Open-source systems and shared services:

the BLMS experience

A Case Study

May 2016

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> *The goal of the Open Library Environment Project (OLE Project) was to design a next-generation library system that breaks away from print-based workflows, reflects the changing nature of library materials and new approaches to scholarly work, integrates well with other enterprise systems and can be easily modified to suit the needs of different institutions.*
>
> *The project planners went beyond designing for incremental improvement of current Integrated Library Systems (ILS's). They also viewed the role of library business technology systems to be more than purchasing and providing access to collected materials. The project planners chose to define a system that supports libraries as a central player in the research process. [p.1]*
>
> *[….]*
>
> *Although this report accurately describes the facts, it does not convey the energy and enthusiasm that characterized the OLE Project this past year. Project planners engaged in lively debate, wrote and re-wrote documents, shared and discussed readings, responded to dozens of requests for phone calls and presentations by interested groups and individuals and faced challenging questions at public events, all with good humor. They wrestled with technology and phone systems to figure out how to collaborate across thousands of miles and a 14 hour time spread. They learned to say "June" instead of "summer," in recognition that there are two hemispheres in this world.*
>
> *The response from the library community exceeded all expectations. Workshops quickly filled with participants from libraries large and small, near and far. Webcasts drew interest from around the world; project members began recording and posting the recordings for those who could not attend "live" in the middle of the night. Throughout all of these activities, individuals with deep respect and concern for libraries wrestled with difficult issues and diverse points of view.*
>
> *The OLE Project completed its official goals, but beyond that, it launched a world-wide conversation about the desired future of libraries and what is needed to move libraries toward that future. [p.12]*

Open Library Environment Project Final Report – October 20 2009

http://www.kuali.org/sites/default/files/old/OLE_FINAL_Report.pdf

[accessed December 2015]

> *One of the elements that make up the total cash releasing savings of £490.1 million a year by 2010-11 is shared services. While the development of shared services is not mandatory in higher education there is an expectation that universities and colleges will wish to take advantage of such opportunities, as this would generate benefits to them and produce savings to further support teaching and research.*

HEFCE: *Efficiencies and shared services 2008-09*, p.2

http://www.hefce.ac.uk/media/hefce/content/about/Staff,and,structure/Board/2009/129/B75.pdf

[accessed December 2015]

> *Collaboration: "the unpredictability of the outcome of such practices can prevent it from being commodified or reproduced".*

unpublished essay quoting Schneider

https://web.archive.org/web/20141224141111/http://summit.kein.org/node/190

[accessed December 2015]

Introduction

The idea of the Bloomsbury Library Management System (BLMS) was quite simple. As with all simple ideas, the complexity came later. Whilst the outcome was different from what had been envisaged, it was at the same time still in keeping with the original impulse.

Some background. In 2009 the Bloomsbury Colleges (BC group) was a formal alliance of six: Birkbeck (BBK), Institute of Education (IoE), London School of Hygiene and Tropical Medicine (LSHTM), School of Oriental and African Studies (SOAS), School of Pharmacy (SoP) and Royal Veterinary College (RVC). These six colleges were a subset of the 18 colleges that – along with the Schools of Advanced Studies (SAS) and a number of Institutes – made up the Federal University of London. The BC group had a number of successful examples of shared service to draw upon, of which the most notable (in this context) was the Bloomsbury Learning Environment (BLE), a shared Virtual Learning Environment (VLE).

The Bloomsbury Librarians met regularly and had reviewed a number of options for developing library-oriented shared services. Each Library had a history of working with the central library of the University of London (Senate House Library or SHL) in a number of different contexts. The situation in 2009 was defined by the SHL Subscription model (each of the constitutent colleges of the University paid a fee for use of SHL) and the University of London Access Agreement[1] (a framework defining the terms on which members of any of the University of London colleges could make use of each other's libraries). At the time of writing (May 2016), the interaction between the Colleges and the Central Library continues via the Federal Libraries Group (FLG) and the SHL Board, which includes two College Librarians and a nominee from the FLG.

