
ANGEL PROJECT SUMMATIVE EVALUATION REPORT

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ANGEL PROJECT SUMMATIVE EVALUATION REPORT

1. Introduction.

This report forms deliverable 7.1 of the ANGEL project. The aim of the report is to reflect on, and evaluate the work of the ANGEL project as a whole as well as on the deliverables and outputs that ANGEL has produced for the JISC community. This will include consideration of the processes undertaken by the project, lessons learnt and potential 'hidden' outcomes that may be of use to the community.

This report uses the evaluation criteria set out by the EDNER project: inputs, processes, outputs, outcomes and impacts.¹ It was felt that these headings encompassed the variety of areas in which ANGEL was able to contribute and develop. Each heading is considered in turn, and supplemented by an analysis of the QA processes adopted by the project and an examination of the exit strategy for the project.

¹ Brophy, Peter. "Formative Evaluation of 5/99: The EDNER Project." JISC IE Joint Programme.
<<http://www.cerlim.ac.uk/edner/dissembrophy-nott-2002.ppt>>.

2. Inputs: designing ANGEL and meeting user needs.

2.1 Middleware and the ANGEL project.

The initial project proposal for the ANGEL project outlined the development of a 'Guided Environment for Learning' for use by the community. Extensive consultation with users suggested that this would not be the most appropriate path to follow, and called for a re-conceptualisation of the ANGEL project goals. These issues are discussed in more detail in section 2.2.

In response, the project decided to investigate the potential role of middleware in educational architectures to support re-use and integration of resources within a range of different end-user interfaces, and to manage the access rights of users to these resources.

2.2 Retrospective analysis of User Needs Analysis.

The ANGEL project carried out an extensive user needs analysis process at each of the partner institutions between December 2000 and March 2001. The process is fully documented on the ANGEL web site and the final report from the process is publicly available.² The process identified 141 individual ideas from end-users to the project. These contributions were organised under the following headings:

- ◆ Structure and Navigation.
- ◆ Support (technical).
- ◆ Support (learning).
- ◆ Design.
- ◆ Usability.
- ◆ Administration.
- ◆ Implementation.
- ◆ Content.
- ◆ Assessment.
- ◆ Institutional Requirements.
- ◆ Future Considerations.

Following a detailed analysis of the results, 23 recommendations were made to the ANGEL project. Due to the strategic change of direction within the ANGEL project many of these recommendations, for example those detailing page structure, are no longer relevant. It is important, however, to consider how closely ANGEL was able to meet or interpret the expectations of end users.

The following table outlines the recommendations made, and the extent to which the ANGEL project has been able to address the issues.

² Harris, Nicole. (2001). ANGEL Project User Needs Analysis: Final Report.
http://www.angel.ac.uk/public-files/pdf/WP2_final.pdf.

#	Recommendation	Project Work
1.	Consider each design aspect from the point of view of each stakeholder, here identified as Students, Academic Staff, Support Staff and Institution.	ANGEL middleware allows institutions to develop interfaces for a variety of different purposes and audiences, whilst maintaining resources and information centrally.
2.	Identify the cultural and operational differences of the partner institutions. The ANGEL should accommodate these differences within each.	The flexibility of using middleware allows individual institutions to control cultural, operational and pedagogical applications of information.
3.	Contact should be continued with all interviewees. Thought should be given to using the same groups (as far as is possible) for summative evaluation.	ANGEL has extensively disseminated the project to, and consulted with, the community throughout the lifetime of the project.
4.	The system must allow the course constructor to develop with slowly increasing levels of sophistication. This should be a graduated process, and not simply 'beginner' and 'advanced'.	By leaving interface design to the institution, ANGEL allows for different levels of user.
5.	The ANGEL should allow visual identity to be inserted, but should equally be attractive without.	Again, interface design is defined by the institutions.
6.	Create a set of guidelines for institutions considering implementing learning environments. Enter the concerns over visual identity discovered through initial formative evaluation into these guidelines.	Information on the 'hot topics' identified in the ANGEL user needs analysis has been maintained through the ANGEL Links and Technology Watch sections of the website.
7.	Allow for training in communication via the PC.	This recommendation has been passed to the partner institutions.
8.	Implement active help in subtle ways such as the spell-as-you-go system. Do not use pop-up boxes, and test frequently with users.	Help features would need to be built in through interface design. An example application can be viewed by potential designers at: http://library-2.lse.ac.uk/EL/info/ .
9.	Recommend that tutors build in courses covering learning skills.	This recommendation has been passed to partner institutions and is demonstrated in the example above.
10.	Make virtual reflect the real in terms of reflecting known institutional processes and practises within the virtual environment.	Recommendation passed to partner institutions.
11.	Add institutional / personal conflict to guidelines for institutions.	Recommendation passed to partner institutions.
12.	Use simple graphics for support of teaching.	Recommendation passed to partner institutions.
13.	Despite claims that personalisation is over-rated, it is clearly both wanted and needed and should be the driving force of the ANGEL	The ANGEL Scheduled Service Manager allows institutions to build personal tools such as alerting saved searches.

