

# 14-19 EDUCATION IN LONDON

## SUPPORTING LEARNERS THROUGH ICT

### FEASIBILITY STUDY

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FINAL REPORT

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GOVERNMENT OFFICE  
FOR LONDON



Learning+Skills Council  
London East



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# 1. EXECUTIVE SUMMARY

## 1.1 PROJECT SCOPE

The purpose of this project is to investigate the potential and practicability of ICT to underpin the Government's drive towards a coherent phase of 14-19 education. It looks at the benefits that ICT systems might deliver in a number of specific areas:

- Management of the learning and learner
- Delivery of the learning
- Assessment of the learning
- Management of institutions involved in learning
- The ability of the learner to access different learning environments and opportunities
- Region-wide management including allocation of funding, collection of key statistics and measuring and recording outcomes

The project also looks at managerial and organisational issues including ownership of the learner and the learning, partnership management and student mobility, as well as at issues directly involving the effective use of ICT. The project conducted research at three levels - national, regional and local. Regional research was focused on London, and chiefly London East, and local research on the borough of Lewisham because of its progressive participation as both a 14-19 Pathfinder and IRT Trailblazer.

The project was sponsored by the Government Office for London, the Learning and Skill Council London East and RM plc.

In 2003, Becta produced an excellent overview of ICT in 14-19<sup>1</sup>. Its contents remain very relevant to the latest thinking and we have used it as a starting point for many of the ideas set out in this report.

## 1.2 CURRENT STATUS AND INITIATIVES

### 1.2.1 The Education Management Perspective

There are a number of current national initiatives relating to 14-19 provision - the Working Group on 14-19 Reform, focusing on curriculum and qualifications reform; the DfES' 14-19 Pathfinder Initiative, identifying good practice to inform future national

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<sup>1</sup> Becta (2003) *Using Technology to support the 14-19 Agenda*.

developments; and the LSC's Strategic Area Review, looking at the provision of learning opportunities.

Regionally, the LSC London East is focused on developing participation and retention, and improving achievement; London East Connexions is planning to use widely-gathered student data to enhance its advisory potential; and London Challenge, whilst mostly focused on a sub-set of London boroughs, is also investigating ways of maximising the impact of pan-London planning and provision.

Locally, in Lewisham, the colleges and schools are already providing courses to address the needs of those students who are not yet ready to engage with currently accredited courses. They are looking at greater ways to link up their provision through federations and increased student mobility.

### **1.2.2 The ICT Perspective**

Nationally, the Pathfinders are developing a variety of ICT projects to enhance their impact. Some are focused on linking MIS systems in a variety of ways, some are developing e-learning programmes and are implementing Virtual Learning Environments (VLEs) as a way of managing e-learning. Some of the resources are being acquired from commercial providers and some are bespoke developments.

Other national initiatives are the Connexions Customer Information System (CCIS) project supporting standardised data transfer and the Unique Learner Number (ULN) project which, if progressed, could provide the means for cross-institution hosting of linked student data. In addition, the Joint Information Systems Committee (JISC) and the Centre for Educational Technology Interoperability Standards (CETIS) have completed a lot of work in developing recommended interoperability standards.

Regionally, the London Grid for Learning has set up a strong level of provision to support the learning of school-based students with London-wide high bandwidth connectivity, web space for these students, and resources for teaching staff.

Locally, Lewisham, through Lewisham College and through its own Pathfinder, is looking at how the use of a VLE can be developed and integrated into a wider MLE. Research has been undertaken into the connectivity of the schools' MIS systems with a view to integrating data across institutions.

### **1.3 ISSUES IDENTIFIED**

In the course of our research, a number of issues were identified that affect the provision of a coherent phase of 14-19 education in London.

#### **1.3.1 Management of 14-19**

The division of accountability for 14-19 means that it will be extremely difficult to make progress in meeting educational objectives, with or without the support of ICT.

#### **1.3.2 Learner support**

It is difficult for learners to acquire information about the availability of courses. It is also difficult for institutions to track their progress when they do, because a consolidated method of tracking students through the system from 14-19 does not exist.

#### **1.3.3 Management of online Individual Learning Plans (ILPs) and Portfolios**

There is little scope at the moment for the ILP to be portable outside the local environment until interoperability standards are laid down.

#### **1.3.4 The 16+ transition**

The 'education stop' at 16 is reinforced by the lack of continuity of ICT systems and provision across that divide.

#### **1.3.5 Dataflow analysis**

Dataflow analysis has not taken place, yet is a prerequisite to any detailed design of interoperating systems.

#### **1.3.6 Message exchange standards**

Current message exchange standards are not adequate to handle the likely demands for increased system interoperability.

#### **1.3.7 Managed Learning Environments**

Implementation of an MLE is complicated by the need to integrate or replace legacy systems, in which there is often a large investment.

#### **1.3.8 Data ownership, sharing and protection**

Issues relating to data ownership, data sharing and data protection must be understood and agreed before effective inter-operation can occur.

#### **1.3.9 Implementation issues**

The introduction of 14-19 as a coherent phase sets a number of practical challenges for students, staff and institutions in terms of how the required systemic flexibility will be implemented.

## **1.4 PROJECT PROPOSALS AND RECOMMENDATIONS**

We are proposing a programme of ICT development which can provide the essential support required for the new demands of 14-19 education, and overcome many of the issues identified. This will underpin the further development of an educational system that allows all students to fulfil their potential in an integrated and supportive environment.

It is important to note that our proposals build on the many outstanding ICT developments that we have come across in the course of our research. We have sought to incorporate them into a regional infrastructure with a single point of management.

The scope of the programme is large, but it has been designed so that it can be introduced in a modular form, in manageable stages, as an agreed regional vision is developed and funding becomes available.

We have constructed our recommendations for ICT systems into five modules or projects.

### **1.4.1 Project 1 - London Portal**

This Portal is a comprehensive gateway to the full range of online information and resources required by 14-19 year-old learners throughout London. It provides a full range of information on course options and availability in the region, and assists with student support through moderated online community forums.

### **1.4.2 Project 2 - Support Unit**

The services that we are proposing must be underpinned by a Support Unit offering services in three main areas - to students accessing the London Portal and online ILPs, portfolios and forums; to teachers and tutors to assist with 14-19 related professional development; and to systems administrators and operators as a frontline helpdesk and online support service to enable effective management of the technology infrastructure. This Support Unit should grow in parallel to the implementation of the other four projects.

We recommend that the first project tackled as a pilot is Project 1, the London Portal. This can be commenced on a small scale and developed in phases, matched to the initial levels of funding. It will also need a proportional part of Project 2, the Support Unit to be put in place to ensure its success.

### **1.4.3 Project 3 - Regional Registration Service**

This project aims to increase student participation and improve retention through a centralised registration process that provides for more efficient registration and enrolment. The Regional Registration Service allows for one-time student registration and a repository for master student data, shared between institutions. It should be viewed in co-ordination with the ULN concept, and could indeed become London's component of any national system.

To make rapid progress with Project 3, the Registration Service, we recommend that urgent representations be made for London to act as a regional pilot for the system of Unique Learner Number allocation whatever the outcome of the current consultation. This Project will provide the vital foundation for the benefits which will accrue from the next stages of ICT development.

### **1.4.4 Project 4 - Gateway**

By establishing a data warehouse and a communications hub, this project provides a means of standardising, centralising, updating and sharing core administrative data, such as enrolment records, attendance records, tracking and returns data and exam registration. It allows MIS data to be shared with a partnership of learning providers, eliminating paper-based and ad-hoc systems and hence the 'administrative stop' that currently occurs at the end of compulsory education. Furthermore, it rationalises the process of data analysis and report production.

We recommend that, to progress Project 4, 'Gateway', the opportunity is taken to pull into one project the current data-sharing initiatives which are taking place across the region. These would include Pathfinder and Connexions as well as other, more local projects. A detailed technical specification for a region-wide solution would need to be developed before this substantial project is put out to tender.

### **1.4.5 Project 5 - Learning Management**

Building upon the Regional Registration and Gateway Projects, this proposal aims to create a central storage system for student records, mainly in the form of e-portfolios, records of achievement, and ILPs. Assisting in the drive towards personalised learning, it provides a logical solution for the tracking of students' progress through the education system and would be a core resource for students, learning providers and careers and guidance agencies.

This is an extensive project. We recommend that work on the early phase comprising a centralised facility for e-portfolios should begin at the earliest opportunity. So too

should the planning for the later stages of this project. Its implementation becomes possible once the other projects are operational.

## **1.5 MEASURES OF SUCCESS**

As projects are implemented, they can be specifically judged by their success in delivering the following:

### **1.5.1 Increased student retention**

More students will continue in education and training beyond the age of 16 because of improved levels of information and support right through the 14 to 19 phase. This is supported by:

- Information on a wider range of options for learners communicated through the London Portal
- A more straightforward, centralised registration process for learners which paves the way for easier enrolment activities
- A more efficient and error-free registration and enrolment process. Checking and verification reduced owing to removal of duplication and repetition
- Tracking of students undertaken throughout the region, and at critical stages of an individual's education, especially at age 16

### **1.5.2 Improved management of educational provision**

To ensure the prioritisation of provision to meet current and future needs, it will be essential to have available pan-London data on uptake of courses and student retention. This is supported by:

- Administrative records passed between schools and colleges as students progress and migrate, eliminating re-keying of data and reducing errors
- Data analysis and reporting performed on a London-wide basis, with comparisons available at provider, partnership, borough and pan-London levels

### **1.5.3 Raised standards of attainment**

Raised student attainment, as measured by increases in the levels of qualifications achieved, will be facilitated by:

- Support and guidance based on wider range of up-to-date information, delivered to the learner by a variety of means of communication
- Development for each student of an engaging individualised learning pathway, reviewed, updated and managed by all learning providers
- Incorporation into visible and attested e-portfolios of students' achievements inside and outside the classroom leading to increased motivation and higher attainment

## **1.6 OTHER RECOMMENDATIONS**

To support the required systemic change, we have made four additional recommendations.

### **1.6.1 Clear definition of roles and responsibilities for the delivery of 14-19 reform**

Despite the positive actions that organisations and institutions have taken towards 14-19 reform over the past number of years, isolated innovation and independent projects will not be sufficient to deliver reform of the extent envisaged by the Government. For this, clear ownership of 14-19 is required. As has already been widely recognised in the context of 14-19 reform, a difficulty with the present structure is that at a regional and local level no organisation is responsible for education from the age of 14 through to 19. If a move towards a coherent phase of 14-19 education is to be successful, the DfES will need to be considering its most effective means of delivery. Sufficient power must be given to the relevant organisations to galvanise stakeholder support. Without transparent roles and responsibilities, attempts to transform the system may flounder.

### **1.6.2 Ownership of 14-19 within institutions**

Definition of roles and responsibilities within institutions is also important. We believe there is a requirement for each institution to appoint a senior manager with a key responsibility for 14-19, where this has not already happened. The purpose is to ensure each institution is aligned with the movements in strategic direction required by 14-19 reform and also to manage the very demanding partnership approach to the delivery of 14-19 education and its consequent funding and assessment issues.

### **1.6.3 Further study into how collaboration can be developed among partners**

A significant aspect of proposed reform relies on institutions pooling resources and working together. This requires transition from an institution-centric system to a learner-centric system. Collaboration is necessary on several levels. Our study has shown real progress towards this end in Lewisham with four federations covering each of the secondary schools in the area. To support these, and other, initiatives, we recommend that specialist advice and support are further developed and provided at a local and regional level to ensure the necessary extent of collaboration can be encouraged and implemented. We envisage pan-London bodies such as the Government Office for London, the LSC London region and the London Challenge playing a key role in strategic planning and support for the region.

### **1.6.4 Pan-London management of ICT developments**

None of the ICT projects we have proposed can be undertaken by a single institution, and so we recommend that the accountability for their implementation is held by a single organisation at regional level. The requirement is to implement a pan-London approach, building on current local initiatives. This organisation must be able to reflect the interests of all stakeholders and to make decisions about a development that must, by its nature, be regional. It would, of necessity, be the prime budget-holder.

## **1.7 NEXT STEPS**

We are confident that this study provides some insight to how a strategic and focused approach to ICT can underpin 14-19 educational reform. It is hoped that our report will encourage discussion and support decisions among all stakeholders as to how London can best grasp the opportunities presented by 14-19 proposals.

## 2. INTRODUCTION

### 2.1 PROJECT SCOPE AND OBJECTIVES

The purpose of this project is to investigate the potential and practicability of ICT to underpin the Government's drive towards a coherent phase of 14-19 education. It looks at the benefits that ICT systems might deliver in a number of specific areas:

- Management of the learning and learner
- Delivery of the learning
- Assessment of the learning
- Management of institutions involved in learning
- The ability of the learner to access different learning environments and opportunities
- Region-wide management including allocation of funding, collection of key statistics and measuring and recording outcomes

The project was started in November 2003 and completed in March 2004. This report is the key outcome of the study. In accordance with predefined objectives, it identifies key issues for stakeholders, existing and potential solutions, perceived benefits and issues associated with change.

The intention is that this report will provide an overview of readiness for 14-19 reform in Lewisham, London East, and indeed London, as well as offering technical insight and innovative recommendations for how ICT can underpin developments in the area.

### 2.2 THE 14-19 AGENDA

There has been considerable recent focus on the reform of the education system for 14 to 19 year-olds. Renewed interest was sparked when in February 2002 the Government published its Green Paper *14-19: extending opportunities, raising standards*. Consultation on this paper led to the *14-19: opportunity and excellence* document, published in January 2003, in which the DfES set out its aspirations for a new, coherent single phase of 14-19 education.

There is the recognition that, compared with other industrialised countries, the UK has particularly low levels of post-16 access and participation in education or training, and for those involved in education, the system is complex and lacks transparency. Further, representatives of employers and Higher Education institutions complain that young people are leaving education and training without an acceptable level of basic knowledge

and skills. In his foreword to *14-19: opportunity and excellence* the Secretary of State identified two key problems with the current system:

- Post-16 participation levels are too low
- There is a weak offer for those who want a vocational orientation to their studies, and an insufficiently broad and demanding offer on the A-Level track

More recently, discussion has progressed with the February 2004 publication of the Interim Report from the Working Group on 14-19 Reform. The report has proposed a structure for future qualifications incorporating strengthened academic and vocational strands.

In the next phase of its work, the Working Group will add more detail to this structure, consider a plan for implementation, and examine the implications of such proposals for other elements of education and training. The final report from the Working Group is expected in early Autumn 2004. Meanwhile, discussion is continuing and 14-19 education providers are continuing to plan to reform their offering. It is our hope that this report will offer information and guidelines to support the ICT aspect of that planning.

In 2003, Becta produced an excellent overview of ICT in 14-19<sup>2</sup>. Its contents remain very relevant to the latest thinking and we have used it as a starting point for many of the ideas set out in this report.

## **2.3 PROJECT SPONSORS**

This project has been sponsored by three organisations, each with an important stake in the future of education for 14 to 19 year-olds in London.