The University Librarians had been organised since the 1950s, initially as the Standing Conference of the Librarians of the Libraries of the University of London (SCOLLUL). The University Senate set up a Committee on Library Resources in 1967 to investigate the possibilities of increasing co-operation in the rationalisation of resources. This led to the reform of SCOLLUL in 1974 as the Library Resources Co-ordinating Committee (LRCC).

In the 1980s and 1990s, a number of initiatives to develop Library Automation Systems resulted in shared service arrangements such as SWALCAP (South Western Academic Libraries Co-operative Automation Project), which developed a system called LIBERTAS and BLCMP (Birmingham Libraries Co-operative Mechanisation Project), which developed a system called Talis. A number of the University of London colleges used LIBERTAS, operated by the central library as part of the extensive range of services it offered to the colleges, with oversight by the LRCC. LIBERTAS was purchased by Innovative Interfaces Inc (III) in 1997 and deprecated in favour of its own INNOPAC system (later re-named Millennium). Once it was determined that LIBERTAS would not pass the "year 2000 test" (a major software flaw arising from the use of two-digit year codes that made 2000 and subsequent years indistinguishable from 1900 onwards), all LIBERTAS libraries had to look elsewhere for their systems. Some but not all

[1] http://www.london.ac.uk/2895.html [accessed May 2016]

chose INNOPAC and the central library ceased to be the provider of a shared library management system.[2]

Another notable shared service operated by the central library is the University of London book depository (located on the campus of Royal Holloway at Egham), and a number of initiatives continue in the areas of shared print and shared access to e-resources. At the point when the Bloomsbury Librarians agreed to work together on the idea of the BLMS (modelled on the successful BLE), it became logical for SHL to become involved as it was also looking for a new system, and could see how a shared system might evolve into a University of London system, with significant benefits to all its subscribing colleges. From this point of view, it would be tempting to say that the shared library system pendulum that swung away from the central library when the colleges using LIBERTAS went their own ways was swinging back; the reality (as this study shows) was rather less simple. Whilst there are fascinating lessons to learn about the evolution of library automation technologies in the era of Open Source (and some of those lessons are documented here), there are also lessons about the success factors for a shared service initiative. Not least of the lessons are about the many ways in which institutional turbulence such as the departure of senior project sponsors, institutional mergers or restructuring can derail or deflect even the best-laid plans. To give two examples: of the six Bloomsbury College Librarians who were meeting regularly in 2009, only one remains in post; the BC Group has reduced to four as two of its members (SoP and IoE) are now part of University College London (UCL). SHL meanwhile has been restructured with a completely new management team and has decided on a completely different approach to its Library systems.

The underlying theme however is that the urge to collaborate – evident amongst academic libraries almost as far back as one cares to look – is as strong in the 21stC as it has ever been, and the outcomes of that collaboration are sometimes surprising; but outcomes there are nonetheless and there is plenty of evidence from the librarians who have followed this project through, of the operational and cultural benefits arising from the initiative.

Where we started

Two threads converged to produce the idea: an interest in the opportunities provided by Open Source Library Systems; the prospect of delivering these systems through a Shared Service.

The discussion about Library Systems had started in 2010. Librarians across the six libraries – and many of their staff – expressed a general sense of dissatisfaction with their current systems (two different suppliers and three different types of system were in use, most of which had been in place, little-changed for more than 10 years and in some cases as many as 20), and had started to look closely at Open Source alternatives. Staffordshire University Library[3] had a successful implementation of the Koha[4] system and was happy to talk about it; the Evergreen[5] system was also attracting some attention. The development of library automation systems is well-documented elsewhere and this document does not propose to

2 for an excellent survey of the field in the late 1990s, see Tedd, Lucy A "Library management systems" at http://hdl.handle.net/2160/719 [accessed May 2016]
3 http://blogs.staffs.ac.uk/informationlandscape/2010/12/10/staffordshire-university-chooses-koha-for-its-new-library-system/ [accessed December 2015]
4 https://en.wikipedia.org/wiki/Koha_%28software%29 [accessed December 2015]
5 https://en.wikipedia.org/wiki/Evergreen_%28software%29 [accessed December 2015]

study that in detail as the specific focus is on the opportunities offered by the move towards Open Source.

