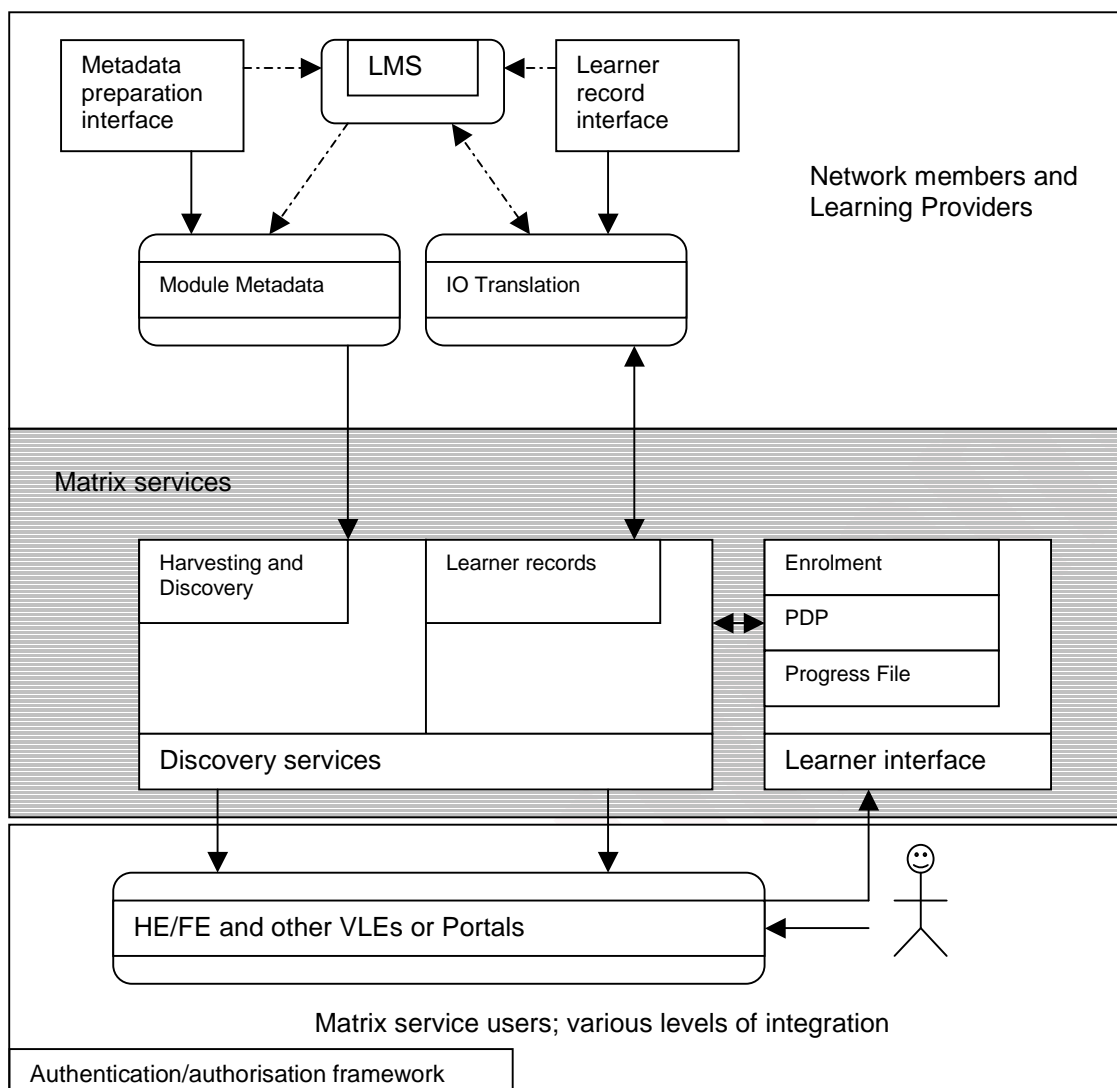


Fig. 1 Schematic overview of services and interfaces

Technologies

It is understood that the JISC would work with the project to identify appropriate technologies and facilitate connections with existing JISC funded projects. It is expected that the following programmes and projects will be of particular relevance:

- Projects in the Core Middleware Development Programmes.
- Managed Learning Environments for Lifelong Learning programme: Building MLEs across HE and FE – NIMLE, SHELL, Developing Learner Profiles across FE and HE, Specifying an e-portfolio, and others.
- Distributed e-Learning Strand: eLearning Tools Projects, including EPET, PETAL.