### **2.3.1 Government Office for London (GOL)**

In supporting the education and skills aspects of the Government's regeneration policy in London, GOL strives to improve the collection and analysis of information, reinforce the DfES in delivering its 14-19 agenda and promote the DfES' core messages to key regional influencers and stakeholders. GOL also provides information and feedback to the Department about the effectiveness of programmes and emerging issues.<sup>3</sup>

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<sup>2</sup> Becta (2003) *Using Technology to support the 14-19 Agenda*

<sup>3</sup> Government Office for London public website – <http://www.go-london.gov.uk/education/index.asp>

### **2.3.2 Learning and Skills Council London East (LSC London East)**

Responsible for funding and planning education and training for those over 16 in London East, LSC London East is explicitly interested in widening participation for all post-16 learners through the provision of a clear learning offer delivered through robust learning partnerships. Furthermore, LSC London East recognises the value in the use of emerging technologies for delivering learning to widen access to opportunities for learners and employers.<sup>4</sup>

In budgetary terms, LSC London East is the second largest LSC local office in England.

### **2.3.3 RM plc**

RM plc is the leading supplier of software, services and systems to UK education. RM provides a range of services mainly to schools, colleges, government agencies and government departments. Supported by GOL and the LSC London East, RM Education Services is the lead consultant for this project.

## **2.4 THE GEOGRAPHY OF THE PROJECT**

### **2.4.1 National, Regional and Local**

Throughout this report, several factors are categorised under national, regional and local headings. As stated, the DfES is leading consultation through its Working Group on 14-19 Reform, headed by Mike Tomlinson. It has also initiated the 14-19 Pathfinders programme nationwide. However, innovative schools, colleges, local authorities and LSCs are progressing with reform independently, and hence pockets of good practice are developing around the country. Some of these bodies are working in association with other organisations, others in isolation. There is still debate as to whether the change of the education system for 14-19 year-olds (and associated supporting infrastructure, such as ICT) should happen at a national, regional or local level.

Within the scope of this project, our definitions of national, regional and local are as follows:

- National – nationwide initiatives e.g. Pathfinders and all initiatives happening outside London
- Regional – London and London East
- Local – Lewisham

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<sup>4</sup> LSC London East public website - <http://www.lsc.gov.uk/londoneast/corporate/default.htm>

## 2.4.2 London East

London East is a vibrant area, home to one of the most ethnically-diverse communities in the UK, and with a huge potential for development and expansion. It extends from the City of London to the Kent and Essex borders including London Docklands and much of the Thames Gateway Development region. The area is home to a population of over two million people living in the boroughs of Barking & Dagenham, Bexley, the City of London, Greenwich, Hackney, Havering, Lewisham, Newham, Redbridge, and Tower Hamlets.<sup>5</sup>

## 2.4.3 Lewisham

The ability to focus our study specifically on one borough has been helpful in at least two ways. Firstly, we feel it is important to study in-depth the attitudes, opinions and developments in one particular local area. We believe the lessons learned from Lewisham have specific relevance for the borough, but also have wider application. The second reason is that Lewisham was identified because of its progressive participation as both a 14-19 Pathfinder and IRT Trailblazer. Further, the local authority was enthusiastic about contributing to this research and was committed to providing time and resource to ensure its success.

By means of background, in January 2000 OfSTED reported that<sup>6</sup>:

- Lewisham is the third largest London Borough, serving a predominantly disadvantaged and ethnically diverse community
- Lewisham is the fourteenth most deprived district in England according to the Department of the Environment, Transport and the Regions index
- It has more than its share of inner urban problems, not least relatively low educational attainment and aspirations
- Educational standards are generally above average for Inner London, but below the national average
- In schools, 50% of the population are from ethnic minority groups
- In schools, 121 different languages are spoken
- 50% of secondary schools were providing a good or very good quality of education, compared with 45% in statistical neighbours and 67% nationally

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<sup>5</sup> LSC London East public website - <http://www.lsc.gov.uk/londoneast/corporate/default.htm>

<sup>6</sup> Office for Standards in Education: Inspection of Lewisham Local Education Authority: January 2000 - <http://www.ofsted.gov.uk/reports/manreports/283.pdf>

## **2.5 REPORT STRUCTURE**

The main body of this report is in four parts. Section 4 is a summary of research into the numerous 14-19 initiatives currently under way nationally, regionally and locally. These initiatives are described from two perspectives: that of the management of education and that of the ICT itself. Practitioners, recognising the need for changes in 14-19 learning, have introduced some initiatives over a number of years, while others have been the direct result of more recent government policy proposals.

Section 5 adds to this summary by extracting and discussing the key issues surrounding 14-19 reform, and the implications that they have for the role of ICT.

In Section 6 we outline our proposals for the involvement of ICT in 14-19 education in London. This vision comprises various building blocks, relating to administration, teaching and learning, student tracking and student support, which are examined in depth with technical solutions proposed.

The report concludes in Section 7 with our recommendations for the potential uses of ICT in supporting 14-19 education in London.

### **3. METHODOLOGY**

The research methods adopted consist of consultation interviews, a comprehensive review of documents and publications relating to 14-19 educational reform and the contribution of a stakeholder board.

#### **3.1 STAKEHOLDER BOARD**

The stakeholder board was established to take responsibility for steering the project and approving this final report. The board comprises members of the three sponsoring organisations – GOL, LSC London East and RM plc – as well as representatives of Lewisham LEA and London East Connexions.

#### **3.2 CONSULTATION INTERVIEWS**

It was felt crucial that a wide range of interest groups should be consulted. Proposed 14-19 reform is so fundamental to the education system that it demands attention from a broad base of parties, and we are seeking to represent this in the scope of our consultation.

Also important to the design of the process is a balance between national, regional and local viewpoints. While our study has direct significance for London East and Lewisham, wider activity and opinion is also relevant.

##### **3.2.1 Interview Content**

As part of a standardised approach, interviews have been conducted with each of the interest groups to establish:

- Their vision for 14-19 and their role in the delivery of it
- Current initiatives they are involved in to address 14-19 needs
- The issues that they face, and see others facing, in implementing the 14-19 vision
- The extent to which they see ICT solutions addressing their issues and the key requirements they have
- The current systems they are using, their scope, and connectivity potential
- Gaps in their current provision
- The tangible and intangible benefits that ICT systems could bring

Furthermore, where a greater technical understanding of current systems and planned solutions was required, separate consultation exercises have been held with key technical personnel.

### 3.2.2 Key Consultations

Consultations have taken place with representatives of a number of organisations. We would like to express our gratitude to them for giving so generously of their time. They are:

- National
  - DfES 14-19 Unit
  - British Educational Communications and Technology Agency (Becta)
  - The Qualifications and Curriculum Authority (QCA)
  - The Association of Colleges (AoC)
  - LSC
  - National Institute of Adult Continuing Education (NIACE)
  - The Joint Information Systems Committee (JISC)
  - Framework for Multiple Agency Environments (FAME), Office of the Deputy Prime Minister
  
- Regional
  - GOL
  - LSC London East
  - London Challenge
  - London East Connexions
  - London Grid for Learning (LGfL)
  - Barking & Dagenham Training Services
  
- Local
  - Lewisham LEA
  - Lewisham College
  - Crossways Academy
  - Catford Girls School
  - Bonus Pastor RC School
  - Forest Hill Boys School
  - 14-19 Strategy Forum for Young People

As a result of the relevant and interesting nature of their work, we have also consulted with other regional bodies based elsewhere:

- South Gloucestershire Pathfinder
- Aimhigher, Hull

### 3.3 LITERATURE REVIEW

A wide range of publications and documents have been consulted and reviewed. These are listed in Appendix B.

## 4. CURRENT STATUS AND INITIATIVES

This section presents a review of the current situation in 14-19 based on a number of interviews with key stakeholders and document-based research. This is set out here firstly from the educational management perspective and then from the perspective of ICT. Each of these areas is broken down into national, regional and local levels.

It is important to note that the views we have set out in this section are those of the interviewees.

### 4.1 THE EDUCATIONAL MANAGEMENT PERSPECTIVE

#### 4.1.1 National

The opinions reviewed here have been gathered from a wide range of documentation and from interviews with representatives of the DfES, Becta, QCA, AoC, LSC and NIACE.

##### a. Overview

The development of the 14-19 phase has some dynamic objectives. The Secretary of State has said, “We must build a flexible system around the needs and aspirations of individual pupils” and continued, “We have to design a truly coherent education system that runs from early years to adulthood.”<sup>7</sup>

Key objectives of 14-19 reform are currently supported by three specific programmes of activity:

##### i. The Working Group on 14-19 Reform

The Working Group’s February 2004 Interim Report has set out key proposals:

- Reorganisation of the 14-19 phase around a unified framework of diplomas that give recognition and status to a range of modes of learning and achievement
- A compulsory core of learning and assured achievement in key components, such as communication and mathematical skills
- High-status vocational programmes rationalised into a smaller number of recognised and valued routes
- The experience of each young person should be personalised, allowing them to make effective choices which best suit their interests, needs and aspirations

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<sup>7</sup> Department for Education and Skills (2002) *14-19: extending opportunities, raising standards*. Page 3.

- Reduction of the assessment burden associated with current qualifications<sup>8</sup>

Also, in Sections 191-194, the report sets out its expectation of the increasing role that online assessment will play in the future.

ii. The 14-19 Pathfinder Initiative

The DfES and the LSC manage this Initiative. Funding to date has totalled £26m. The DfES has described the Pathfinders as the “key means of identifying and spreading good practice, (which) will inform the development nationally of 14-19 education and training from 2005/06.” This programme has created 25 projects in Phase 1 from January 2003 and a further 14 in Phase 2 from September 2003 and provides both opportunity and encouragement for regional variation.

The emphasis for Phase 2 projects has developed and they are being asked to test a number of specific areas including e-learning and the creative use of new technologies such as digital video editing.

The Universities of Leeds and Exeter have published an initial evaluation report on the Pathfinders.<sup>9</sup> The report states that while there has been less than expected progress in providing enhanced advice and guidance and developing individual learning plans, there has been greatest progress in collaboration, developing broader curriculum offerings, extending work-related programmes and targeting a wide range of young people. .

iii. Strategic Area Reviews (StAR)

The Success for All programme launched in November 2002 required LSCs to manage the StAR process, a process of review of provision for 16+ learning. Due for completion in March 2005, these reviews are aimed at bringing about greater coherence in provision, but do not specifically focus on the use of ICT across the sector.

**b. Views of curriculum and qualifications reform**

DfES, QCA and AoC are in clear agreement in their description of the learning framework which will allow the vision of 14-19 to be delivered as a phase. In this framework, improved retention and progression will be supported by increased curricular differentiation, flexibility and choice for students. This, in turn, can only be provided by a number of institutions working in collaboration.

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<sup>8</sup> Working Group on 14-19 Reform (2004) *Interim Report of the Working Group on 14-19 Reform*. Department for Education and Skills.

<sup>9</sup> Higham, J., Haynes, G., Wragg, C. and Yeomans, D. (2004) *14-19 Pathfinders: An Evaluation of the First Year*. University of Leeds and University of Exeter.

At the same time, it is recognised that the learner cannot drift aimlessly in this environment of choice but will need to be firmly based in a home institution which will provide management, support and guidance, and which will act as the channel for funding and reporting.

In this context, the balance has yet to be established around the issue of the learner's freedom of choice versus what can, in practice, be provided. It was expressed to us in this form: the student has an entitlement to choice *and* an entitlement to quality of learning – one must not be at the expense of the other. As a result, some restriction of choice will still exist, even across multiple institutions and this view was reflected at school and college level. Nevertheless, the balance of opinion is very much towards the flexibility of choice which will allow learners not only to progress from 14 to 19 but to move across the spectrum of general and specialist courses as suits their needs best, thus fulfilling the Tomlinson vision.

Four challenges are recognised as a result of these changes:

- (i) Schools will have to accept and manage greater student mobility
- (ii) Colleges will have to learn to cope with a much larger number of students aged 14-16 and with the issues that brings
- (iii) It will be essential to provide the right form of information and guidance to students through 14-19. This will have to be channelled through the home institution and supported through Connexions where possible
- (iv) Incorporation of Personal Enrichment Activities will form part of the qualification framework set out in a transcript. Student achievements in this field will need to be attested but, ideally, without accruing too much bureaucracy in the process

### **c. The use of ICT to support 14-19 reform**

There is universal agreement as to how ICT might be most effectively employed to support the delivery of 14-19. This supports the Becta vision as set out in their report mentioned earlier. The key areas, as identified to us by interviewees are:

- Administration
  - Curriculum planning, registration, attendance tracking, portfolios of Personal Enrichment Activities, links between schools and colleges, Unique Learner Numbers
- Communication
  - Between teachers and learners; use of mobiles and web for student support
- e-learning
  - Managed Learning Environments (MLEs), management of ILPs, tools for formative assessment, support for minority subjects

## 4.1.2 Regional

### a. Overview

For a regional view, we spoke to representatives of the LSC London East, London East Connexions and London Challenge. Each of these organisations has overlapping responsibilities and priorities. The LSC London East, as well as playing its part in national strategies, has major objectives to develop participation and retention, to improve achievement on the part of learners and to increase employer engagement in learning. Many of its practical programmes, as it manages the budget for 16-19 learning, are focused on these ends.

Independent of the LSC, but working alongside it, is the London East Connexions Partnership which provides advice, information and guidance to young people aged 13 to 19 in Barking & Dagenham, Bexley, Greenwich, Hackney, Havering, Lewisham, Newham, Redbridge and Tower Hamlets. Connexions is currently working on significant ICT developments relevant to the collection and sharing of student data.<sup>10</sup>

London Challenge, set up in 2003, focuses chiefly on secondary education in Hackney, Haringey, Islington, Lambeth and Southwark, as well as working with under performing schools throughout London. It has stated, “We want to use the wealth of resources in London to ensure that all London’s young people have access to a wide range of experiences, opportunities and options for learning which suit their needs, abilities and aspirations and will unlock their potential and help to meet London’s needs.”<sup>11</sup>

We also spoke to Barking & Dagenham Training Services to gather their views on work-based learning.

### b. Views of curriculum and qualifications reform

It is felt that proposed 14-19 reforms will have major impact on learning providers because they will be required to give a greater emphasis to vocational qualifications, even though this may be contrary to league table judgement criteria. The major shift towards personalised learning will have two consequences: firstly, learning will be based more around individual needs and potential than around specific age points; secondly, the greater flexibility and choice will increase an individual learner’s flexibility in employment at a later time.

With regard to work-based learning, it is thought that there would be an increase in 14-16 year-olds in work-based learning, and that this will become difficult to manage. Due to the legal and practical difficulties of having 14-16 year-old learners in the workplace -

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<sup>10</sup> See 4.2.1b

<sup>11</sup> The London Challenge (2004) *Putting London in the Driving Seat: discussion paper*. Department for Education and Skills.

namely child protection laws, and the inadvisability of allowing juveniles access to machinery and specialist equipment - the training will need to become more classroom-based, requiring staff to develop different skills.