14.	When help button is clicked, the information provided should relate directly and immediately to what is on-screen. Test frequently with users during design.	Recommendation passed to partner institutions.
15.	Make administration of the system immediate, easy, and automatic.	Administrative screens have been extensively tested at LSE, and subsequently refined and improved. This process will be ongoing as ANGEL is developed through future funding.
16.	Add the tutor facilitator concept to guidelines for institutions.	Recommendation passed to partner institutions.
17.	Add 'making desired outcomes clear to students' to guidelines for institutions.	Recommendation passed to partner institutions.
18.	Consider a study of average IT skills in HE students.	Recommendation passed to partner institutions.
19.	Recommend that institutions test student IT skill level.	Recommendation passed to partner institutions.
20.	Investigate ways in which student authentication can be implemented into student assessment.	This was seen as out of scope for the project, but will be passed forward for future consideration.
21.	Use appropriate vocabulary (thesaurus) for the system and test frequently with users.	Recommendation passed to partner institutions.
22.	Use JISC specifications in design.	Recommendation passed to partner institutions.
23.	Decide upon standards that ANGEL will follow and implement.	ANGEL has based all of its design on accepted standards.

ANGEL does not meet many of these requirements as they are specifically aimed at interface design. The specific difficulties for each individual institutions highlighted in the user needs process helped inform the decision not to inflict another interface upon users through the design of middleware. This allows institutions to make specific contextual decisions about design and display that cannot be addressed through generic design. The team felt that this was the most suitable approach to address these concerns and issues.

ANGEL has managed to meet the requirements of the initial formative evaluation. It is worth noting that many of the recommendations were identified as appropriately aimed at institutions for internal consideration. The project team at each partner institution has a responsibility for pursuing these issues throughout the lifetime of the project. It will be up to the institutions to continue to address the recommendations beyond the lifetime of the project.

In order to support external users of the software managers, it would be appropriate to document these recommendations and general issues for institutions considering the use of middleware.

3. Processes: development and barriers.

3.1 Project development and barriers.

All time-limited, funded projects will run into issues and barriers that prevent them from fulfilling all deliverables and outcomes as outlined in initial project plans. This is particularly true of projects whose staff are based at different institutions, governed by different working practices and institutional commitments. Managing these issues can be a complex and time-consuming task, that needs to be considered and documented from the outset of the project.

ANGEL tackled many of the issues and problems that arose by establishing a firm team identity and reporting structure that recognised and supported key team workers within each of the partner institutions. This structure was particularly relevant and helpful when dealing with the loss of one of the project partners from project. The internal decision of South Bank University to close the LITC unit and make the staff from this unit redundant was beyond the control of either the JISC or the other project partners within ANGEL. The use of key staff members as 'ANGELs' reporting directly to the project manager and directors in fact ensured that little impact in terms of staff time and input was felt by the project. This was dependent on several key factors:

1. The willingness of LSE as lead partner to integrate the ANGEL Project Officer role within the Projects Team at LSE, and bare the overhead costs associated with this integration.
2. Careful risk analysis planning by the project team, as documented in the initial Project Plan.
3. Working relationships within the team that allowed the role to be moved with little impact.

The project loss from this incident was felt in the loss of non-staff contribution such as the loss of SBU as a testbed for the project.

The project suffered an additional staffing issue in the form of long-term staff illness. The Software Developer who was appointed to Edinburgh to work on the authentication and authorisation deliverables went off on long-term sick leave at the beginning of May 2002 having done only six months' work (much of which was set-up and training). The illness from which he was suffering had been incipient for some time, which meant that his performance before he went off on sick leave was below par in any event. The need to continue using project funds to pay this member of staff while on sick leave meant that it was not possible to replace him directly. Human Resources at Edinburgh finally reached an agreement to terminate his contract of employment with the University in November 2002.