The interest in Open Source was not primarily about saving money (although the fees charged by current suppliers seemed in many cases like money for old rope, given the paucity of improvements delivered in return): there was a sense that Open Source – which was proving very effective in other contexts such as virtual learning environments, repositories and research data management, not to mention forming the basis of many web and systems implementations – could provide the opportunities to embed library systems into information and enterprise environments which the traditional "black box" or "turnkey" systems could not. Not least of the opportunities, which seemed to be missed by the main suppliers, was the dramatic rise in the late-20th and early-21st centuries of the hybrid library delivering a mixture of print and electronic material to users both on- and off-site. When they compared notes, the Bloomsbury Librarians discovered that they were all having to rely upon patchwork quilts of systems and procedures – with rather haphazard levels of support from their IT services – to manage their resources and deliver them to their users. Surely there was a better way?

The hype-cycle around "shared services" was approaching its peak, with "Bloomsbury" seen by HEFCE as an exemplar of shared service initiatives. This provided a good prospect for a Bloomsbury approach. Another key factor was that the BC Librarians discovered that they were each approaching the need for a new Library System at around the same time. In IT jargon, this "alignment of procurement cycles" was important.

The shared-service impulse was informed by a comprehensive understanding of the "Bloomsbury" environment so admired by HEFCE: successful examples of shared services ranged from the Bloomsbury Heat and Power Consortium (shared CHP boilers pumping hot water into a number of buildings and shipping power back into the National Grid); the London International Development Centre (shared buildings and facilities); the Senate House Libraries (shared access for all University of London Colleges as well as the Schools of Advanced Study); the Bloomsbury Learning Environment (a VLE shared between five of the six Bloomsbury Colleges); the University of London Computing Centre (once *the* computing centre for the University, now a provider of shared facilities and hosted services on a semi-commercial basis).

Fundamental to the Bloomsbury approach was the recognition that the smaller colleges could achieve service outcomes – on a variety of fronts – that they would find difficult to achieve acting alone. For the Librarians, this manifested as a recognition that each library would struggle to achieve much more than a basic library system upgrade, if it had to work through a conventional "reprocurement" exercise, whereas collectively, it was possible to imagine a truly game-changing "next generation" system delivered as another flagship "Bloomsbury" shared service.

From these initial thoughts, the idea of the BLMS arose.

Where we ended up

A large part of this document deals with the detail of how we got from an idea in 2011/12 of "the BLMS" to the present day (early-2016). The outcome, as it currently stands – and this could change, as we operate in a dynamic environment – is that SOAS, one of the original six

Bloomsbury libraries, has adopted the Kuali Open Library Environment (OLE) to replace its legacy system and is working as a member of the OLE Partnership, a collaboration between 11 libraries and several suppliers which designs and commissions the OLE software on an Open Source basis, with governance provided by the Kuali Foundation, based in the United States.

This outcome aligns with the original vision to the extent that SOAS has a next-generation, Open Source library system supported as part of a flagship shared service. Everything else is different, and another part of this document will focus on the lessons which can be learned from the journey from vision to outcome for Open Source, for shared services, and for the relationships between libraries and their IT services.

Structure of the document

The study is structured roughly along the lines of the chronology of the BLMS project, starting with its origins in 2010/11 through to the present time (January 2016) with some references back to work started by the Open Library Environment initiative, Jisc and others in 2008. The metaphor of a journey recurs.

Alongside the narrative will be sample documents and summaries of lessons learned. Weaving through the narrative will be reflections from key actors in the project and associated initiatives.

Timeline

Dates	Events
2008/09	Jisc E Framework published as a result of collaboration between NL, UK, NZ and AUS – subsequently quoted in the OLE Project Final Report
June 2008 – June 2009	Mellon-funded OLE Project Investigation
2008	Duke University hosts the first training and project planning meeting
July 2009	Final report of the investigation published, recommends joining the Kuali Foundation
2009	Formation of the OLE Build Partnership, which joined the Kuali Foundation in December 2009; the estimated cost to build OLE was $5.2m for release to early adopters in 2012
16th December 2009	Initial Board meeting of Kuali OLE Partnership in Washington DC elects Deborah Jakubs (Duke) and Brad Wheeler (Indiana) as co-chairs
2008/09	SCONUL studies the Library Systems environment and defines three major components: Electronic Resource Licensing Management; Discovery to Delivery Services; Local Library Management – it refers to Kuali OLE as a "reference implementation" of an open system
Late 2009	SCONUL bid for circa £8m from HEFCE Universities Modernisation Fund (UMF) for comprehensive national programme is rejected but in 2010 £650k is put into ERLM (becomes KB+)
2010	OLE Build Phase Funded by Mellon Foundation & the Kuali OLE Partnership for a 2 year software build phase