### **c. The use of ICT to support 14-19 reform**

A number of ICT concepts were discussed, but at this stage only Connexions is significantly investing nationally and regionally in its system through the Connexions Customer Information System (CCIS) project, which pre-dates the DfES' 14-19 proposals. This project involves regional spending of £1.5m out of a national budget of £50m on a system to collate information on students. This system will also incorporate data on funding and qualifications.

At a recent London Challenge working party<sup>12</sup>, other potential uses for ICT were suggested by key stakeholders, including:

- Online advice and guidance information, such as course availability and recommended student pathways, to assist Personal advisers
- Tracking of student attendance and performance
- E-learning and e-assessment
- Web-based forums for student support, including peer-to-peer and mentor support

### **4.1.3 Local**

#### **a. Overview**

##### **i. Schools and Colleges**

We spoke with representatives of Lewisham College, the Lewisham Pathfinder Project, Crossways Academy, three secondary schools (one from each of the main federations) and a forum of young people from Lewisham.

Of the twelve secondary schools in Lewisham, four feed into the new Crossways Academy opening with 500 students in September 2004. Another three feed into the Hillside Sixth Form Consortium, also with 500 students. Three are linked with Christ the King Sixth Form College, which comprises 1,100 students. Of the final two schools, one is continuing as an 11-19 school and the other, as a new City Academy, will be linked to Haberdashers' Aske's Hatcham College. Lewisham College provides learning for 16,500 students, 65% of whom are part-time, and 2,500 are in the 14 to 19 range.

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<sup>12</sup> December 2003

Approximately 10% of Year 11 pupils in the borough leave education, employment or training before the end of Key Stage 4 (KS4). A number of these re-enter the system after one or more years.

ii. Lewisham Pathfinder

Lewisham is home to a strong Pathfinder project, which has two interrelated strands:

- KS4 entitlement – exploring how schools can increase the range of courses (and the qualifications they lead to) they make available within their KS4 curriculum
- Partnerships with federations of schools and other providers – to help provide a more coherent phase of education and training for 14-19 year olds<sup>13</sup>

The project includes all secondary schools, special schools and independent schools in the borough, as well as Lewisham College. It will be expanded to Greenwich in its second year.

**b. Views of curriculum and qualifications reform**

In considering the potential of 14-19 changes, all establishments are positive about the possibilities of students getting recognition for vocational courses and for currently non-accredited 'readiness to learn' options. However, it is felt that the Tomlinson reforms will also have to address how schools performance is measured for this to become really effective.

i. Student Mobility

Although a small number, Lewisham school students are already spending one or two days a week studying at Lewisham College. Some are also beginning to draw on teaching resource in other local schools, in circumstances where requested courses are not offered by their 'home' institution. The number of 14-16 year-old students participating in such cross-institutional learning is expected to increase significantly under 14-19 proposals.

However, there are some very specific concerns associated with students participating in courses outside their 'home' institution:

- The 'home' institution will be required to pass on related funding to the external provider, yet school staffing costs cannot be reassigned at short notice. Furthermore, there is a view that offsite learning is likely to be more expensive than the school-based equivalent.

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<sup>13</sup> DfES 14-19 Pathfinders website – <http://www.dfes.gov.uk/14-19pathfinders/pfdetails.cfm?pf=37>

- A lack of mechanisms for tracking student progress across institutions
- The length of lessons and the times of school days are often not aligned, causing disruption when students are shared. In addition, timetabling systems are not linked, making efficient scheduling difficult across institutions
- It is not proving easy for institutions to collaborate when they are often also competing for students.

The students recognise the value in meeting and working with other students, but do not welcome the time-consuming nature of travel around the Borough.

#### ii. Individual Learning Plans

The Government has indicated the importance of ILPs for students from 14 to 19 with the emphasis on formal learning goals and targets. However, it is not clear to schools who is responsible for the planning of the 16+ ILPs when students are leaving school to study elsewhere. Partly to address this concern, the Lewisham Pathfinder project is planning to introduce ILPs for all Year 10 students by September 2004, and one school suggested that there is a need for them to be started in Year 9 if they are to be effective at the beginning of the 14-19 phase.

#### iii. Student Guidance

Students think that much more advice and guidance is required, but they are not clear as to who is in a position to deliver it. They feel that they need advice at 14 because of the long-term implications of choices made at an early stage. The schools feel that an increased level of contact with Connexions is necessary to provide what is required for students.

### c. **The use of ICT to support 14-19 reform**

#### i. Linked/shared Management Information Systems (MIS)

A number of those interviewed believe that there is real value in communication between systems, particularly because the drive towards a more vocational route will increase the need for transferable student data to allow appropriate tracking. There is universal agreement that any way of helping to bridge the 16+ gap in terms of data transfer will be welcomed by all parties.

Both the Pathfinder project and Crossways Academy are planning to put more integration in place, but clearly there are difficulties caused by the different systems in

schools at present.<sup>14</sup> To overcome these difficulties, the option of extracting data, rather than duplicating systems, is preferred.

It is clear that an MLE linking the functionality of a Virtual Learning Environment (VLE) and an MIS system is not a high priority in some areas. Indeed, in this regard, the schools are looking to the LEA to propose a way forward, and this is under active consideration by the Pathfinder project.

## ii. Student Support

Students welcome the concept of more information about courses and more support and guidance. However, they are not happy with the idea of schools using their mobile phones for voice communication, preferring email (despite difficulty of access) or text messages, if essential. Use of mobiles is seen as an invasion of their privacy and as a communication which bypasses their homes inappropriately.

The institutions feel that online student support can only supplement face-to-face support and not replace it. One school said that there would be real benefit in home access to learning material and personal data, such as attendance records.

## iii. E-learning

It is felt that, in addition to what was being produced by the National Learning Network (NLN) and Curriculum Online initiatives, there is still a need for suitable online teaching materials. Many interviewees recognise the value of e-learning, with its ability to provide access to courses which would not otherwise be available. They emphasise its value for minority subjects such as modern foreign languages and for maximizing the use of learning materials developed once and used many times. Only one interviewee suggested that e-learning has the potential to save money.

Previous experience of e-learning and e-portfolios has been very limited at school-level for various reasons, including previous restrictions on bandwidth.

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<sup>14</sup> See 4.2.3b

## 4.2 THE ICT PERSPECTIVE

### 4.2.1 National ICT

#### a. Pathfinders

There is much evidence from the Pathfinder projects across the country that technology is central to the general success of the many collaborations and partnerships that have been established. Indeed, for many Pathfinders, the focus has been on building a central ICT system or linking existing ICT systems or some combination of this. When we visited the Kingswood Partnership (South Gloucestershire Pathfinder) it was clear that their extranet service with its central curriculum-based application and its many other delivery modules is central to, and essential for, their partnership scheme. Not only is technology at Kingswood helping to bond the partnership members, it is also providing for joint curriculum planning right through the 14-19 range.

Almost all Pathfinders are developing e-learning programmes and many have installed, or are in the process of installing, a VLE to provide the core teaching and learning online services. Most are working with existing suppliers to adapt or customise systems which are essentially off-the-shelf. Some are developing bespoke systems (e.g. Kingswood) which, once proven, could have application elsewhere. There is considerable variation across the country regarding the level of development and maturity of VLE systems, but they are generally seen as a major success and there is considerable support behind the VLE programme from funding authorities.

In some cases, for example the Coventry Pathfinder, a method of e-learning is being explored which allows the teachers to deliver lessons remotely, over the internet, with two-way interactions where students use voice and screen communication.

#### b. Connexions

All of the Connexions partnerships have been engaged in projects to link with the new national Connexions CCIS database. This has required the development of all the local Connexions applications to support a standardised data hand-off mechanism (following Government eGIF standards). The resulting central database, due to be completed in Spring 2004, is accessible by Connexions personal advisers and to the Connexions Service National Unit (CSNU) for management information. However, we could find no current examples of where this database was linked directly with MIS databases held by schools and colleges. Student data held in the latter databases will continue to be transferred to Connexions using predominantly offline methods.

c. Unique Learner Number

The single biggest barrier for more general exchange of student records is the current lack of a standard student identifier. Many schools use the Unique Pupil Number (UPN), however the DfES has agreed with the Information Commissioner that this identifier will lapse on the student's exit from compulsory education at the age of 16. It is now commonly accepted that a Unique Learner Number (ULN) must be developed and the DfES is currently running a full consultation process on the topic. If this concept is been agreed and adopted, it will become viable to build links or gateways (with conversion code as necessary) to exchange student data records more readily.

d. The DfES and e-registration

In 2001 the DfES provided funding for many schools with higher than average unauthorised absence levels to receive e-registration systems. This national scheme is now completing its second year and is regarded as being successful with lower truancy rates across these schools.

e. JISC, CETIS and Interoperability

JISC and CETIS have done much work to address interoperability issues, and in 2001 commissioned a number of pilots to demonstrate better integration of MLE systems using the proposed IMS standards, including IMS Enterprise and IMS LIP standards. A second set of regional pilots has also been commissioned under the banner SWaNI (Scotland, Wales, Northern Ireland). These collective pilots have resulted in a wealth of data relating to the emerging interoperability standards. The updated specifications cannot yet be called mature. The most tested and stable areas are the links connecting the VLE to the outside world, especially to content providers or sources and to student records systems (MIS) using IMS Content Packaging. Since these pilots, CETIS has released an expanded version of IMS Enterprise known as IMS Enterprise Services Web Services (ESWS). This addresses many of the implementation difficulties associated with the narrowly-defined Enterprise specification.

f. Content Provision

Content material for e-learning is now relatively accessible. There are national initiatives such as the NLN, **learnirect**<sup>®</sup> and Curriculum Online and these are being actively marketed.

The NLN programme began in 1999. Since then the NLN materials team has been responsible for commissioning and managing the development of over 800 hours of electronic learning materials across a wide range of subjects. The Government's investment in the NLN totals £156m, over a five-year period. Initially for the benefit of

further education and sixth form colleges, the programme is now being extended to the wider post-16 education sector including schools with sixth forms. NLN Online is currently being established to market the products more actively.

**learnirect** has been operating nationally since October 2000 and provides content falling into three main categories - skills for life (literacy, numeracy and English as a Second Language); business and management; and IT skills. Over 80 per cent of courses are online, some using CD-ROMs and others are workbook-based.

The vision for Curriculum Online is to give schools easy online access to a wide range of digital learning materials, which they can use to support their teaching across the curriculum. The programme consists of ring-fenced funds (eLearning Credits) and a web portal, which provides teachers with access to information about a wide range of digital learning materials.

g. Multiple Agency Projects

A number of current national initiatives involve the collaboration of multiple agencies including links with the education sector. The FAME range of projects (Framework for Multiple Agency Environments) is sponsored by the Office of the Deputy Prime Minister (ODPM) and contains a number of strands, several of which have the need to link with educational databases. The most significant of these, in terms of links to education, is an IRT project (identification, referral and tracking of children at risk) which is being run by agencies in Lewisham.<sup>15</sup> Also within FAME are two Newcastle-based projects – Children with Disabilities, and Learning and Evaluation.

Another current ODPM-funded national project is RYOGENS (Reducing Youth Offending Generic National Solution). This is a set of region-based collaborative projects which take a close interest in the 14-19 age group. Projects are established in Tower Hamlets, Lewisham and Warwickshire. As well as education the other agencies involved are health, police, social care, probation service, housing and the Youth Offending Team (YOT).

The common technology theme across all these strands is the inherent requirement for exchange of data between existing databases, or the need for a common database. A common complaint from any multiple agency project is the lack of interoperability between their existing systems.

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<sup>15</sup> See 4.2.3c

#### h. Aimhigher

The Aimhigher national project - to help widen participation in UK higher education through the provision of relevant information to potential students - is another example of where student data needs to be linked with other agencies. For example, Connexions Humber has been approached by the local Aimhigher co-ordinator to host a small amount of additional data (in an application called TrakRekord) so that students believed to be suitable for higher education can be easily identified and better managed by Connexions staff.

### 4.2.2 Regional ICT

#### a. LGfL

Technology infrastructure across London relating to ICT systems is well advanced. LGfL has established a pan-London broadband infrastructure into which 67% of schools are now connected, including all secondary schools. All London students and teachers have email addresses and access to web space. Content (multimedia) resources are widely connected. All London schools now have interactive whiteboards and LGfL provides video-conferencing to all London schools.

#### b. ICT Test Bed Project in Barking & Dagenham

The DfES is sponsoring a large £20m ICT test bed project involving three LEAs - Barking & Dagenham, Durham and Sandwell. This major investment in ICT systems is aimed at raising standards. Other areas being targeted are workload, leadership, school collaboration and home/school access. Some twenty-eight schools and three colleges are participating. In Barking & Dagenham this is a four-year project and includes Barking College together with three secondary schools and six primary schools.

#### c. Connexions in London

The London Connexions Partnerships are gradually consolidating their technology bases as part of their respective CCIS implementations. Both Central London and London East have adopted the CORE+ management system from CareerVision. North and South London are likely to choose the same system, although West London Connexions Partnership may seek an alternative infrastructure. However, all London Connexions Partnerships will share a common data hand-off method by virtue of the CCIS specification. In discussions with Connexions London East, it is evident that there is a desire to work more closely with other organisations, but the complexity of their systems, combined with data protection issues, makes data sharing or even a common database a

difficult prospect. There is an initiative to link the local IRT systems with Connexions, and the respective software suppliers are in discussion.

d. Student Tracking

In the LSC London East strategy document *14-19 Transformation Agenda: A model for Success* there is a call for a 14-19 student tracking system which “will enable the learning and achievement of students in different contexts and sectors to be recorded, reported, accessed and utilised by the student and by those with a responsibility for their learning and achievement across the different sectors and settings.”<sup>16</sup> This proposed project for 2004 in London East has real scope for expansion across the city.

### 4.2.3 Local ICT

a. Lewisham College

Lewisham College has a well-advanced e-learning strategy. It has implemented a VLE from Blackboard Inc<sup>®</sup> - a common solution across a number of colleges and universities in the UK. This has been in place for nearly two years and is accessible to all staff and students. Although the structure is fully in place, there is considerable work before all aspects are operational. Some seventeen e-learning projects are under way. There is already very positive feedback from students and many wish to see this form of e-learning extended to a wider range of subjects. They like the wider choice of subject and the flexibility of access. However, the reaction from staff has been mixed, some of whom have difficulty finding time for training. Building new teaching skills will continue to be a priority for the college.

The college has several MIS systems installed which are not connected to the VLE. There are plans to improve their administration efficiency by implementing new interfaces between the VLE and their MIS system to create a more integrated environment. They would also like to share MIS systems with local schools. This initiative has now been absorbed into the Lewisham Pathfinder project.

b. Lewisham Pathfinder

The Lewisham Pathfinder has two main strands comprising KS4 entitlement and partnerships with federations of schools. Technology is playing a major role in these objectives with a framework being developed known as the ‘virtual campus’. This involves Lewisham College and other partners such as Digitalbrain and the City Learning Centre. It includes a major upgrade to the enterprise version of the Blackboard VLE product.

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<sup>16</sup> LSC London East (2003) *14-19 Transformation Agenda – A Model for Change*. Section 3.10.