The loss of productive developer effort caused by this problem was calculated at approximately £25,000. Savings in the Project budget, together with unspent salary on the developer whose contract was terminated, allowed us to sub-contract some of the work which he would have done to EDINA (as an existing associate partner) and to a freelance Software Developer. Other elements of the lost work were redistributed among the rest of the Development Team, which inevitably meant that timescales in other Workpackages were affected, and required a reprofiling of the Project's software development activity in general.

All projects are subject to external influences that are beyond the control and management of the project. Within ANGEL, these influences were felt most particularly in the authentication and authorisation workpackages. As part of the project, ANGEL was responsible for the installation

and review of two emerging access management systems: Shibboleth and PAPI. Delayed development and release of these packages meant that work in this area was progressed at a much slower rate than initially anticipated, although deliverable requirements were met within the timescale of the project.

The reverse of this effect was felt in dealing with many of the standards and specifications that ANGEL decided to adopt within the project. Many of these standards were new and emerging, and are still changing and developing. Keeping up with these changes, and modifying ANGEL developments to meet new specifications was well managed within the project. A greater impact may be felt beyond the end of the project when changes are no longer made to the core ANGEL software. These issues are discussed in more detail in section 8 of this report.

Positive outcomes of the ANGEL project are outlined in section 5 of this report.

4. Outputs.

4.1 Deliverables Table.

The following table details the formal deliverables of the ANGEL project. It shows the status, intended audience and description of each of the deliverables.

The formal deliverables will be available from the ANGEL website for a period of three years after the end of the project. All formal deliverables are suitably formatted to allow for central hosting by other JISC services.

Workpackage One: Project Management.

Doc #	Title and Links	Description and Audience
D1.1	ANGEL Project Plan (doc) ANGEL Project Plan (pdf)	This forms the project plan for the project required by JISC. It is essentially a project management tool.
	ANGEL Timeline and GANTT Chart (xls) ANGEL Timeline and GANTT Chart (pdf)	The timeline and Gantt chart have been used by the project to control tasks and manage time throughout the lifetime of the project.
D1.2	Report to the DNER, January 2001 (doc) Report to the DNER, January 2001 (pdf) Report to the DNER, January 2001 (html)	These are the required programme reports to the JISC, produced semi-annually by the project. They may be of interest to a wider audience wishing to track project development.
D1.3	Report to the DNER, July 2001 (doc) Report to the DNER, July 2001 (pdf) Report to the DNER, July 2001 (html)	These are the required programme reports to the JISC, produced semi-annually by the project. They may be of interest to a wider audience wishing to track project development.
D1.4	Report to the DNER, January 2002 (doc) Report to the DNER, January 2002 (pdf) Report to the DNER, January 2002 (html)	These are the required programme reports to the JISC, produced semi-annually by the project. They may be of interest to a wider audience wishing to track project development.
D1.5	Report to the DNER, July 2002 (doc) Report to the DNER, July 2002 (pdf) Report to the DNER, July 2002 (html)	These are the required programme reports to the JISC, produced semi-annually by the project. They may be of interest to a wider audience wishing to track project development.

Workpackage Two: Initial Formative Evaluation.

Doc #	Title and Links	Description and Audience
D2.1	Formative Evaluation Report to DNER (doc) Formative Evaluation Report to DNER (pdf)	The describes the full user needs analysis process undertaken by the project. It will be informative for any project or institution currently undertaking VLE development.
D2.2	Institutional Audits (doc) Institutional Audits (pdf)	This list outlines the VLE technology currently in place in partner institutions.

	Institutional Audits (html)	
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Workpackage Three: Dissemination and Monitoring.

Doc #	Title and Links	Description and Audience
D3.1	Recommendations	These guideline recommendations for the project were drawn from the initial formative evaluation. They are evaluated in section 2.2 of this report.
D3.2	Technology watch	The technology watch has been maintained throughout the lifetime of the project to keep interested parties up to date with developments in the fields of authentication and authorisation, personalisation, and interoperability.
D3.3	E-mail List – Project (closed) E-mail List – Users (open)	The closed project team list provides not only a discussion area, but also an accurate record of project work. The open angel-insiders list will be fostered as an open-sources support network for the ANGEL software Managers.
D3.4	Newsletter and Information Pack	The initial newsletter provides a basic overview of ANGEL, where as the detailed information pack provides technical descriptions, user scenarios and clear explanations of ANGEL development.
D3.5	ANGEL Demonstrators	Links are provided to demonstrations of ANGEL Managers in work at partner institutions.