Dates	Events
January 2011	OLE hires HTC to write its system
2010/11	Birkbeck Librarian leads on several seminars looking at Open Source options for library systems; drafts his "COILS" (Collaborative Options for Integrated Library Systems) paper
2012	OLE Partnership receives Mellon funding for 3rd and final year of development
2012-13	Jisc "LMS Change" project to address the "squeezed middle"
January 2012 –	SOAS and Birkbeck Librarians attend a 2-day Jisc/SCONUL workshop
2012 –	The COILS proposal is updated and becomes the BLMS proposal to Jisc for funds as a "pathfinder" project to establish a shared service LMS – bid is not funded
June 2012 –	BLMS partners (four active, contributing) employ a Project Manager as a shared resource with the clear intention to move forward with a shared service approach to delivering new Library systems for the partners
June 2012	BLMS Executive (Librarians from the four libraries paying into the shared fund) is formed, supported by Project Manager
June-October 2012	Proj Mgr leads weekly meetings of Systems Librarians from the participating libraries to formulate a Functional Requirements document for the service
June-October 2012	Modelling of different shared service options
Aug-Sept 2012	Horizon scanning sessions involving vendors and Open Source providers
October 2012	BLMS makes "decision in principle" to adopt Kuali OLE
October-December 2012	Further modelling of how a shared service based on Open Source can be developed, configured and supported
December 2012	Birkbeck Librarian retires; replaced by Deputy
Jan–April 2013	Detailed planning for how the shared approach will work, based on a joint venture vehicle
1st May 2013	BLMS joins the Kuali Foundation and OLE Partnership for two years in first instance
May – December 2013	Due diligence on Procurement and planning for the joint venture vehicle (Company Limited By Guarantee Having No Share Capital) to deliver the shared service
July 2013	Shadow board for BLMS joint venture vehicle formed
October 2013	SHL Librarian departs suddenly, Interim Librarian (ex-Goldsmiths) is appointed and joins shadow board
October 2013	Birkbeck decides to delay its implementation whilst studying the software in more detail; SHL and SOAS continue planning implementations; Shadow Board agrees that timings of the individual implementations are a local, not BLMS decision

Dates	Events
November 2013	HTC, having cleared Procurement hurdles, offers a contract to commission the library systems (one partner having stepped back and two others remaining on fence)
December 2013	SOAS Executive Board approves recommendation for SOAS to proceed whilst other libraries are considering their positions – SOAS becomes de facto lead partner in "Joint Activity Not an Enterprise" (JANE) approach
January 2014	Project Manager transfers to SOAS, work commences on OLE version 1.0 with plan to go live in July 2014 with 1.5
January 2014	Other BLMS libraries decide to "wait and see", at least until OLE version 2.0 is available for evaluation and testing, putting HTC arrangements under considerable pressure
April 2014	Shadow board agrees to postpone the formation of the Joint Venture company, pending further a review of the status of the system and the collaboration in July 2014; SHL Interim Librarian expresses hope that SHL will sign the contracts "by the end of April"
May 2014	Interim Librarian at SHL fails to get agreement for SHL to proceed; departs and replaced by another Interim; SHL Assoc Director (major supporter) departs for Imperial and his assistant transfers to SOAS
July 2014	Shadow board meets for the final time, takes reports from SHL that it is not ready to implement and from Birkbeck that it is struggling to get a test system installed
July-August 2014	Lehigh then Chicago go live on OLE 1.5, SOAS delays implementation until December 2014
September-October 2014	SOAS launches new VuFind service based on the collaborative work by five Bloomsbury libraries since 2013
October 2014	Kuali Foundation launches KualiCo, a spin-out software company; OLE decides to carry on its existing path with HTC
December 2014	SOAS launches OLE 1.6 in shadow mode (full bibliographic data set loaded) and delays go-live until Easter 2015 whilst Circulation module (Deliver) configuration is completed
May 2015	SOAS accepted as single Library member of OLE Partnership as SHL and Birkbeck decline the invitation to extend consortial membership (but honour commitment to shared Business Analyst post through July 2015)
Easter 2015	SOAS launches full service based on OLE 1.6.0, shortly followed by 1.6.1 and 1.6.2 upgrades
July 2015	SOAS contract for its old system expires; OLE Partnership defined as "supplier" of the new system
Q3 2015	SHL issues ITT for a managed service Library system, confirming it won't be joining a BLMS shared service; Birkbeck still "evaluating" its position, waiting to see OLE 2.0
August 2015	OLE Functional Council reaffirms the values of OLE and recommends a streamlined management structure for the Partnership – accepted by a Board meeting in late-August