A key feature of the extended VLE is the support for links into existing MIS systems which is an essential requirement for evolution to a full MLE. The Pathfinder project plans to produce an integrated MIS system using systems currently deployed in borough schools. There are at least three different MIS systems installed across the area (Integriss, SIMS and CMIS™) but not all are being used to their full potential. A frequent problem seems to be the lack of training among the administrative staff, owing to part-time working and staff turnover. Any further changes to these MIS systems, which may be inevitable for integration, will need to take the skills of the administrative staff into account.

c. Lewisham IRT

There are several IRT projects underway across the country which are the result of the Government's *Every Child Matters* Green Paper. These cross-departmental projects are designed to improve services for children through information sharing. Lewisham has its own IRT project which works in association with the national FAME initiative, funded by the ODPM, and also the Children and Young Persons Unit (CYPU). Whereas the latter link focuses on process and legal issues, the former link with FAME concerns itself with issues of interoperability. In common with other IRT projects, the Lewisham group will need to explore transparent links between the four major service areas or 'domains' - health, social care, criminal justice and education.

This major issue of interoperability, both within the education sector and across multiple agencies, is developed in the next section and in Appendix A.

## 5. KEY ISSUES

A number of key issues have emerged from our research. Some of these issues are centred around aspects of educational management and some have direct relevance for the use of ICT. In Sections 6 and 7 we set out proposals and recommendations for how these issues might be addressed.

A key concept for this section is that of systems interoperability which is covered in greater detail in Appendix A.

### 5.1 MANAGEMENT OF 14-19 PROVISION

**Issue:** The division of accountability for 14-19 means that it will be extremely difficult to make progress in meeting educational objectives, with or without the support of ICT.

At the top level across the region, the management of, and accountability for, 14-19 education is channelled through a number of routes - schools, colleges, the LEAs, the LSCs, GOL and London Challenge, all supported by Connexions. This complex pattern means that progress towards the delivery of the new 14-19 phase is only likely to be made step by step, and, indeed, will not happen effectively without a clearly-defined, strategic approach. With the best intentions, and even with the outstanding work we have observed across the region, it will be hard to make the required rate of progress, unless a more coherent framework for policy and action is forthcoming. It may be reasonable to require local projects to collaborate, but it is currently hard for them to do so when awareness of other projects is difficult to obtain.

There are a number of consequences of this situation:

- Ownership of the delivery of 14-19 learning is split across institutions at the point of delivery
- The learners' home institutions will increasingly have to manage the quality of the learning as delivered by the partner or supplementary institutions
- Institutions will have to work with partners who are often also their competitors
- There is also sometimes difficulty moving funding between institutions in ways which both parties regard as equitable

As we will demonstrate, ICT has the potential to transform the management of 14-19 learning, but is extremely unlikely to achieve that potential without the supporting systemic change at a level above that of the individual institution. This is because it is above the institutional level that the most effective implementations must be planned, financed and managed.

## 5.2 LEARNER SUPPORT

Issues: It is difficult for learners to acquire information about the availability of courses. It is also difficult for institutions to track their progress when they do, because a consolidated method of tracking students through the system from 14-19 does not exist.

The Tomlinson reform will provide a single framework of qualifications across the 14-19 age range, taking a major step towards the creation of a coherent educational phase across those years. However, because the management of the teaching and learning is not similarly unified, the options presented to the learner across the region are bewildering. The very flexibility of the proposed options and pathways mean that frequent advice and mentoring will be more essential than ever for pupils at age 13.

As it is difficult to obtain comprehensive information on course availability across the region, it is inevitably hard for advisory staff in schools and for Connexions personal advisers to provide the support that is needed. There is also significant concern across the sector about whether a sufficient number of personal advisers will be available, as Connexions has a primary focus on those students at risk of falling into the Not in Education, Employment or Training (NEET) group.

The requirement to track students' progress will increasingly become more urgent as students are being offered courses split across a number of institutions. The situation is especially complex in London where students can apply for courses in different boroughs. To compound this further, some 'at risk' students are monitored by other agencies who would also like to receive or provide tracking data. It is difficult to see how the Government's targets for student retention can be achieved without a local or regional tracking service in place.

The key to providing such a system is to ensure those existing systems that currently perform tracking can interoperate with their peer systems. However, tracking data may be seen as sensitive and further issues arise relating to the ownership of data and the willingness of parties to share it.

## 5.3 MANAGEMENT OF ONLINE INDIVIDUAL LEARNING PLANS AND PORTFOLIOS

Issue: There is little scope at the moment for the ILP to be portable outside the local environment until interoperability standards are established.

The development of online ILPs is one of the more confused areas relating to e-learning, partly because no clear specification exists. ILPs are likely to become essential for providing seamless continuity for 14-19 students, and therefore they should ideally have

some degree of portability. However, development has been patchy (about one third of Pathfinders are involved in ILP development) and it is not clear whether the ILP is implemented as part of the VLE or student record system (i.e. part of the MIS system). Some institutions are not considering online ILPs until more experience in the sector is gained.

Where used, ILPs have proved useful in enabling students to progress at their own pace and there has been general acceptance of these schemes by both teachers and students alike, especially by the more able students who no longer feel constrained or restricted. However, some issues have arisen:

- The students are likely to regard their ILP and e-portfolio as their 'personal space' and it is this record more than any other that can give them a sense of continuity through the educational system
- The ILP must therefore be portable and able to be transferred to (or accessed from) any institution where the student is working
- There is no solution for the central and secure storage of ILPs and e-portfolios
- At the same time the ILP must be available to other authorised users, such as tutors and parents and carers
- Suitable security must be put in place to ensure access by users is always appropriate
- Any links that are required between the ILP and other systems (notably the VLE) must be maintained and preserved

Across the institutions we visited, there is enthusiasm for activities which broadened the learners' skills and experience and which will be managed by those institutions. It is felt that if they can truly become part of a qualifications portfolio, this will give more credence to life-skills courses which are already running but are not currently accredited. There is less enthusiasm for incorporating both voluntary activities and work experience into transcripts. This is because of the difficulty of storing the information in a meaningful way and of attesting the experiences so that they have external validity. However, a way will have to be found to manage this process if it forms part of the final qualifications system.

#### **5.4 THE 16+ TRANSITION**

Issue: The 'education stop' at 16 is reinforced by the lack of continuity of ICT systems and provision across that divide.

Most of the students in Lewisham who remain in education after 16 will be moving from schools to colleges. There are real concerns as to how the loss of 10% of students, who go missing from education at this stage, can be prevented. The other concern is around continuity for those who do continue in education or training. This is where an

'administrative stop' often takes place, raising some questions. How can the ILPs be developed at school in Year 11 which will have validity at college? How can records of achievement be built up which are considered meaningful by the colleges and by employers? Is there a potential to pass them on electronically?

More than often there is no automated way of passing basic student records between providers and maintaining effective continuity for the student. It is quite common for paper records to be transferred, and this creates potential for error and absorbs administrative time.

There are many other examples of inefficiencies caused by the lack of a common student record and the inability of MIS systems to facilitate this. Of course, where schools or colleges share the same supplier for their MIS system, then exchange of data can be considered – but often using proprietary methods.

The systems gap at age 16 is exacerbated by the change of funding arrangements at this stage. For instance, many of the initiatives and standards that the Management Information Across Partners (MIAP) Group (formed by the DfES) is working on could and should be applicable throughout the 14-19 range. However, MIAP's remit is only for the FE and HE sectors, and it is uncertain whether any of its proposals will be applied to schools.

One of MIAP's projects is the ULN feasibility study. This study concludes with a strong recommendation to implement a nationwide unique numbering system which eventually would be adopted for the whole student population. At present it is not clear on what scheme this would be based, how it would be managed or even whether it will materialise at all, but it is currently subject to a DfES consultation. It also comes at a time when there are other national schemes being discussed for other agencies (the most controversial being the national identity card), all of which require a unique personal number to be assigned.

It is acknowledged that the ULN cannot wait for these other schemes and we are hopeful of seeing some progress this year. Needless to say, the ULN would significantly improve the options for interoperability with suppliers more confident that they could implement against a stable, national standard.

Consequently, what does not yet exist is a national student register to be made accessible to authorised parties, although this has been widely discussed at the concept level.

## 5.5 DATAFLOW ANALYSIS

Issue: Dataflow analysis has not yet taken place, yet is a prerequisite to any detailed design of interoperating systems.

Interoperability addresses the situation where existing systems are required to communicate in a way that they can understand data passed between them, thus providing a consolidated view to the user, or a consolidated database.

A prerequisite for this to happen is that the dataflow which occurs (or is required) between ICT systems is fully documented and understood. Today, this dataflow takes several forms – on paper, on floppy disk, on CD, via online links and even by word of mouth. Data is sometimes delivered daily, weekly, monthly, annually, or on request, and regrettably is sometimes not delivered at all.

Before this situation can be improved in any meaningful way, there is a need to analyse the flow of data between the various organisations. We are not aware of any detailed analysis having been completed that includes the whole education sector. This analysis is far beyond the scope of this study and yet, without it, any proposed solutions can only be provisional or high level. This is a major issue. Fortunately we understand that such an analysis is about to be commissioned by Becta and we look forward to the output.

## 5.6 MESSAGE EXCHANGE STANDARDS

Issue: Current message exchange standards are not adequate to handle the likely demand for increased system interoperability.

Once dataflow is understood, a common way of achieving interoperability between two or more systems is to agree a set of message exchange standards between these systems. This raises some questions, such as do appropriate message exchange standards exist? And, can existing systems (sometimes legacy systems) handle such messages?

Some positive work has been completed, by both standards bodies and suppliers, in achieving levels of interoperability. These have taken a pragmatic (although somewhat academic) approach, where specific linkages are required, as in the case of delivering online content to a VLE. Here the dataflow has been analysed, messages have been defined (using the IMS standards) and suppliers of VLE systems have built interfaces around this message set.

Furthermore, the Government has mandated the eGIF standards for all public bodies where interoperability is a requirement. These standards are mainly concerned with infrastructure and are broadly consistent with comparable international standards. The

Common Basic Data Set (CBDS) provides a standard for data used in school, education authority, DfES and other software systems. If software suppliers use the same definitions, data can be transferred between different systems. However, standards are often interpreted in different ways leading to incompatibilities across suppliers. So it is insufficient merely to have the building blocks: the end-to-end message formats must be agreed.

CETIS is the representative body for interoperability standards within HE and FE institutions in the UK, and has laid down guidelines for VLE and MLE infrastructures. The messaging standards supported by CETIS are part of the international IMS set and include IMS Enterprise, IMS LIP and IMS Content Packaging which may have wider application than just the VLE, for instance in the exchange of student records. These standards, while offering the best way forward for interoperability, are still subject to semantical interpretation, and still do not address the aspirations for multiple agency interoperability.

Another example of successful message exchange is the delivery of Connexions data to their new CCIS national database. This was manageable because it was an internal project and specific messages were defined (in this case, part of the eGIF Standards) and the suppliers of systems to Connexions were required to provide interfaces to these new messages.

However, some areas are lagging behind, especially the ability of MIS systems in schools and colleges to exchange data with other agencies beyond their usual scope. Many other exchange developments have not been undertaken, owing to a lack of business case, uncertainty and unwillingness to share data, lack of funding, the enormity of the job and a lack of overall strategy.

## 5.7 MANAGED LEARNING ENVIRONMENTS

Issue: Implementation of an MLE is complicated by the need to integrate or replace legacy systems, in which there is often a large investment.

The MLE, which encompasses all the key components of student learning and administration through ICT systems, is now beginning to be a better understood and accepted concept. However, a recent study has highlighted that interpretation of MLE in practice varies widely. It concludes that, by the end of 2003, the level of integration across ICT systems achieved by FE and HE institutions was almost equally spread across high, medium and low classified levels.<sup>17</sup>

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<sup>17</sup> The Social Informatics Research Unit, The University of Brighton, Education for Change Ltd. and The Research Partnership (2003) *Managed Learning Environment Activity in Further and Higher Education in the UK*.

Although many of the difficulties in building and maintaining an MLE are not technical in nature (funding, time, staff training, other priorities, etc.), there are technical hurdles experienced by many organisations, mainly problems with legacy systems and MIS applications. By contrast, the VLE component is generally bought in as a new system for which data standards exist and it is incumbent on the peripheral systems to work with these new data standards.

Despite these challenges, almost all the institutions nationally are looking at improving their levels of ICT integration. Achieving a full MLE is some considerable way off for many. In terms of some administration functions, nearly three quarters of institutions are still performing student registration (enrolment) using paper forms. Online course selection is even lower and in the FE sector it is claimed to be only 10%. However, FE does better with online student tracking, partly explained by the need to provide audit data for funding through ILR returns.

## **5.8 DATA OWNERSHIP, SHARING AND DATA PROTECTION**

Issue: Because key aspects of data ownership, data sharing and data protection are not yet sufficiently understood and agreed, effective interoperation between systems cannot take place.

System interoperability will not work unless there is an understanding about data sharing and usage. This is particularly of concern where the data is sensitive. Here, the Data Protection Act provides guidance on what data can be held and under what conditions it can be stored.

There is some evidence that institutions and agencies are wary about sharing data on their pupils with other local institutions as it might result in unwanted competition. There is also evidence that the Data Protection Act is making some people nervous about providing student data, but there is also a suspicion that this is too often used as an excuse for non-cooperation.

The QCA has expressed the view that each learner will be 'owned' by a 'home' institution. This raises some questions. Who owns the record associated with the student? Who is accountable for the student data if it is found to contain errors? Is it possible to share data that does not have an owner? These questions highlight the issues that arise when data is passed between systems.

Strong views have been expressed to us about issues of privacy, specifically the requirements to keep data confidential and to ensure that the wishes of the learners and their parents and carers, where appropriate, are taken into account.

Recent guidance from the Information Commissioner indicates that data can be shared more freely than has often been realised - as long as the student does not object, but there is still some unease at this approach. This is part of a wider debate encompassing agencies outside education, some of which is focused on the IRT initiative.

## **5.9 IMPLEMENTATION ISSUES**

**Issue:** The introduction of 14-19 as a coherent phase sets a number of practical challenges for students, staff and institutions in terms of how the required systemic flexibility will be implemented.

### **5.9.1 Students**

As has been noted, there are concerns about the levels of student mobility required to enable them to take advantage of increased 14-19 opportunities. At present, students from schools do attend courses at colleges but the level of this activity is not high. Even so, schools have reported to us that it places strain on them in terms of reporting, management and funding. If this is increased to the levels required to offer students the flexibility and choice that the 14-19 reforms promise, significant additional resource will be needed. This will be in the form of increases in the areas of supervision, liaison with supplementary learning providers and management of associated finances. Concerns have also been raised about student safety in the workplace both in the form of child protection issues and in terms of physical safety from machinery and specialist equipment. These issues are clearly not insurmountable but will need to be tackled if there is the anticipated increase in student mobility. However, if some of the learning is to be brought to the students instead of the students travelling to the learning, then the areas of distance learning and e-learning will increase, raising other issues such as those set out below.