Workpackage Four: ANGEL Conceptual Design.

Doc #	Title and Links	Description and Audience
D4.1	Conceptual Design (doc) Conceptual Design (pdf)	This document outlines the basic concept and architecture of ANGEL and will be a useful starting point for anyone interested in the project.
D4.2	Internal Messaging Specification (html)	The internal messaging specification is a detailed description of ANGEL messaging and is regularly updated. It will be essential to anyone installing ANGEL components.

Workpackage Five: Development and Integration of the ANGEL System.

Doc #	Title and Links	Description and Audience
D5.1	ANGEL System Specification	This document fully describes the ANGEL software managers and their messaging specifications.
D5.2	ANGEL Prototype	Practical demonstrators, and detailed documentation for the ANGEL software managers are available through the ANGEL-inside pages.

D5.3	ANGEL Server	All ANGEL documentation and downloadable software packages are available from the ANGEL site < www.angel.ac.uk >.
D5.4	ANGEL Installation Documentation	Practical demonstrators, and detailed documentation for the ANGEL software managers are available through the ANGEL-inside pages.

Workpackage Six: Authentication and Authorisation Integration.

Doc #	Title and Links	Description and Audience
D6.1	Authentication and Authorisation Specification	This document outlines the project workplan within the access management arena.
D6.2	PAPI and Shibboleth Demonstrators	Detailed demonstrators of the two systems reviewed, with walk-through explanations of purpose. These will be useful for anyone interested in PAPI or Shibboleth, or next generation Access Management Systems in general.
D6.3a	Report on PAPI Installation (doc) Report on PAPI Installation (pdf)	These reports support the demonstrators prepared for PAPI and Shibboleth, and detail the experiences of the project in undertaking installation.
D6.3b	Report on Shibboleth Installation	These reports support the demonstrators prepared for PAPI and Shibboleth, and detail the experiences of the project in undertaking installation.
D6.4	Report to Sparta	The report to 'Sparta' provides a more detailed overview of project access management developments, and is intended to support national access management developments.
D6.5	Namespace Documentation	This documents the findings and recommendations of the ANGEL project in developing the Eduperson namespace for use in UK HE and FE.

Workpackage Seven: Evaluation.

Doc #	Title and Links	Description and Audience
D7.1	Final Summative Evaluation Report	As outlined in this document.

5. Outcomes.

There have been several specific outcomes of the project, beyond the production of deliverables 'outputs'. These outcomes look beyond the promised work of the project and consider the wider implications of ANGEL for the project, project partners, and the JISC community.

a. Institutional take-up.

The project partners within ANGEL experienced similar barriers to take-up that would be expected from any educational institution. These are well documented in the Exit Strategy section of this document. Successful implementations of the ANGEL software are now in place at both LSE and DMU, providing useful demonstrators of how ANGEL can be developed and utilised to solve institutional problems.

The ANGEL Resource Manager (RM) is in use at LSE, managing the Electronic Library.

The ANGEL User Manager (UM) is in use at DMU, providing access management solutions for the institutional MLE.

Details of these developments can be found on the ANGEL-inside pages <www.angel.ac.uk/inside/>.

b. Further project work for partners.

The success of the ANGEL project has allowed the project partners to successfully bid for future funding work, building on the concepts and developments from the ANGEL project. These bids support the future development of the ANGEL software, which in turn will be of benefit to the JISC community.

ANGEL is being specifically developed through the DEVIL and DELIVER projects, as funded by the JISC 07/02 Programme.³

c. Advancing middleware concept within the JISC environment.

The decision of the ANGEL project to utilise middleware has been productive in introducing and developing middleware ideas within the community.

Through project dissemination, the middleware concept has been brought to the attention of a variety of audiences. It is hoped that this will support future work and funding for the JISC.

d. Outside interest.

A sign of the success of the ANGEL project will be through outside interest, and eventual take-up. Several projects and institutions have approached ANGEL with an interest in ANGEL concepts and outputs. Additional interest has been expressed by two large initiatives: uPortal and

³ JISC. Linking VLEs with Digital Libraries (DiVLE) Programme.
<http://www.jisc.ac.uk/index.cfm?name=programme_divle>.

ReadingListDirect. The ANGEL team will continue to pursue interest as part of the Exit Strategy for the project.

e. Informed other project developments.