Relationship of the project to the JISC e-learning framework

- Sample User Agents: Portal, Student enrolment portlet
- Learning Domain Services: Competency, Curriculum, Personal Development, ePortfolio
- Common Services: Authentication, Authorisation, Harvesting, Metadata Management, Search

Outline Project Plan - Development Phase

Month	Task	Milestone
0	Carry out survey of technical skills amongst partner staff to establish potential secondees	
1	Hold first Project Steering Group meeting to agree recruitment strategy and initial project parameters	
1	Appoint/second staff and identify responsibilities in partner institutions	Project management staff in place.
1 – 2	Agree interim learning block metadata formats and vocabularies sufficiently articulated to support the current purposes	Agreed metadata schema
1-2	Design evaluation plan	Evaluation plan agreed
1 – 2	Agree module metadata formats and vocabularies	
1 – 3	Build module metadata preparation interfaces	
1 – 5	Establish Matrix DB, build Learner interface	
1 – 5	Build matrix metadata harvester and local exposure elements	
1 – 5	Build matrix discovery services	
2 – 6	Identify and develop appropriate learning packages	Learning packages available on provider VLEs by month 6
1 – 7	Identify subset of LUSID PDP activities and relevant resources in network	
1 – 7	Write LUSID pages to deliver subset and integrate LUSID with progress file records DB	
1 – 7	Build Learner Information progress records DB, record exchange and update services	Functional links between Learner Information DB and Matrix DB
1 - 8	Establish Shibboleth framework	Shibboleth functional by month 8.

Outline Project Plan - Implementation Phase

5 - 8	Embed module discovery services in partner VLEs/Portals	
4 - 8	Identify pilot group of students and academic support	50 students identified by month 8
7 - 8	Carry out interim evaluation	
8	Hold second Project Steering group meeting to consider interim evaluation outcomes and agree second phase activities.	
9 - 10	Introduce students to interface and PDP aspects	
10	Enrol students on modules	
10 - 14	Delivery of modules	Outcomes of learning recorded within Matrix by month 14
14-15	Test modification and exchange of learner records	
1-15	Evaluation of Technical issues and issues in practice	
14-15	Hold third Project Steering Group meeting to consider final evaluation outcomes, agree dissemination strategy and exit/sustainability strategies.	
15	Carry out dissemination strategies	Pilot Project completed.

Deliverables

Interfaces:

- Module metadata preparation interface (theme 1)
- Interface to progress records/PDP records (theme 1)

Services:

- Module metadata harvesting (theme 1)
- Module metadata search and discovery (theme 3)
- Learner record modification and exchange (theme 1)

Educational:

- 50 Students recruited
- 50 Personal Development Plans created
- 50 learning packages undertaken

Documents:

- Interim technical evaluation (themes 1 & 2)
- Final evaluation report (themes 1 & 2)
- Report for stakeholders describing lessons learned and a strategy for further development of the network (all themes)

Outputs

- The primary benefit of the project will be the exploration of the complex and interacting institutional and technical issues involved in inter-institutional co-working. These lessons will be shared in a report and strategy document.
- Stakeholders will have enhanced knowledge and understanding of the issues.
- Capacity building in Computer services departments in interoperability standards.
- Improved communications between HE and potential students, enhancing understanding of HE provision and smoothing transition into HE
- Opportunity to explore issues around learner records, e-portfolio and generalised PDP services.

Risk Analysis

Risk	Probability (1-5)	Severity (1-5)	Score (P x S)	Action to Prevent/Manage Risk
<i>Staffing</i>				
Key personnel with relevant skillset not available from beginning	3	4	12	Identify and establish availability of appropriate skillsets before project start date. Consider employment of external consultants.
Not possible to release enough time for individuals with skills from within CSDs	2	4	8	Reassign resources to external supplier with reduced commitment from CSDs
Tutor technical skill deficits limit use of Learning Matrix technologies	1	4	4	Carry out appropriate staff induction before student recruitment
<i>Students</i>				
Failure to recruit 50 students	1	5	5	Early soundings taken by Connexions and FEC tutors, liaison between partners
Student technical skill deficits limit full usage of Learning Matrix systems	3	3	9	Carry out appropriate student induction after recruitment
<i>Organisational</i>				
Internal administrative systems for Learning Package delivery present barriers in the timescale	3	4	12	Learning Packages selected from several institutions and chosen for low exposure to this risk. All LPs remain property of institution and are <u>not</u> taught collaboratively.