### **5.9.2 Staff**

Challenges for staff will take a number of forms. With younger (14+) students in college and work-based learning, questions have been raised about the skill-set necessary for tutors. Other, and possibly larger, challenges come in the form of how staff will adapt to making the best use of e-learning. This is especially an issue in FE, where a large percentage of staff are part-time and are not always available for training, and who often do not have the ICT access they need to exploit the potential of the new technology.

### 5.9.3 Institutions

Maximising the opportunity for students to participate in courses in a number of institutions will require those institutions to work more closely in the area of timetabling. It may not be realistic to propose a single lesson-level timetabling system operating across all institutions within a locality, but a system of broad blocking of time may well be required. Again, the question arises, who is responsible for issues of this kind? There is little doubt that the StAR review will give valuable insights into the current forms of course provision but will it bring about the organisation shift required to deliver flexible learning?

## **6. PROPOSALS FOR ICT SUPPORT OF 14-19 EDUCATION**

In this section we propose a programme of ICT development which can provide the essential support required for the new demands of 14-19 education, and overcome many of the issues identified in the previous section. This would underpin the further development of an educational system which allows all students to fulfil their potential in an integrated and supportive environment.

It is important to note that the proposals build on the many outstanding ICT developments which we have come across in the course of our research. We have sought to incorporate them into a regional infrastructure with a single point of management.

The scope of the programme is large, but it has been designed so that it can be introduced in a modular form, in manageable stages, as an agreed regional vision develops and funding becomes available.

### **6.1 IMPLEMENTATION FRAMEWORK**

We are proposing a series of inter-related and staged projects within an overall framework. This phased approach has some very distinct advantages:

- Projects undertaken are of manageable size
- Some deliverables can be achieved at an early stage
- Funding can be organised according to the specific benefits
- Experience and results from completed projects can be fed directly into later projects
- Any 'big bang' approach to implementation is avoided
- Pilots can be set up across the London area
- Risks are minimised
- Existing systems and initiatives are built upon

We feel strongly that such an approach is the best one for London. It offers a good deal of flexibility and continues the successful trend for good-practice schemes which are already in evidence. It is anticipated that much of the work undertaken by the more successful schemes will be drawn directly into the projects outlined below. It is important to stress that these projects must be seen as part of a larger framework to provide maximum benefit. This framework has the following important characteristics:

- Provides a blueprint for the overall solution
- Gives visibility to all participants

- Ensures that projects will be complementary
- Supports a data model to ensure consistency
- Provides guidelines for implementations
- Identifies and reinforces standards
- Ensures that interoperability requirements are foreseen and met
- Has the real potential to turn the vision into substance

## 6.2 PROJECT PHASING

The proposed framework supports a phased approach. The phasing would be determined by several factors including the functions that are to be handled, the complexity of the task, the urgency of the requirement and any infrastructure dependencies.

It is proposed that projects are sequenced under these categories:

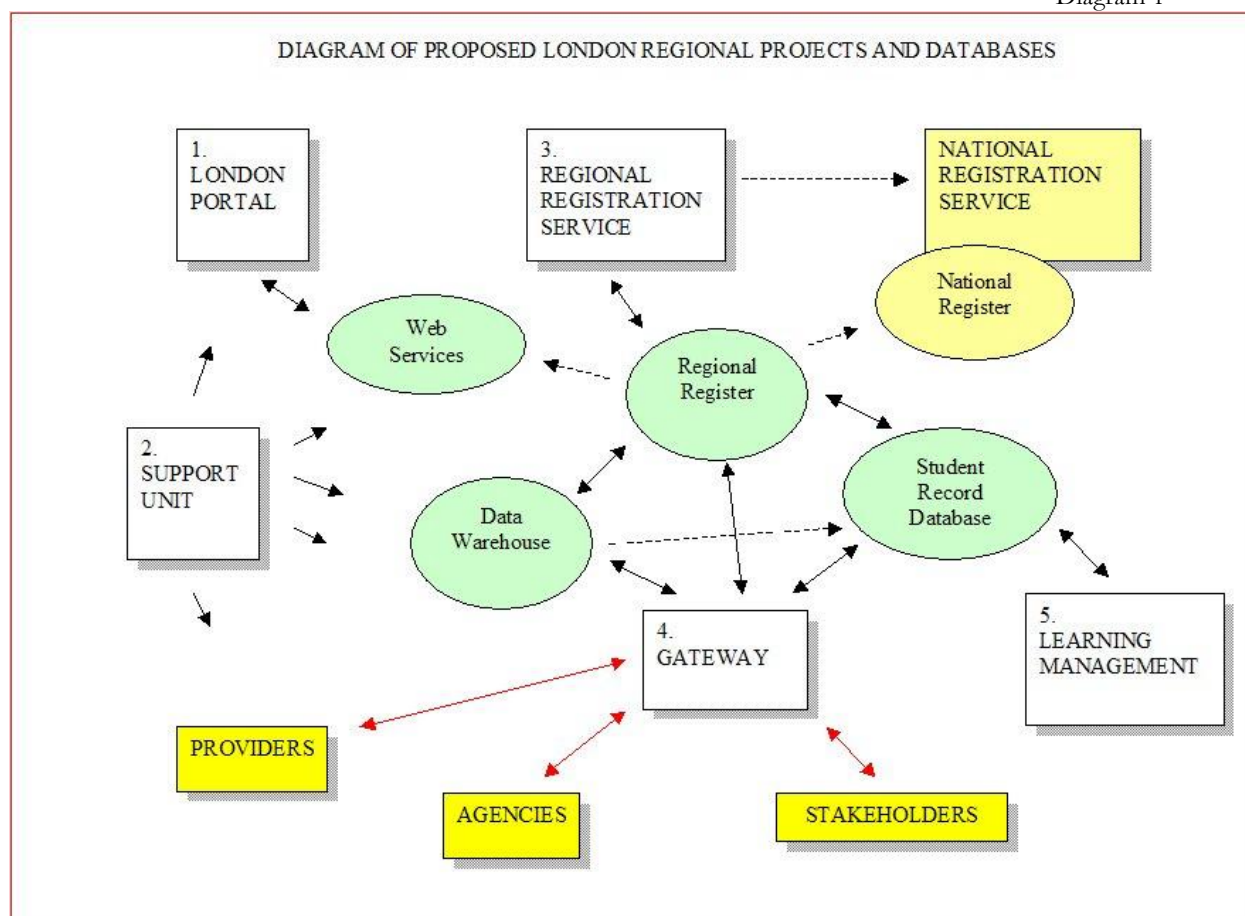
Framework Project	Phasing	Database	Outline Description
Project 1 London Portal	Early	Web Services	First phase of 'one stop shop'. Access to full range of educational offerings in the London. Available to learners, parents and carers, teachers, tutors, advisers. Links to specialist web sites e.g. course selection sites
Project 2 Support Services Unit	Early	(All)	Helpdesk for all users. Support services for teachers, tutors and advisers. Discussion forums and conferencing systems. Online delivery of professional courses Moderation of conferencing systems. Support for administrators using Gateway (see below)
Project 3 Registration Service	Early / Medium	Regional Register	Allocation of Unique Learner Number. Repository for basic student record. Coordination of records with providers and agencies on enrolment, financial support, etc. Linkage with other student records
Project 4 Gateway	Medium	Data Warehouse	Interoperability Hub Gateway services for provider systems Repository for administrative records – enrolment, attendance, tracking and attainment. Data sharing for partnerships; linking for MLEs Consolidated reports, consolidated returns
Project 5 Learning Management System	Early → Medium → Late →	Student Record Database	Central e-portfolio. Hosting of student records for participating institutions Individual Learning Plans Comprehensive coverage of student records Distributed data model

In the following section, we propose specific solutions, or projects, driven from user requirements.

We have not included solutions which address VLEs as we believe that substantial progress has already been made in this area and that a single integrated VLE for the whole of the London region is not a practical proposition. Likewise, we are not proposing any specific systems to support content provision and content management as this falls within the same general area as the VLE. However, it is important to note that many of the interoperability issues addressed later are equally applicable to the VLE.

For later stages of the framework, the lack of a data model presents a difficulty and this, together with some of the uncertainty surrounding timescales for other prerequisites (funding, agreements, standards), means that a more detailed design analysis will be needed. Despite this, we believe that this series of solutions could represent an excellent opportunity for London to establish a fully integrated, interoperating educational ICT system.

Diagram 1



### **6.3 PROJECT 1 - LONDON PORTAL**

This project introduces an important web portal aimed at learners right across London. It is the first project of several proposed linked projects which, when completed, will provide learners with continuous and unbroken support throughout the 14-19 phase. It is designed from the outset to complement providers' learning environments. One of the key functions of the Portal is to provide a single access point for the learner for a large but tailored range of key information. The system remains with them and opens access to increasing functionality as other projects within the programme are implemented.

#### **6.3.1 User Requirements**

- Main features and reach
  - 'One stop shop' for students
  - Serves whole of London
  - Available to all students in the 14-19 range
  - Also available to parents and carers, teachers and advisers
- Information
  - Up-to-date news for students
  - Courses, activities, events
  - Information on all London educational institutions,
  - Careers, job opportunities, employers
  - Modern Apprenticeship and other vocational schemes
  - Associated local and pan-London initiatives
  - Latest news on (this) set of projects
- Links
  - Access to course information sites
  - Access to provider database (when available)
  - Links to providers' websites
  - Links to careers advice and Connexions
  - Links to other agencies
  - Access to databases in this project set as they come online
- Facilities
  - Moderated discussion forums for students
  - Support for mobile devices
  - Comprehensive online help and FAQ

### 6.3.2 Solution Outline

At present educational services in London are segmented according to the many local authority boundaries and served by several LEA and LSC bodies. The London Portal is designed to provide a coherent picture of education across the city so that each student has a complete view and choice from a wide selection of courses and providers.

The key feature is the 'one stop shop' approach which aims, from a single logon, to deliver all the information that each student requires about education services in London, short of actual teaching and learning. The scope of the information extends to cover careers and employment opportunities. Of course, much of this information already exists on numerous sites serving the community based locally, regionally or nationally, and we would recommend that links should be provided to the best of these sites. There is no intention to duplicate good information and services where they already exist.

We recommend an early delivery of selected services and then staged delivery of other features. These will depend on stakeholder, provider and learner priorities and on user take-up. The same logon will provide user access to both personal and provider data that will be created through the database projects described later in this series.

The London Portal would initially be accessible through commonly-available web browsers without the need for login or password. An up-to-date news service will focus on announcements in education which are specifically relevant for London users. For general access, there will be no geographic bar on users; any user in the world can access the basic service, but content will be primarily London-based, so we expect that the vast majority of users will be from this catchment area.

A second phase quickly follows which provides additional functions requiring a login and password. Students will re-use existing login/password data that is familiar to them which they can 'borrow' from their school's or college's system, as long as it is unique on this system (first come, first served). Otherwise a new login/password combination is issued. Some level of student authentication will be required. Our intention is to tie in this login ID with the proposed ULN when it becomes available. This is the subject of the Registration Service described in Section 6.5.

A selection of discussion forums will be set up and students encouraged to participate. This is to promote peer-to-peer activity between students and especially for new students to learn from more experienced students. These forums will be moderated.

A comprehensive search function could be introduced which allows the student to enter a wide range of criteria for courses, schools, colleges, locations, work schemes, etc. An

indexed database will either satisfy the request locally or pass through to a linked site which may specialise in the selected content.

Content authoring should follow strict guidelines which would include quality controls. This process would vet all content before being published on the live site. If required, new content can be made available for third parties to view and to provide feedback on before being released.

In the third phase support will be added for access by mobile devices and other methods, including PDAs and mobile phones.

To capture student interest in the use of this system, it is important for it to be promoted at school level to students entering this phase.

### **6.3.3 Benefits**

- Provides all London students with a single access point
- The scheme is learner-centric
- Access from any web browser or (later) from mobile devices
- Provides continuity for students through the 14-19 phase
- Immediate shop window for new and existing content providers
- Marketing efforts can be channelled into one place
- Technology already exists
- Initial phase can be delivered quickly
- Risk can be managed:
  - Content and features are phased
  - User population phased (through pilots)
- Springboard for comprehensive pan-London system
- Provides seamless progression to later projects in this programme

### **6.3.4 Technical Description**

The system will be implemented across a range of servers delivering web, application and database functionality based on standard technologies. Common web browsers will be supported. The system will use scalable components in order to expand to meet a potentially very large user-base. No bespoke software development is anticipated to meet the early phases of this project.

The system will be sized to offer excellent response times to the user-base. Performance will be a key determinant of its success as the intended user-base will not tolerate a sluggish system. The best results will be achieved by working with network providers

who already have excellent communication links into the London educational network, such as LGfL and the London Metropolitan Network (a metropolitan network operated by JISC).

A security scheme would be put in place to authenticate users and to manage login and password data. A system will be provided for dealing with forgotten passwords, using an email reply-back method. It is unlikely that the system will be required to handle secure transactions (e.g. financial transactions) in the early stages and therefore the risks and responsibilities of this type of operation are avoided. It may be possible to learn from the security scheme implemented by LGfL.

Logs will be kept of various activities in the system, including, but not limited to, the discussion forums and security requests. Site statistics will be collected and made available to agreed parties through standard reports. The main statistics likely to be of interest are user access by time of day and duration, page hits and external links followed. The system will also record performance statistics so that expansion can be planned for user access, storage space and communication links.

### **6.3.5 Interoperability Requirements**

The interoperability requirements for the London Portal are mainly concerned with browser compatibility. Owing to the large potential user population, we anticipate a range of browsers that will need to be supported. Interoperability becomes more of a challenge when support of mobile devices is introduced. This causes specific issues when following links to external sites, where there would typically be no control over the content.

As the Portal is extended to provide access to the later projects then interoperability becomes a key issue. This is described as we discuss each of those projects in turn.

The external links to other systems are limited to hyperlinks to other web sites. It is yet to be determined exactly what controls are put in place for these hyperlinks, i.e. whether or not to provide controlled access so that the users remain anchored with the host site and can return easily to their resume point (or main menu) of the London Portal.

### **6.3.6 Management and Operational Requirements**

For the London Portal to be successful, it would be vital to gain the cooperation and endorsement of many key London players and providers. In particular, agreement would be sought from the DfES, GOL and other stakeholders including the LEAs, LSCs and London Challenge.

Agreements will need to be made with providers (schools, colleges, etc) and groups such as Connexions and employers. These agreements will be more significant in later projects within this programme where specific data is being held. A function would be established to handle negotiations and contracts.

An operations function would be set up to handle content acquisition, content authoring, system configuration, installation and maintenance, system operation and development.

A support function would be assembled to provide both technical and helpdesk support. This support team will also look after the discussion forums and provide moderators. The size of the user-base, especially when taking into account the later projects, is likely to become so significant that a separate project has been initiated to focus on support issues.