The ANGEL project has maintained contact with other 05/99 projects, as well other JISC programme projects, throughout the lifetime of the project through programme meetings and through direct contact. The programme meetings provided good opportunities for the individual projects to meet and discuss, but the failure of the cluster structure within the 05/99 programme had an adverse effect on cross-programme efforts.

The size and diversity of the 05/99 Programme may have been better supported through the pursuit of common ideas and development strands within working groups and special interest groups, rather than through the more traditional clustering.

Throughout its lifetime, ANGEL had a specific impact on the INSPIRAL and RESULTS projects. The initial formative evaluation process undertaken by the ANGEL project provided insight into the INSPIRAL work, and ANGEL team members were able to contribute to INSPIRAL workshops and demonstrations. ANGEL was additionally able to support the exit strategy of the RESULTS project by providing a host environment for the RESULTS server at LSE.

f. Public events.

Through the access management work carried out by the ANGEL project, a specific community need for dissemination and information on access management requirements was identified. With additional support from JISC, ANGEL was able to organise an access management conference on 6th November 2002. The event was well attended, and provided a useful insight into the start of the 06/02 Authentication, Authorisation and Accounting Programme.

6. Impact: Evaluation of Dissemination Activities.

6.1 ANGEL Website Log Analysis

The ANGEL website was monitored throughout the lifetime of the project. The purpose of the central angel website was:

- to provide an overview of the project and quickly direct users to relevant information.
- to provide a repository and log for all dissemination activities and associated materials.
- to provide a relevant technology watch for interested users.
- to provide a location from which ANGEL software managers can be demonstrated and downloaded.

The ANGEL project website is intended to support quick and easy gathering of relevant information concerning the project and its goals. The project would expect brief user sessions, as people access materials that they have been specifically directed to. An overview of the web statistics shows this to be true. A significant increase in visitors can be marked following specific dissemination activities, as users access the information recommended to them through dissemination.

Analysis of the web statistics for the last twelve months shows 17043 visitor sessions in total throughout the period. A visitor session simply represents each hit by a visitor to the website. It ignores the number of pages accessed, and the point of access to provide a good overview of the extent of website use.

A high proportion of visits to the site were by web search engines, typically Google. High use of the internal website search engine can be seen, as can high use among academic institutions (ignoring partner sites). Use was generally within the UK and the US, with a small number of hits from a variety of countries worldwide.

The level of use is in keeping with the targets and expectations of the project.

External links to the homepage of the project website were also monitored, using linkpopularity.com. This service lists the results of a search for links to www.angel.ac.uk with three search engines: altavista, hotbot and google. Three different engines are used to attempt to capture the full spectrum of possible links. Some instances will represent the same discovery by different search engines.

The following tables detail the links discovered:

AltaVista

Links from project partner sites	4
Links from other JISC projects	11
Links for HE and FE institutions	7
Links from news and links services	6
Links from online articles	2

Other links	5
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Hotbot

Links from project partner sites	8
Links from other JISC projects	12
Links for HE and FE institutions	8
Links from news and links services	3
Links from online articles	9
Other links	16

Google

Links from project partner sites	5
Links from other JISC projects	23
Links for HE and FE institutions	10
Links from news and links services	7
Links from online articles	12
Other links	3

6.2 Dissemination Log.

The following table details the full range of dissemination events undertaken by the project team throughout the lifetime of the project. Additional dissemination activities, such as postings to mailing lists and non-planned conversations and presentations by staff are not recorded. The table clearly shows that the project was successful in reaching a variety of different audiences through a variety of formats throughout the lifetime of the project.

Plans for continued dissemination of the project are discussed in the Exit Strategy in Section 8 of this report.

Presentations:

In addition to the listed public events, the project team regularly presented project findings to partner institutions, and published in findings in internal bulletins, updates and newsletters.

- 17.05.01 Harris, Nicole. Presentation to UCRG northern group, Newcastle.
- 15.06.01 Harris, Nicole. Presentation to ITTC Focus Event, South Bank University ([150601 - Powerpoint](#)).
- 28.06.01 Harris, Nicole. Presentation to UC&R Midlands Section, Leicester ([280601 - Powerpoint](#)).
- 04.07.01 Presentation at the joint ACM/IEEE Conference in Roanoke, Virginia
- 08.08.01 MacColl, John. Presentation to TICER Summer School, The Netherlands ([080801 - Powerpoint](#)).
- 21.08.01 Harris, Nicole. *ANGEL - Initial Formative Evaluation*. Presentation at INSPIRAL workshop ([210801a - Powerpoint](#)).