Risk Analysis (Continued)

<i>Technical</i>				
New technologies (e.g. Shibboleth) prove unstable or unimplementable	2	3	6	Early evaluation of true risk and consideration of alternatives e.g. Athens. Fallback positions for failure from existing systems established.
<i>External suppliers</i>				
Failure to deliver interfaces fit for purpose	1	4	4	Establish functionality development path so basic functionality assured at early stage
<i>Legal</i>				
Proprietary licensing issues over resources disallow access by extra-institutional students	2	5	10	Include analysis of licensing implications in module selection process
Data privacy issues interfere with learner record sharing	2	2	4	Seek specialist advice at an early stage

Budget

	Costs
Project Staffing Costs, including Project Management, Technical support for Learning Matrix development and institutional technical developments, and Project Administration. <i>See comments within Co-ordination section on page 3</i>	£90,000
Ancillary /Contingency costs including possible consultancy. <i>See comments within Consortium details on page 3.</i>	£17,500
Purchase of Hardware Hosting Services in Full Technology Partners	£2,500
Hardware for Learning Matrix	£10,000
Tutor Support Identification and delivery of learning modules	£20,000
Learner Support	£5,000
Travel & Subsistence	£9,000
Consumables to include stationary, postage , phones, refreshments	£5,000
Dissemination and Evaluation activities	£8,000
Total for Project (excluding Shibboleth)	£167,000
Shibboleth Development for both Matrix and local interfaces	£40,000
Total requested from JISC	£207,000

Key personnel

Dr Roger Clark: Formerly Deputy Head of Psychology Department and then leader of the Learning & Teaching Development Centre team at Liverpool Hope University College. Designed and implemented numerous innovative e-learning resources including a VLE for Liverpool Hope and discussion software now incorporated into the JISC/LTSN Learning and Teaching Portal. Currently evaluating the ERDF funded regional eLearning Place project.

Dr Phil Margham: Director of Learning Innovation at Liverpool John Moores University and a member of the Strategic Management Group, JMU's senior executive committee. He is responsible for the University's Learning, Teaching and Assessment Strategy, and the HEFCE Teaching Quality Enhancement funding that supports the strategy. Phil has a long experience of introducing new academic products and innovative, flexible ways of learning. He has managed curricular development projects in several areas, including work-based learning and key skills integration, has recently developed a framework for a Foundation Degree Consortium between JMU and FE partners, and has pioneered a detailed protocol for the collaborative pooling of CPD modules presented within a web-based system: the Cheshire & Merseyside Modular Scheme (CAMMS).

Janet Strivens: leads the Educational Development Team at the University of Liverpool. She was a key member of the team who developed the Liverpool University Student Interactive Database (LUSID) software, which is regarded as one of the leading software packages designed to support the Personal Development Planning (PDP) process. She is also leading the implementation of PDP across the University of Liverpool.

Tom Franklin: of Franklin Consulting, has worked in e-learning for seven years. He has extensive experience of project and programme level evaluation, this having been an important aspect of his work as a programme manager while at JISC. Tom also has extensive knowledge of the working methods of JISC which will help to inform this work and save considerable effort in understanding working practices. He recently undertook the technical evaluation of the JISC funded SWaNI programme on the development of MLEs for further education. He has worked as a senior technology advisor to TechLearn, where his work has included a focus on MLEs and VLEs. Prior to that, Tom was responsible for much of JISC's early work in the field including the establishment of CETIS and the initial MLE programmes

Alice Bird: Learning Technology Manager within the Learning Development Unit at Liverpool John Moores University. She is responsible for coordinating the implementation of elearning and learning technology goals within the JMU Learning, Teaching and Assessment Strategy. This includes providing support in using institutional learning technology applications, such as the Blackboard VLE and the Questionmark Perception assessment system, and opportunities for staff development in the pedagogy of elearning. Prior to joining JMU, Alice was the staff development officer for the LUSID project at the University of Liverpool and she has also worked as a lecturer in information technology and computer studies at Wirral Metropolitan College (an FEC within the Merseyside region).

Garfield Southall: Director of New Technology Initiative based in University College Chester and a member of the College Management Group. His career at the College spans over 20 years and started as a software designer writing administrative systems before moving over to the academic side. He was Deputy Head of Computer Science before taking up the NTI post. Over this period Garfield has worked as an Institutional Facilitator for QAA subject reviews, chaired many Steering and Validation events, served on Academic Committee and Academic Board and is external examiner for Access to Higher Education courses at West Cheshire College and Liverpool Community College. Garfield has worked closely with the NHS on many projects - recently a Foundation Degree in Health Informatics and a Basic Skills course.

Contact: Dr J.P. Margham, see cover sheet