## **6.4 PROJECT 2 - SUPPORT UNIT**

We propose the establishment of a Support Unit which will provide support to users of the other projects in this programme. The Unit would be organised into three areas requiring different skill sets: one area for the online users, another for the teaching staff and a third, more technical area for the administrators and operators of connected systems. The online users are those accessing the system by web browser, the largest numbers of whom will be the learners. Teachers and tutors will be provided with a set of staff development and training facilities supported by dedicated staff. Thirdly, the administrators are those who are submitting data to one of the databases or extracting reports, using message exchange technology. These administrators and their developers will also have dedicated support from the Unit. The scale of this Unit will be managed in line with the growth and acceptance of the programme. The best use of resources in this area is to invest in people who can manage and deliver the knowledge and expertise via the online system itself. This can be a very effective way of reducing support via the telephone.

### **6.4.1 User Requirements**

- Helpdesk for learners
  - Using the London Portal
  - Using registration, e-portfolio and ILP
  - Telephone support
  - Online support
  - Support and moderation for online forums

- Support for teachers and tutors
  - Electronic delivery of 14-19 CPD courses
  - Support for discussion forums
  - Staff development through online conferencing
  - Advice line on general 14-19 topics
  
- Technical Support for Gateway and system users
  - Operation of system links
  - Support for data submissions
  - Support for data extractions and reports
  - Support for message exchange processes

#### **6.4.2 Solution Outline**

A helpdesk will be established to provide support for users of any of the framework modules proposed. Initially, support will be required for users of the London Portal but this will be extended to cover the Regional Register Services, the Gateway and the Learning Management System as these come online. The main helpdesk will provide specific assistance for those using the web browser interface. Support would not cover local hardware or software problems such as associated with PC hardware, Microsoft® Windows® or local applications which are not directly supporting the framework projects.

We envisage helpdesk support will include telephone support and online support. The former will likely cover extended office hours and the latter could be available 24 hours a day, seven days per week.

Staff on the helpdesk will be trained to give advice and assistance on the range of facilities provided by the London Portal. This training will be extended as more features are added, including Registration Services, use of the e-portfolio and the ILP. When users link through to other connected specialist websites, they will be directed to those websites for support. The helpdesk will also be able to link users to other professional organisations as appropriate, such as the Connexions Service. The helpdesk personnel will not be expected or trained to provide any of the advisory work performed by these organisations.

The online helpdesk services will use a combination of context sensitive online help files, FAQs and email help requests. One of the discussion forums will be a self-help forum aimed specifically at learners to exchange ideas, provide feedback about the site, and for newcomers to ask advice from their peers. This forum, and the other discussion forums, will be moderated from the helpdesk.

The helpdesk will assist with any problem associated with login and password access to the system. Some of the discussion forums may have membership restrictions over and above the standard login security. Procedures will be in place to deal with lost login ID and passwords.

All staff involved in the helpdesk will receive appropriate training and each element of the helpdesk would be driven by tested processes. The team will have a working knowledge of the system and the content contained on the website.

The Support Unit will also provide a development service for teachers, tutors and advisers. This is in recognition of the finding that a major obstacle in the roll-out of e-learning is the need for staff training. The provision of suitable courses is a factor in this and a number of online CPD courses would be available to address this problem.

An area for access by teachers only will be set up. The area will support:

- Online delivery of professional development courses
- Professional group discussion forum
- Teachers' email messaging list
- Online conferencing
- Advice on general 14-19 topics

In addition to these areas, there will be support for the teachers and tutors using the Learning Management facilities described in Projects. The ILP and e-portfolio topics will each have online help available targeted at teachers and tutors (as well as for learners).

The London Portal is primarily an information system with extensive content for learners in London. The later projects within this programme are characterised by handling more dynamic data, often gathered from provider systems or delivered to provider or stakeholder systems perhaps in the form of reports. This flow of data, whether automatic or not, is usually the responsibility of administrators or operators of these local systems. Technical support would be provided for these administrators so that helpdesk personnel will be trained to:

- Assist with the operation of data links
- Advise on data delivery problems
- Advise on data formatting errors
- Deal with data verification and exception reporting
- Handle issues with data security
- Deal with report enquiries

The helpdesk team will delegate some technical problems to second or third level support teams as appropriate.

### **6.4.3 Management Requirements**

A Service Level Agreement (SLA) will be drawn up with stakeholders and sponsors and will include descriptions of the extent of the service and performance targets. The SLA will also specify periods of cover for telephone and online support.

Management will receive regular reports on the performance of the Support Unit (see Section 6.4.4) and must ensure that actions are taken to maintain performance targets, such as adjusting the helpdesk staffing levels. Managers will engage with users of the service to gain feedback and develop the Portal to best reflect their needs. They will also deal efficiently with any issues arising from the use of the Portal.

Management will continually assess training needs and ensure that helpdesk advisers have adequate training for their roles and provide the right blend of educational and technical skills.

A quality assurance team will constantly monitor the operation and content on the London Portal site to ensure necessary standards are maintained. The quality assurance role will extend to the other databases within the project programme as they come online.

### **6.4.4 Operational Requirements**

A call management system may be implemented to provide call allocation and logging, collect statistics and produce reports on the performance of the helpdesk. The measurement tools will enable regular service reports to be constructed which will detail:

- Volume of telephone and online calls received
- Average wait times, and responsiveness of the helpdesk
- Average time to fix issues and their duration/status
- Number of issues fixed at first point of contact
- Number of escalations
- Number of referrals to technical staff
- Use of the FAQs
- Performance of the helpdesk against SLA
- Potential improvement suggestions

## **6.5 PROJECT 3 - REGIONAL REGISTRATION SERVICE**

The Regional Registration Service can be viewed as London's component of a national scheme to assign a ULN to all students nationally - a number which remains with them throughout their education (which could be lifelong). The scheme exists in concept only at present and awaits the outcome of a feasibility study commissioned by the DfES.

This project follows many of the guidelines proposed in the study and it has the potential to act as a pilot within this larger scheme while delivering immediate benefit to the London education community.

### **6.5.1 User Requirements**

- Initial one-time registration of all students for a ULN
- Repository for master (basic) student record which contains biographical details, address and contact details.
- Delivery of registration data to authorised institutions and other parties
- Real-time checking and validation of registration by authorised users
- Coordination with Gateway project (see Section 6.6)
  - Cross linking with course selection and enrolment
  - Cross linking with attendance and tracking data
  - Reference point for student financial support bodies
- Coordination with Learner Management project (see Section 6.7)
  - Cross linking with e-portfolio
  - Cross linking with ILP
- Management reporting

### **6.5.2 Solution Outline**

Our design follows the model proposed by the ULN consultation document which defines a number of processes based, in our case, on a regional register. This would later link into (or become) a National Register with eventual links to a National Learner Database. Please refer to Diagram 1 (page 43) for the regional layout schematic.

The initial process is the issuing of a new ULN to qualifying students. The first batch will be assigned to Year 10 pupils in an agreed catchment area. Personal data is recorded alongside the ULN. There will be a security provision to accompany the ULN which follows the suggested guidelines and will likely involve issuing a PIN alongside the ULN. The agreed scheme may also require the issue of a personal card.

A further process provides support for learners who have misplaced their ULN, forgotten their PIN or lost their card. Depending on the situation, this process may be automatic or require the intervention of support personnel.

Access is granted for providers to the Register to conduct cross-checking and to extract data for course enrolment and exam registration. The providers are expected to hold the ULN in their own systems. For the initial pilot, the Register will simply record data on providers with which the student has links. In a later phase, the register will link with the data warehouse which will act as a repository for enrolment, tracking and other administrative records.

### **6.5.3 Benefits**

The benefits of introducing a ULN and a Registration Service are well documented in the ULN feasibility study. The case depends on the level of implementation (see Section 6.5.4) and generally assumes a national rollout. There is a balance to be struck between the significant benefits (especially for stakeholders) and the potentially high running costs to support a large population of learners. The benefits of the proposed approach are:

- Because this regional system could act as a pilot for a national scheme, risk and costs could be reduced by being distributed more widely.
- The learner sees a more straightforward centralised registration process which paves the way for easier enrolment activities, especially when linked with searches from the web portal
- Providers benefit from a more efficient and error-free registration and enrolment process. Checking and verification is reduced owing to removal of duplication and repetition
- Record searching is more efficient with reduced matching and reconciliation problems
- Reduced instances of mispayments where the student qualifies for financial support
- Better take-up of entitlements with improved participation and retention rates as a result
- Improved data analysis for programme evaluation and planning
- More effective targeting of learning services and resources to areas and learner groups with the greatest needs and potential
- Better matching of provision and promotion of skills development to areas of national and/or local need

#### **6.5.4 Technical Description**

The proposed ULN model comprises a number of implementation levels of increasing complexity and of added cost associated with each. These are:

- Level I: ULN as a common personal identifier
- Level II: ULN as a common key for information exchanges
- Level III: ULN as enabler for national learning database
- Level IV: ULN as enabler for integrated learner systems

We cannot predict whether all these levels will be implemented on a national basis. The business case for London is probably stronger than for the rest of the country generally, so within the Regional Registration Service Project, we are following a technical strategy that supports Levels I and II immediately. Level III is actually concerned with data warehousing and we propose that this level should be incorporated in the Gateway Project (see Section 6.6). Level IV has specific support for MLE integration and this will be addressed by the Learner Management Project, also described below.

The main registration application will be supported by a database system chosen for its robustness, scalability and flexibility. It is expected that regional requirements can be met by a suitable relational database management system. However, a key criterion for selection will be its scalability to a national level. The specification requires high volume real time updates, real time queries and flexible reporting.

The database application will be required to link to and interoperate with the other systems in the regional set including the web portal system, the data warehouse and the planned student record database.

#### **6.5.5 Interoperability Requirements**

Providers would be expected to update their systems to accommodate the new ULN to ensure record compatibility and therefore achieve the projected benefits of the system. If the DfES endorses the ULN scheme, it is widely anticipated that suppliers of MIS and related systems will release updates to accommodate this.

Basic record exchange with providers would be trialed in this phase. It is anticipated that message standards will be available through CETIS or MIAP to support this. Further development of providers' systems is required.

The London Portal will interoperate with the Regional Register to harmonise and align the web login codes with the ULN.

### **6.5.6 Management and Operational Requirements**

The project assumes that there will be agreement in the near future on the proposed ULN scheme and the need for a Registration Service. We feel that the London region would be ideal for this.

A major promotional effort is required to 'sign up' learners, providers and other agencies to the ULN concept. The DfES may take on this role, and close coordination will be required with the project team. Consent may be required from users to permit their ULN to be used for the sharing and exchange of data with other parties. Compliance with the Data Protection Act is essential and discussion and negotiations with the Information Commissioner may be required.

There would be a need to liaise with providers to ensure that the required developments are made to their systems and compatibility achieved. This may require stakeholder support and the establishment of specific management groups.

Communications links with providers need to be established or re-aligned to support the required interactivity. This is addressed more fully in the Gateway Project (see Section 6.6).

The sizing of this project will be crucial, so a detailed plan of the projected user-base (learners and providers) is required at an early stage. Central to this are the decisions whether to restrict the early piloting to a specific year group of students and, if so, across which geographic area in order to ascertain the size of the initial cohort. No assumptions are made at present about the numbers and ages of the learner-base. The sizing plan must indicate the growth of the population for the first 3-5 years at least.

Finally, the most significant cost factor for this project rests with the decision whether or not to issue ID cards (and smart cards in particular). This is not a regional but a national decision.

## **6.6 PROJECT 4 - GATEWAY**

The Gateway Project introduces fundamental infrastructure to this programme of projects. It has two main characteristics – a data warehouse and a communications hub. The data warehouse is designed as a repository for administration data, comprising enrolment records, attendance records, tracking data, returns data and exam registration data.

This data is already collected by existing MIS systems in schools and colleges and either distributed to LEAs or LSCs, or compiled locally into reports. However, the treatment

of this data is not consistent across London. We propose that copies of this data should be received from participating providers in order to rationalise the process of consolidation, analysis and report production. Data will be delivered by system-to-system links supported by the communications hub. Once stored, the data can be processed and reports provided to interested stakeholders and providers. MIS system data within a partnership can also be shared across linked providers.

### **6.6.1 User Requirements**

- Gateway services for the region
- Interoperability hub
- Facilitates access by external systems
  - Stakeholders
  - Providers
  - Agencies
- Data warehouse for centralised collection of student administration and tracking records
  - Enrolment records
  - Course registrations
  - Attendance records
  - Exam registrations
  - Attainment records
  - Returns data (PLASC, ILR)
- Data sharing across partnerships and consortia
  - Pooling arrangements for partnerships
  - Linked MIS systems across partnerships
  - Consolidation of data and reports
- Management reporting
  - Consolidated reports
  - Consolidated returns
  - Tracking reports
  - Exception reports
- Support for value-added functions
  - Conversion of data formats
  - Reconciliation checks
  - Data integrity and verification
  - Support for legacy systems
  - Ad hoc reporting

## 6.6.2 Solution Outline

The Gateway project is a data warehouse application that acquires data and distributes it through a number of external links. In this Project, we are primarily concerned with administrative records typically held on schools' and colleges' MIS systems. Participating schools and colleges would send this data through to the Gateway system at periodic intervals where it will be collected and consolidated in the data warehouse. Depending on the type of data records, the transmission frequency may be anywhere between hourly to annually.

Records lodged with the database can be inspected by authorised users through a standard browser interface.

Data is transmitted by the MIS system using online links, based on either established or new message exchange methods. To contribute to the full set of data records supported by the data warehouse, the participating MIS system may require software development or additional modules to support the required message exchange standards.

It will be possible to support many transmissions simultaneously from different establishments and at any time of day, thus offering the convenience of fitting in with the schedule of the school or college. It is envisaged that the datasets to be stored in the data warehouse will include enrolment data, course registrations, attendance records, exam registrations, attainment records and census/returns information. Once collected, the data is processed and rationalised, then stored in a fashion to enable searching, browsing and analysis by authorised personnel. The main output from the stored data will be in the form of reports, for online inspection, in printed form or by electronic transfer to agreed clients.

The preferred method of interaction with the data warehouse will be by system-to-system transfers and it is anticipated that all 'clients' will support a suitable online connection for this purpose. The client base will comprise the following categories (refer to Diagram 1):

- Stakeholders – DfES, LEAs, LSCs, GOL and others
- Providers – Schools, colleges, others in 14-19 provision
- Agencies – Connexions, Social Services, Probation Services, others in IRT initiative

Records held in the data warehouse will be accessible to a controlled number of users or systems and this would typically include all members within a partnership or federation. This provides a data-sharing scheme for partnerships and is an effective and very efficient alternative to having all the partners' MIS systems interconnected.

Clients will place different demands on the Gateway regarding data analysis and report production services. Some clients, such as schools, may input data only. Others, such as the DfES, may receive data only. However, the possibility exists to perform a variety of analysis, conversion and verification tasks. For instance, a stakeholder may wish to commission a customised report based on specific analysis; or a school may wish to receive its data back in MS Excel format as their administrative staff can often handle that more readily.

The data warehouse application will have links to the Regional Register for access to basic student registration data and to the student record database (when available) for access to individual student (ILP) data. These interactions will depend on the information needs of the participating stakeholders.