- 21.08.01 MacColl, John. *Virtuous Learning Environments*. Presentation at INSPIRAL workshop ([210801b - Powerpoint](#)).
- 17.01.02 Paschoud, John. *Angel: Joining Things Up*. Presentation to JUGL ([170102 - Powerpoint](#)).
- 18.03.02 Paschoud, John. *Community Benefits of E-Technology: Public & Academic Library Perspectives*. [Internet Librarian Conference](#). ([180302 - Powerpoint](#)) ([180302 - Word](#)).
- 30.04.02 Paschoud, John. *Trust Me - I'm a Stranger: Access Management for Higher Education in the Widening World of the Web*. Presentation to LSE staff. ([300402 - Powerpoint](#)).
- 21.05.02 Paschoud, John. *Angel: Joining Things Up*. Presentation to University of North Carolina Seminar for US Library staff, at LSE Library. ([210502 - Powerpoint](#)).
- 19.07.02 Donoghue, Angie and Ward, Alison. SHU Authentication Seminar. ([190702 - Powerpoint](#)).
- 05.08.02 Paschoud, John. *Information: from "Landscape" to "Environment"...from Nature to Architecture*. Paper and presentation to TICER Summer School, Tilburg University, The Netherlands. ([050802 - Word](#)).
- 14.08.02 Eyre, John. [DMU MLE Workshop](#).
- 15.08.02 MacColl, John. *Libraries and learning environments: points of contact*. [OCLC SCURL Pre-IFLA Conference 2002](#). ([150802 - Powerpoint](#)).
- 20.08.02 MacColl, John. Presentation to the IFLA SciTech Libraries Group at Heriot-Watt University Library. ([200802 - Powerpoint](#)).
- 11.09.02 Panel session at [Alt-C 2002](#), University of Sunderland.
Paschoud, John *Introduction*. ([110902a - Powerpoint](#))
MacColl, John . *The Library Perspective*. ([110902b - Powerpoint](#)).
Harris, Nicole . *The User Perspective*. ([110902c - Powerpoint](#)).
Eyre, John . *The Technical Perspective*. ([110902d - Powerpoint](#)).
- 08.10.02 Wade, Maureen. 3rd Scientific Symposium of the ICICOM (formerly IBLC) Frankfurt Book Fair; 7th - 8th October 2002: Moving to New Realities. ([081002 - Powerpoint](#)).
- 18.10.02 Paschoud, John. *Portals, Portals, everywhere...Why the Interface-to-Everything is not an Interface-for-Everyone*. [Personalisation and Digital Libraries Seminar](#), Open University. ([181002 - Powerpoint](#)).
- 31.10.02 Beech, Steve. [Angel Software Demonstration](#). JISC Programme Meeting, Nottingham.
- 28.11.02 MacColl, John. Presentation to the Scottish Library and Information Council, Perth. ([281102 - Powerpoint](#)).
- 03.12.02 Harris, Nicole. *Middleware: reasons and restrictions*. [JISC 'Creating Environments for Learning' Conference](#). Birmingham. ([031202 - Powerpoint](#)).
- 29.01.03 Harris, Nicole. *Developing ANGEL*. Presentation at Huddersfield University. ([290103 - Powerpoint](#)).
- 12.02.03 Paschoud, John. *Implications of VLEs for Librarians*. [CILIP conference](#): VLEs - everything you wanted to know about but were afraid to ask. ([120203 - Powerpoint](#)).
- 28.02.03 Paschoud, J. *ANGEL and DELIVER*. JISC e-Libraries - e-Learning Meeting, London. ([28.02.03 - Powerpoint](#)).
- 26.03.02 Paschoud, J. *Keynote: Authentication*. SURF Workshop: Networked Resources, Libraries and Authentication. (26.03.02 - Powerpoint).
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Articles:

- Alexander, Wilma. "Adaptive developments for learning in the hybrid library." [Ariadne issue 24](#) (21 June 2000).
- Paschoud, John. "Making the PIE. . .GEL." [Cultivate Interactive](#) issue 4 (7 May 2001).
- Paschoud, John. "Project ANGEL: Guidance and Guardianship for Networked UK Learners." [D-Lib Magazine](#) volume 7 (July/August 2001).
- MacColl, John. "Virtuous Learning Environments: the Library and the VLE." *Program* volume 35 (July 2001) 227-239.
- Harris, Nicole. "What is an ANGEL?" [Vine](#) issue 125 (December 2001) 69-73.
- Harris, Nicole. "Managed Learning?" [Ariadne issue 30](#) (January 2002).
- Paschoud, John. "[Why Librarians should care about VLEs](#)". [Relay](#) issue 53 (2002).
- MacColl, John. "VLEs in the Learning Landscape." [Relay](#) issue 53 (2002).
- Harris, Nicole. Editorial. [Vine](#) issue 126 (May 2002).

Publicity Material:

- 24.01.02 Poster session at JISC Programme Meeting ([240102 - Powerpoint](#)).
- 09.09.02 Poster session at JISC reception, University of Sunderland. ([090902 - Powerpoint](#)).
- 10.09.02 Poster session at [Alt-C 2002](#), University of Sunderland. ([100902 - Powerpoint](#)).

Full ANGEL information pack, downloadable from:

<<http://www.angel.ac.uk/dissemination/dissemination.html#information>>.

ANGEL flyer, downloadable from: <http://www.angel.ac.uk/public-files/pdf/angel_flyer.pdf>.

6.3 Hosted Events.

As well as participating at external events, the ANGEL project was responsible for hosting three events, targeted to information specific elements of project development and public dissemination:

1. ANGEL Focus Group. The purpose of this event was to gain feed-back on the initial user needs and analysis and conceptual design from a group of invited community experts.
2. Access Management Conference. The purpose of this event was to raise awareness of the access management work carried out by the project, and provide a suitable lead-in to the work of the 06/02 Programme projects.
3. ANGEL Exit Meeting. The purpose of this event was to bring together relevant stakeholders to plan the ANGEL Exit Strategy, and reflect on the progress made by the project.

Details of all of the events can be found at:

<<http://www.angel.ac.uk/dissemination/dissemination.html#events>>.

7. QA and ANGEL.

7.1 Website QA

The ANGEL project has applied quality assurance to the angel website <<http://www.angel.ac.uk>> inline with advice given by UKOLN.⁴

The following links demonstrate ANGEL project compliance with standards recommended by UKOLN:

- ◆ W3C HTML Compliance. The ANGEL pages are HTML 4.01 (Transitional) Compliant. <<http://validator.w3.org/check?uri=http%3A%2F%2Fwww.angel.ac.uk>>.
- ◆ W3C CSS Compliance. The ANGEL pages validate as CSS. <<http://jigsaw.w3.org/css-validator/validator?uri=http://www.angel.ac.uk>>.
- ◆ Accessibility Compliance. The ANGEL pages are compliant with Bobby Priority 3 Accessibility Guidelines. <<http://bobby.watchfire.com/bobby/html/en/index.jsp>>.
- ◆ 404 Error page. UKOLN recommend a customised 404 error page, including navigational links and a search page. <<http://www.angel.ac.uk/blah>>.

The ANGEL project web pages do not meet all of the guidelines recommended by UKOLN. The project consider the measures taken to be suitable to the nature of the website as a project information source (rather than a direct service).

Attention has been paid to reflecting the status of the project in the website. The site will not be immediately “mothballed” at the end of the project as the project will continue to be developed through the DELIVER <<http://www.angel.ac.uk/DELIVER/>> and DEVIL <<http://srv1.mvm.ed.ac.uk/devilweb/index.asp>> projects. This process will be reflected in the site information.

7.2 Software Development QA

Quality assurance has been applied to the technical development of the ANGEL software Managers, and managed through version control of the software components. The version control and documentation will continue to be applied as the ANGEL Managers are developed within new funding streams.

The ANGEL User Manager and the ANGEL Resource Manager have been fully tested within live environments at De Montfort University and the London School of Economics. The experiences of users of these systems, and careful monitoring of errors have informed development of the Managers and tested the robustness of the software to the satisfaction of the project team and administrators of the live systems.

⁴ Kelly, Brian (2002). QA Focus Surveys Of Project Web Sites - October 2002. <<http://www.ukoln.ac.uk/qa-focus/surveys/web-10-2002/>>.



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ANGEL has been active in the use of relevant standards within software development. Where standards have been applied, they have been fully tested against independent targets including testing the OpenURL client against the UKOLN OpenURL demonstrator <<http://www.ukoln.ac.uk/distributed-systems/openurl/>> and testing the Z39.50 client against the IndexData demonstration target <<http://www.indexdata.dk/>>.