### **6.6.3 Benefits**

Achieving all the benefits in full, as listed below, will largely depend on the extent of take-up of the scheme. Full participation will take time due to the logistics involved and the numbers of providers to be linked.

- Administrative data for the whole London region is potentially available in one place
- Tracking of students can be undertaken throughout the region, and at critical stages of an individual's education, especially at age 16
- Administrative records can be passed between schools and colleges as students progress and migrate, eliminating re-keying of data and reducing errors
- Potential reduction in workload for providers, once their links are operational
- Partnerships are able to share data without the need for their own data warehouse or complex interconnection of MIS systems
- Significant reduction in duplication of development effort, e.g. for report writing and analysis work
- Reports will be more timely and available to a wide audience
- Data analysis and reporting will be performed on a London-wide basis, with comparisons available at provider, partnership, borough and pan-London levels
- Reports will be more dynamic e.g. the DfES could request a new report type (covering London) with significantly faster turnaround
- Administrative data can be cross-checked against registration data
- Data can be made available online to multi-agency initiatives (such as IRT projects). Tracking data is of special interest here.

#### 6.6.4 Technical Description

The Gateway project has two significant technical components. The first is a communications hub and the second is the data warehouse. Both components are based on technology which is readily available, the only major innovation being the deployment of new message exchange standards. These will be phased in to avoid unnecessary risk, and could be deferred until the implementation of the related Learner Management system (see Section 6.7). However, newly-released standards do include specific support for the types of data records intended for the data warehouse.

The communications hub will require networked links to each participating client system (MIS systems at schools, colleges, LEAs, LSCs, etc.) using the existing infrastructure. Typically links will run under IP and use Simple Object Access Protocol (SOAP), which enables XML messages to be transferred over HTTP transmission links. Network connectivity at the Gateway could be provided by wideband links into the London Metropolitan Network, assuming a suitable agreement could be made with JISC.

A range of data formats and messages will need to be supported to reflect the large number of data exchanges that are already working satisfactorily in the network. It would be impractical and unnecessary to seek conversion of all participating systems to upgrade to the latest XML based standards. Common returns such as PLASC and ILR would continue to be supported. The format of enrolment, tracking and attendance data will need to be further investigated in light of the large potential volumes anticipated and the number of contributing systems involved.

CETIS has recently announced the new IMS ESWS set of standards which is well positioned (and timed) to handle much of the data that would need to be collected and CETIS has made progress with developing a Java™ library to support this messaging service. We understand that both Sun Microsystems™ and Microsoft have been supportive of this new standard, which is a major improvement over the IMS Enterprise standard.

The Gateway will also provide connectivity to the Regional Register, and in practice the Regional Register and the data warehouse will form part of a distributed database. This will enable the cross-validation and association of administrative records with the registration records. The distributed database will later be extended to include the student record database which is part of the Learner Management project.

It follows that some components of the communications hub are required to be in place before system access (as opposed to user access) to the Registration Service is required.

### **6.6.5 Interoperability Requirements**

Interoperability with external client systems is an important feature of the Gateway Project. We view this project as an excellent opportunity to implement some of the messaging standards that have been developed specifically for ICT systems in the education sector. Whilst we recognise the need to provide legacy support for many of the existing message and data format standards, we believe that true efficiency across the education system will only be achieved once these new standards are in place and widely adopted.

The aim would be to follow standards as closely as possible and we believe that the Gateway could be a flagship development which not only will demonstrate this latest messaging service working across London, but will be used as an important strategic platform for wider deployment.

In our view, these standards should be applied across all those providers which serve the 14-19 learners. CETIS has a remit for the FE and HE sectors which serve the 16+ population. It is still not clear how well these standards will be received in the schools sector.

Whilst recognising that message exchange specifications are still evolving - the early versions of IMS enterprise and IMS LIP leave scope for some interpretation - the latest announcement for IMS ESWS represents a major step forward and provides the flexibility linked with a committed strategic direction for the project.

This still leaves open the issue of what specification to use for interoperability with agencies outside of the education sector, and we would like to see better links in place to the Connexions Service. These types of link are not specifically addressed by the IMS message standards. In general, government agencies are under direction to follow IT and communications standards represented by the eGIF standards. However, the eGIF standard does not currently address these types of link (although there are XML-based message standards for the CCIS links within Connexions).

Appropriate standards would be reviewed as the project proceeds, but it is likely that they will be based on XML messages.

### **6.6.6 Implementation Details**

The Gateway would be implemented in a number of phases which will allow control of the number of provider and stakeholder links being introduced. This will also form an important part of risk management in that there would be no 'big bangs'.

The first phase will support a local pilot scheme, probably involving a single London borough. It would be important to encourage high participation from schools and colleges within the borough, especially where they are involved in a partnership scheme (possibly within a Pathfinder project).

In subsequent phases, the user and client population will build up at a controlled rate, so that, at each phase, system integrity and performance can be monitored.

The specification for data services and reports is likely to evolve as the project continues and must be allowed for in implementation planning.

### **6.6.7 Management and Operational Requirements**

There are several requirements which need resolution at the management and operational levels. The first of these is to address the issue of participation within the scheme and whether offering a voluntary service will bring sufficient benefits. It has been noted that full benefits can only be realised if a significant part of the provider population participates. The key to this is to reach a pan-London agreement by stakeholders. The benefits set out in Section 6.6.3 represent a compelling case for stakeholders. The case may not be as strong for providers, but short-term benefits for partnerships and longer term strategic investment arguments should prevail. A realistic roll-out schedule for stakeholders and providers must be created.

Linked closely with participation is the need for agreements to be drawn up for stakeholders and providers to make clear what services are to be provided and what is expected of the participants. Support will be an issue and there is provision in the Support Unit for qualified people on the operation and development of the Gateway.

There may be some reluctance by providers to comply with system development which may be required to achieve efficient links with the Gateway. We have stated that some backwards compatibility will be supported so that developments can take place when funding and time are available. The issue is likely to be most acute in schools where we are proposing a development of CETIS/IMS standards which have not traditionally been aimed at ICT systems in schools. However, schools are embracing MLEs (in partnership with FE institutions) and it should be apparent that the proposed standards are aimed directly at MLEs.

Data sharing will be an important feature of the services offered. Some of this data is sensitive and access to it will be restricted. Some of the data may be subject to data protection regulations, and this will need review, possibly with the Information Commissioner and with stakeholders to ensure that appropriate practice is followed.

Many participants will view the data warehouse as a secure and robust repository. Operationally, measures must be taken to ensure the data is suitably protected and procedures put in place for fallback and recovery mechanisms.

## **6.7 PROJECT 5 - LEARNING MANAGEMENT**

The Learning Management project aims to build a centralised database to house student learning records for the entire London region. It builds upon the infrastructure already established in the other two key database projects in this programme - the Regional Registration Project (student register) and the Gateway Project (data warehouse).

### **6.7.1 User Requirements**

- Central database for student learning records, mainly:
  - E-portfolio and records of achievement
  - ILPs
- Hosting of other learner record-types, as required
- Secure access to individual records
  - Authorisation checks
  - Real-time access
  - 24 hours a day, 7 days per week
  - Access via the web
  - Access via mobile devices
- Record linking and synchronisation
  - With the Regional Register
  - With records in the data warehouse
  - With providers' VLEs
- E-portfolio support
  - Creation and maintenance for participating students
  - Qualification recording with appropriate secure certification
  - Updates by providers and employers (WBL), under secure access
  - Automatic submissions via system links
  - Customisable CV production and presentation by student
  - Support for multiple formats including multimedia content
- ILPs
  - Creation and administration of ILPs
  - Tracking student progress through the ILP
  - Links to attainment records to the data warehouse
  - Standardisation of ILP format to ensure compatibility across providers
  - Customised fields within ILP to meet to individual needs (but within the standards)

- Options for central or local hosting of ILP depending on likely route for learner
- Real-time linkage between ILP and (its active) VLE
- Support for local ILP (ILP hosted by local MLE)
- Manage the learner's access across different MLEs
- Management reporting

### 6.7.2 Solution Outline

The Learner Management project offers a solution to the problem of learners who move between institutions in London and find they are working with different learning environments (MLEs, and in particular VLEs) but need continuity and a seamless learning experience.

Many learners in the 14-19 range will, at some stage, experience a move between VLEs as they progress through the schooling system or if they change location. Also, the greater choice of course options being offered to the 14-19 group will result in some learners having their chosen courses split across institutions and therefore possibly across different VLEs.

We propose the setting up of a centralised database - the student record database - that will host the most critical records associated with learners to support their learning through the 14-19 years. These records are the ILP and the e-portfolio. This is a relatively new concept and, where developments are under way, the implementations vary. This makes portability difficult.

There will be two phases for the project. The first will address the e-portfolio requirement of the establishment of the database and e-portfolio application. Web access and systems access is already catered for through the networking supported by the sister projects. Both access methods will be used for creation and subsequent updating of e-portfolio records. Security and authorisation will be provided in a similar vein to the other database projects.

In the second phase, there should be a review to tackle the more complex ILP. It would first determine whether all, or only extracts from, the ILP need to be portable. It would further determine which type of ILP and, specifically, for which types of learner, the centralising of the ILP would be an advantage. We can expect that in many cases the ILP will remain local, but for others, there is a need to lay down a specification for a central ILP format.

The resulting student record database would provide for all participating students the benefit of a centralised entry comprising their e-portfolio and a link to their ILP(s). Where the ILP is held locally at the MLE/VLE, then just a link is held; otherwise the

ILP is held centrally and must be regarded as a remote component of the MLE. The review will examine the feasibility of the MLE supporting a remote (centralised) ILP in this fashion. Should this not be practicable, or the costs outweigh the benefits, then linked ILPs only would be supported.

### **6.7.3 Benefits**

- Learners avoid the need for multiple ILPs where their studies are spread across several institutions - a single consolidated ILP is shared across these institutions
- Learners 'carry' their ILP with them when they move between institutions. There is no requirement for the institution to forward them, as the ILP resides in a central database
- The ILP will have a standard layout
- E-portfolios for many London students potentially available in one place
- The e-portfolio will be covered by common layout standards
- Central storage of the e-portfolio allows any authorised user to access – for viewing, updating or analysis
- The e-portfolio becomes primarily linked with the learner, rather than the institution. It avoids the possibility of a fragmented e-portfolio spread over several institutions
- ILP data can be crosschecked against tracking data

### **6.7.4 Technical Description**

This project will re-use several components that have been described in other projects in this programme. The networking and message exchange technologies are briefly covered in Section 6.7.5. The intention is to use the same relational database management system and software technologies as in the previous projects to provide consistency, re-using software skills and ensuring compatibility across the applications and datasets.

### **6.7.5 Interoperability Requirements**

Networking will already be in place, mainly as a result of the Gateway project. The system links with providers will be used to exchange IMS messages supporting e-portfolio and ILP updates. As before, we envisage these messages using SOAP as transport between the central server and the providers' systems.

It will be necessary to review the IMS Content packaging and IMS Enterprise specifications (and the newer IMS ESWS specifications) to ascertain their suitability for exchanging e-portfolio messages and ILP messages. Consultation with CETIS as necessary will be valuable.

### **6.7.6 Management and Operational Requirements**

As with the Gateway project, it is important to address the issue of participation within the scheme. Full benefits can only be realised if a significant part of the provider population participates. Agreements must be made with providers and it may be prudent to combine the task of negotiating these with the agreements for the Gateway. A roll-out schedule for learner populations must be drawn up. Two separate schedules may be required, one for e-portfolio and the other for ILP.

A services agreement will need to be drawn up and agreed with providers. The services agreement will include a level of support which will be provided by the Support Unit. There may be system development work required on the provider's VLE to achieve effective links with the central students record database. This needs to be agreed with participating providers and included in the services agreement.

Data sharing is a feature of these services also, and access to this data must be restricted and controlled. Within the ILP some areas may be confined to tutors while other areas may be a learner's private workspace. As with previous Projects, data security and data protection issues will need to be taken into account in the implementation.

## 7. CONCLUSIONS AND RECOMMENDATIONS

### 7.1 CONCLUSIONS

From national to local level, our research has uncovered a wide range of activity relevant to 14-19 reform. Some is a direct result of the Government's proposals, while other initiatives, such as those evident in Lewisham, are being driven by an already-recognised need to improve the offering for 14 to 19 year-olds. Indeed, several of the organisations we spoke to before the publication of the Working Party's interim report stressed that 14-19 reform was certain, notwithstanding the nature of proposals in the report.

The 14-19 Pathfinders are clearly playing a vital role in the discovery and dissemination of best practice at regional and local levels. Most of these Pathfinders are recognising the need for ICT to underpin systematic reform. For that reason we believe it important that future projects are carried out in light of relevant Pathfinder work. The Lewisham Pathfinder is of particular interest to this study because of its progress in addressing the core issues of student entitlement and partnerships between institutions.

E-learning is an integral part of 14-19 reform and there has also been significant progress in this area. The work of Curriculum Online, NLN and **learnirect** in providing online materials for teaching and learning is already proving very valuable, as has that of the Regional Broadband Consortia in supplying broadband connectivity and encouraging collaboration between teachers and local authorities.

Plans by Connexions Partnerships to merge details of all young people in the 13-19 age range in each region through consolidated Connexions Customer Information Systems provide worthwhile groundwork for the shared student tracking and support systems necessitated by 14-19 reform. Further, the consultation on the Unique Learner Number concept is to be welcomed as this is key to the future of shared student data.

Our particular focus on London East and Lewisham has shown us a number of other strands which we believe will form a basis for future developments. An increasing number of Lewisham school pupils are spending one day per week studying a vocational subject at Lewisham College, while at the same time schools are constantly amending their internal curricula to meet the needs of their teenage students. In addition, Lewisham College's diploma qualification system could be seen as a practical and workable anticipation of Tomlinson's proposals.

## **7.2 RECOMMENDATIONS**

Although our primary recommendations are of a technical nature, without the necessary structural changes, 14-19 reform and the development of any infrastructure to support it, will be difficult to accomplish. We have therefore included some observations on such managerial issues as well as our recommendations for ICT developments.

We are also aware that there will continue to be a stream of reports forthcoming on current initiatives such as StAR, the 14-19 Working Party, ICT Test Bed project, data flow analysis and ULN. As a result, it could be tempting to wait before taking action. However, our recommendations are based on building-block projects that have value in a wide range of different scenarios. Therefore, we recommend further examination and speedy uptake of these projects. This is particularly important since any decisions to progress are likely to need the agreement of a number of stakeholders, which will take time to secure.

### **7.2.1 The Educational Management Perspective**

#### **a. Clear definition of roles and responsibilities for the delivery of 14-19 reform**

Despite the positive actions that organisations and institutions have taken towards 14-19 reform over the past number of years, isolated innovation and independent projects will not be sufficient to deliver reform of the extent envisaged by the Government. For this, clear ownership of 14-19 is required. As has already been widely recognised in the context of 14-19 reform, a difficulty with the present structure is that at a regional and local level no organisation is responsible for education from the age of 14 through to 19. If a move towards a coherent phase of 14-19 education is to be successful, the DfES will need to be considering its most effective means of delivery. Sufficient power must be given to the relevant organisations to galvanise stakeholder support. Without transparent roles and responsibilities, attempts to transform the system may flounder.