8. ANGEL Exit Strategy.

The ANGEL project hosted an Exit Meeting on 21 February 2003 to discuss the lessons and future plans of the project, and to identify suitable development and take-up strategies beyond the end of the funded project timescale.

Prior to this date, the project had submitted a basic Exit Strategy document to the JISC in response to a call from the Learning and Teaching Programme Manager. This document is available from the ANGEL website.⁵

The meeting brought together project staff, institutional partner staff, JISC staff, and relevant experts from the JISC community. The meeting was loosely based around the following themes, although discussion and debate were encouraged through-out:

- ◆ Update on the ANGEL project.
- ◆ Institutional Issues.
- ◆ JISC Middleware and Shared Service Developments.
- ◆ Open Source and ANGEL development in the JISC community.

Full documentation from the meeting can be found on the ANGEL website.⁶

8.1 Recommendations for the project.

The meeting identified several key recommendations for the ANGEL project:

- a. Look at critical mass outreach. This will go beyond dissemination coverage, and look in more detail and follow-up and development with individual institutions and parties.
- b. Make sure that all outputs are fully documented to a high standard.
- c. Look at definitions and explanations of ANGEL, and place them in context with other developments. Consider:
 - What is the relationship between ANGEL and an OpenURL resolver?
 - What is the relationship between ANGEL and library portal developments?
 - What is the relationship between ANGEL and the RDN-include?
 - What is the relationship between ANGEL and the JISC Information Service Registry?
- d. Pursue partnerships and development with commercial partners such as ReadingListDirect and uPortal.

⁵ Paschoud, J and N Harris. Exit Strategies and End of Project Planning for the JISC 5/99 Programme: Project Response. <http://www.angel.ac.uk/public-files/doc/ExitStrategies_ANGELresponse.doc>.

⁶ Harris, N. ANGEL Exit Meeting: Notes and Issues. <http://www.angel.ac.uk/public-files/doc/angel_exit_notes.doc>.

8.2 Recommendations to the JISC.

The meeting identified several key recommendations for the JISC:

- a. Consider the models available for providing ongoing support for project 'products', and the activities that could be centrally supported by an Open Source post as documented in the exit meeting report.
- b. Carry out some research into what has happened to the results of projects. This could usefully pick-up from the work carried out by the Human Element consultancy.
- c. Address the exit strategy requirements placed on projects. Should JISC introduce more rigorous requirements for projects?
- d. Improve documentation of the IE architecture on the central JISC website, identifying which parts of the architecture have already been addressed ('solved'). This should be regularly updated so that the current development baseline is clear.
- e. Central programme reports / updates to the community would be useful, potentially in the form of position papers from the programme managers. This would help document programme 'learning' in a more timely manner.
- f. Central formative evaluation of programmes should be more open and accessible to the projects involved than the evaluation process adopted for 05/99 programme.

8.3 Recommendations to Institutions.

The meeting identified several key recommendations for institutions engaging in JISC funded projects:

- a. Engage mainstream library staff in projects through steering groups, user consultations and secondments.
- b. Look at opportunities for using open source and commercial offerings in tandem; do not always turn to the big commercial suppliers to solve all problems. This will be facilitated by looking at individual component requirements closely.
- c. Build on training opportunities and changing roles for library staff; they need to be given permission to learn new approaches to addressing problems.
- d. Look at institutional contribution made by project staff, and knowledge benefits to be gained from employing staff beyond project funding.

9. Conclusion.

Main points:

The following conclusions can be drawn from this evaluation of the ANGEL project and its activities:

- a. The project began well by developing a successful user needs analysis and process, and interpreting this information to inform development. This process significantly saw the project change direction and focus to meet the needs of stakeholders.
- b. As well as the typical and expected project outcomes, the identified problems and barriers experienced by the project can provide useful insight for future projects and developments.
- c. All of the aims and deliverables identified in the project plan have been achieved by the project, and have been made publicly available on the project website <<http://www.angel.ac.uk>>.
- d. The project was promoted (by project staff and board members) in a way that encouraged widespread knowledge and understanding. These opportunities were used not just to promote the project, but also to raise community awareness for wider concepts such as middleware and supporting JISC development.
- e. The project exit strategy has been carefully planned, with further support for the project and its deliverables clearly identified. The project will be continuously supported through: further funding opportunities, project partner input, and continued development of outside interest.

Overall, the project has contributed to all of the evaluation criteria identified by EDNER.