#### **b. Ownership of 14-19 within institutions**

Definition of roles and responsibilities within institutions is also important. We believe there is a requirement for each institution to appoint a senior manager with a key responsibility for 14-19, where this has not already happened. The purpose is to ensure each institution is aligned with the movements in strategic direction required by 14-19 reform and also to manage the very demanding partnership approach to the delivery of 14-19 education and its consequent funding and assessment issues.

**c. Further study into how collaboration can be developed among partners**

A significant aspect of proposed reform relies on institutions pooling resources and working together. This requires transition from an institution-centric system to a learner-centric system. Collaboration is necessary on several levels. Schools will work closely with other schools in the same area to ensure a broad range of courses is available to their students. Colleges will receive more students on a part-time basis on release from local schools, and both schools and colleges will be closely linked with employers to offer students more opportunities for work-based learning. There will also be a greater integration of vocational training providers, both public and private, into the system. This will require significant cultural change for the institutions themselves and the bodies responsible for their standards and funding. Our study has shown real progress towards this end in Lewisham with four federations covering each of the secondary schools in the area. Nevertheless, these federations are at differing levels of maturity and much work remains to ensure that institutions are truly partners rather than competitors. To support these, and other, initiatives, we recommend that specialist advice and support services are further developed and provided at a local and regional level to ensure the necessary extent of collaboration can be encouraged and implemented. We envisage pan-London bodies such as the Government Office for London, the LSC London region and the London Challenge playing a key role in strategic planning and support for the region.

**7.2.2 Use of ICT and options for pilots**

**a. Pan-London management of ICT developments**

None of the ICT projects we have proposed can be undertaken by a single institution, and so we recommend that the accountability for their implementation is held by a single organisation at regional level. The requirement is to implement a pan-London approach, building on current local initiatives. This organisation must be able to reflect the interests of all stakeholders and to make decisions about a development that must, by its nature, be regional. It would, of necessity, be the prime budget-holder.

**b. Piloting**

We recommend that Project 1, the London Portal is the first project tackled as a pilot. This can be commenced on a small scale and developed in phases, matched to initial levels of funding. It will also need a proportional part of Project 2, the Support Unit to be put in place to ensure its success.

### **c. The Registration Service**

To make rapid progress with Project 3, the Registration Service, we recommend that urgent representations should be made for London to act as a regional pilot for the system of Unique Learner Number allocation, whatever the outcome of the current consultation. This Project will provide the vital foundation for the benefits that will accrue from the next stages of ICT development.

### **d. Data Management**

We recommend that, to progress Project 4, 'Gateway', the opportunity is taken to pull into one project the current data-sharing initiatives which are taking place across the region. These would include Pathfinder and CCIS as well as other, more local projects. A detailed technical specification for a region-wide solution would need to be developed before this more substantial project is put out to tender.

### **e. Learning Management**

Project 5, the Learning Management System, is an extensive project. We recommend that work on the early phase, comprising a centralised facility for e-portfolios, should begin at the earliest opportunity. So too should the planning for the later stages of this project. Its implementation becomes possible once the other projects are operational.

## **7.3 MEASURES OF SUCCESS**

As projects are implemented, they can be specifically judged by their success in delivering the following:

### **7.3.1 Increased student retention**

More students will continue in education and training beyond the age of 16 because of improved levels of information and support right through the 14 to 19 phase. This is supported by:

- Information on a wider range of options for learners communicated through the London Portal
- A more straightforward, centralised registration process for learners which paves the way for easier enrolment activities
- A more efficient and error-free registration and enrolment process. Checking and verification reduced owing to removal of duplication and repetition
- Tracking of students undertaken throughout the region, and at critical stages of an individual's education, especially at age 16

### **7.3.2 Improved management of educational provision**

To ensure the prioritisation of provision to meet current and future needs, it will be essential to have available pan-London data on uptake of courses and student retention. This is supported by:

- Administrative records passed between schools and colleges as students progress and migrate, eliminating re-keying of data and reducing errors
- Data analysis and reporting performed on a London-wide basis, with comparisons available at provider, partnership, borough and pan-London levels

### **7.3.3 Raised standards of attainment**

Raised student attainment, as measured by increases in the levels of qualifications achieved, will be facilitated by:

- Support and guidance based on wider range of up-to-date information, delivered to the learner by a variety of means of communication
  - Development for each student of an engaging individualised learning pathway, reviewed, updated and managed by all learning providers
  - Incorporation into visible and attested e-portfolios of students' achievements inside and outside the classroom leading to increased motivation and higher attainment
-

## **APPENDIX A - INTEROPERABILITY**

### **Introduction**

Interoperability is a complex issue as the number of ICT systems used in the education sector is large, there are many suppliers, and interoperability is sometimes required with systems outside of the sector. In order to address these issues in an organised fashion, we need to reduce complexity by outlining various categories of interoperability:

- Peer-to-peer interoperability
- Hierarchical (or vertical) interoperability
- Cross-agency interoperability

Throughout our research we have discovered the inability of systems to exchange data with other systems. Where we have seen data transfer possible, it most frequently requires manual controls and lacks any adherence to national or open standards. All too often, data takes the form of spreadsheet or CSV format, the lowest common denominator of the participating systems.

### **Peer-to-peer interoperability**

Peer-to-peer is used here to describe the level of interoperation that occurs within a local educational environment such as a school, a college or a partnership that may comprise a collection of schools, colleges and other learning institutions. There are many applications that can be identified which require the need for interoperability in this local environment, such as:

- The linking of MIS data to provide consolidated student registration, student tracking, timetabling, and course availability
- Linkage of MIS data to provide composite funding information and reports
- Access to any student record from within a partnership
- Linking ILPs and other student records with the VLE
- The linking of all local systems in order to provide a single point of access for students – single log on or ‘one-stop’ approach
- Communications systems providing student-to-student and tutor-to-student discussion forum groups
- Consolidated management information reporting for senior staff and local administrators

### **Hierarchical (or vertical) interoperability**

Hierarchical interoperability is roughly defined to be the interoperation that takes place between different layers of the educational environment where the players comprise providers, suppliers, employers, fundholders, other authorities, and any other stakeholders. Some examples of typical requirements are:

- Periodic returns from schools to LEAs (e.g. PLASC)
- Periodic returns from FE institutions to LSCs (e.g. ILP)
- Access to content providers from learning systems (VLEs)
- Student data to the Connexions Service
- Performance data to the DfES
- Interaction between employer systems and providers
- Access to student data from specific government initiatives (e.g. Aimhigher)

### **Cross-agency interoperability**

There are several agencies concerned with young people in the 14-19 sector and frequently these agencies have to source their data independently. A far greater issue is that there is a (welcome) trend for these agencies to work closer together for the direct benefit of the individuals, through the IRT initiative, for example.

The common requirement among these initiatives is the need for interoperation at the systems level so that data can be shared or even consolidated across relevant agencies. This is challenging since most agencies already have established systems installed. The agencies concerned include:

- Education (providers and stakeholders)
- Connexions Service
- Social Care
- Health Service
- Probation Service
- Police
- Criminal Justice
- Youth Offending Team

## **National, regional and local**

There is a further dimension to interoperability which, on the face of it, accentuates this already challenging issue. This is the issue of geographic coverage. Many of the examples provided above are intended to be considered at a local or regional level. However, some of the projects under consideration ideally need a national solution. Some agencies are already tackling their own national requirements by setting up central databases within their own organisations. For example:

- Connexions has built a national database (CCIS) fed by each of the regional offices
- The LSC Head Office receives data from its regional offices for consolidation and central reporting

## APPENDIX B - BIBLIOGRAPHY

- **Department for Education and Skills** (2003) *14-19: opportunity and excellence.*
- **Powell, B., Black, A. and Giles, T.** (2003) *Using Technology to Support the 14-19 Agenda.* British Educational Communications and Technology Agency (Becta).
- **Lewisham Council** (2003) *Success in our secondary schools.*
- **Lewisham Council and Learning and Skills Council London East** (2003) *Your choice in Lewisham: Information for young people about education and training options after age 16.*
- **Department for Education and Skills** (2003) *Consultation on the Feasibility of Introducing the Unique Learner Number.*
- **Higham, J., Haynes, G., Wragg, C. and Yeomans, D.** (2004) *14-19 Pathfinders: An Evaluation of the First Year.* University of Leeds and University of Exeter.
- **Learning and Skills Council London East** (2003) *14-19 Transformation Agenda – A Model for Change.*
- **The London Challenge** (2003) *The London Challenge: Transforming London Secondary Schools.* Department for Education and Skills.
- **Office of Her Majesty's Chief Inspector of Schools** in conjunction with the **Audit Commission** (2000) *Inspection of Lewisham Local Education Authority.*
- **Working Group on 14-19 Reform** (2004) *Interim Report of the Working Group on 14-19 Reform.*
- **Working Group on 14-19 Reform** (2003) *Principles of Reform of 14-19 Learning: Programmes and Qualifications.*
- **The Qualifications and Curriculum Authority** (2001) *Developing the 14-19 Phase: Towards Coherence – Advice to the Secretary of State.*
- **The Qualifications and Curriculum Authority** (2001) *A Report on the Implementation of a Graduation Certificate.*

- **Research Machines plc** (2003) *Evaluating Investment in ICT and e-Learning: advisory white paper.*
- **The London Challenge** (2004) *Putting London in the Driving Seat: discussion paper.* Department for Education and Skills.
- **Department for Education and Skills** (2002) *Success for All: Reforming Further Education and Training.*
- **Department for Education and Skills** (2003) *Every Child Matters.*
- **London Central Learning and Skills Council** (2003) *Pan-London Strategic Area Review Methodology.*
- **Department for Education and Skills** (2003) *Towards a Unified e-Learning Strategy.*
- **British Educational Communications and Technology Agency (Becta)** (2001) *Connecting Careers and ICT.* Connexions Service National Unit
- **The Social Informatics Research Unit, University of Brighton, Education for Change Ltd, The Research Partnership** (2003) *Managed Learning Environment Activity in Further and Higher Education in the UK.* Joint Information Systems Committee (JISC) and the Universities and Colleges Information Systems Association (UCISA)
- **Department for Education and Skills** and **Learning and Skills Council** (2002) *14-19 Pathfinders: Prospectus for 2002/03.*
- **Department for Education and Skills** and **Learning and Skills Council** (2003) *14-19 Pathfinders: Prospectus for 2003/04.*
- **Cabinet Office Public Sector Team** (2003) *'Making a Difference' Reducing Red Tape and Bureaucracy in Schools – Second Report.* Department for Education and Skills.
- **Management Information Across Partners (MIAP)** (2003) *Programme Strategy Document.*
- **Cabinet Office** (2003) *e-Government Interoperability Framework (eGIF) version 5 (part 1 and part 2).*

- **Ward, S., Wheeler, M. - Cap Gemini Ernst & Young** (2003) *CCIS to NCCIS XML Interface Users Guide*. Department for Education and Skills.
- **Home Office and Department for Health and Department for Education and Skills** (2003) *Keeping Children Safe: The Government's Response to the 'Victoria Climbié Inquiry': Report and Joint Chief Inspectors' Report 'Safeguarding Children'*.
- **SOCITM Consulting** (2003) *IRT: Information Sharing to Improve Services for Children – Technical Issues Report*. Children and Young People's Unit (CYPU).
- **Office of the Deputy Prime Minister** (2003) *A Better Education for Children in Care*.
- **Joint Information Systems Committee (JISC)** (2002) *Managing the Future with MLEs*.
- **Joint Information Systems Committee (JISC)** (2001-03) *MLE briefing pack* [WWW] [http://www.jisc.ac.uk/index.cfm?name=mle\\_briefingpack](http://www.jisc.ac.uk/index.cfm?name=mle_briefingpack) (Feb 2004).
- **Jackson, C. - fd learning** (2002) *UK JISC MLE Pilots*.
- **Adamson, V., Plenderleith, J., Glenaffric Ltd** (2001) *Formative Evaluation of the MLEs for Lifelong Learning Programme*. [WWW] [http://www.jisc.ac.uk/index.cfm?name=project\\_mlell\\_evaluation](http://www.jisc.ac.uk/index.cfm?name=project_mlell_evaluation) (Feb 2004).
- **IMS Global Learning Consortium Inc** (2001) *IMS Learner Information Packaging Information Model Specification*.
- **Lewisham Education and Community Services** (2000) *Learning to Participate – Lewisham ICT Strategy for Learning*.
- **The London Challenge and London Grid for Learning** (2003) *Developing an ICT Strategy for London Schools*.
- **NLN Materials Team** (2003) *Paving the Way*. Learning + Skills Council, National Learning Network.
- **Stiles, M.** (2001) *Pilots to Prove the Concepts of Interoperability within Managed Learning Environments in the Further Education Sector - SURF Consortium: Interoperability between COSE and MIS Systems used across the Consortium*. Staffordshire University Regional Federation.

- **Singleton, G.** (2001) *Pilots to prove the Concepts of Interoperability within Managed Learning Environments in the Further Education Sector*. Stoke-on-Trent College.
- **South Birmingham College** (2001) *Pilots to prove the Concepts of Interoperability within MLEs in the FE Sector – Final Report*.
- **Kingswood Partnership** (2003) *Post 16 Prospectus 2004-2005*.
- **Centre for Educational Technology Interoperability Standards (CETIS)**  
*Educational Content Group*. [WWW]  
<http://www.cetis.ac.uk/groups/20010809144711/viewGroup>(Mar 2004).
- **Centre for Educational Technology Interoperability Standards (CETIS)**  
*Enterprise Special Interest Group*. [WWW]  
<http://www.cetis.ac.uk/members/enterprise/>(Mar 2004).
- **Department for Education and Skills and Learning and Skills Council** (2004)  
*14-19 Pathfinders Website*. [WWW] <http://www.dfes.gov.uk/14-19pathfinders/>(Mar 2004).
- **Office of the Deputy Prime Minister** (2003) *Framework for Multi-Agency (FAME) National Project*. [WWW]  
<http://www.localegov.gov.uk/page.cfm?pageID=504&language=eng>(Mar 2004)
- **London Borough of Barking & Dagenham** (2003) *ICT Test Bed Project*. [WWW]  
<http://www.barking-dagenham.gov.uk/9-cias/ict-team/ict-team-testbed.html>(Mar 2004).
- **Department for Education and Skills** (2004) *Curriculum Online website*. [WWW]  
<http://www.curriculumonline.gov.uk/> (Mar 2004).
- **Joint Information Systems Committee (JISC)** (2003) *Virtual and Managed Learning Environments*. [WWW] [http://www.jisc.ac.uk/index.cfm?name=issue\\_vle\\_mle](http://www.jisc.ac.uk/index.cfm?name=issue_vle_mle)(Mar 2004).
- **Learning and Skills Council** (2002) *IS Strategy – Dec 2002 Final Version*.



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