Dates	Events
August 2015	German Library Systems Consortia join OLE
November 2015	OLE Partnership appoints a Managing Director and approves Agile approach to its work
December 2015	Mellon Foundation approves a further $1.1M tranche of funding
December 2015	Cornell and Texas A&M universities join the Partnership
December 2015	SOAS confirms funding for the Library to proceed with Phase 2 of its OLE implementation (version 2 and 3 upgrades, finance system integration)

Phase one: getting started

Why were the Bloomsbury Librarians so interested in the potential for an Open-source library system to replace their legacy, vendor systems? To explain this, a short detour is required.

Ethos

The notion of ethos is an important part of this narrative. It is often said that Academics owe their first loyalty to their discipline and their loyalty to their institution is at best second, and at worst, non-existent, making the institution not much more than a temporary landing place. Of course, the same might be said of many professions, with their Chartered Institutions or Worshipful Companies taking first place but Academia has a second quality which sets it apart from the trades and professions: the dedication to the project of Enlightenment which aspires to promote Reason and Freedom of Thought as core values. Libraries are critical to this project, bringing to its 18thC origins the much longer tradition of collecting, holding and preserving the knowledge of the saints, the sages and – latterly – the academics which forms so much of the content underpinning the Enlightenment.

Thus Librarians and their libraries are bound together by a common ethos, which extends above and beyond their institutional homes. They have a common project – the collection, preservation and dissemination of knowledge – and are regularly reminded that they have more in common with other libraries than they do with other parts of their institutions.

This is not to say that libraries stand apart from their institutions; nor that they do not serve the missions of their institutions, which are themselves bound with other institutions in a common purpose. What it does say is that the glue which binds libraries together is one of the strong threads – alongside academic disciplines – which create an ethical education environment larger than any single institution, however wealthy, specialised, or famous.

Collaboration

> I think we've had a really good partnership and everyone understood. One thing people have realised over the last few years is they thought they would get everything they wanted and they realise in a shared environment we need to make things work in a broader way. Or it works, but it works differently from how individuals thought it would work. It works, but the procedures are different from what they do now and the way in which they wanted it to work – it's different to that. We have always called it a community Open Source which

conveys the concept of the collaborative nature of it. Whereas a lot of people think Open Source, they think "I pick it up I take it home I do whatever I want with it". In our situation our value was that we wanted to have a project that was useable by a broad community. **CR**

Collaboration is in the DNA of libraries in a manner that is quite distinctive. From their earliest days, libraries collaborated with other libraries to ensure that more than one copy was made of important texts. In the modern era, the notion of "holding libraries" and "circulating libraries" pointed to the fact that libraries which did not hold a local copy of a book requested by a reader could get it on "inter-library-loan" from the larger – or more specialised – library up the road. "National Libraries", "Research Libraries", "Union Catalogues" and other initiatives point to a rich field of collaboration. The rise of the digital age and the move from collecting to subscribing has given rise to any number of attempts at coordination of effort and collective bargaining with publishers to ensure that resources are produced efficiently and managed in such a way as not to give complete control over to the publishers.

As the importance of open access publishing and research data management has emerged, the notion of the "holding library" has taken on a new meaning (as the repository of its institution's intellectual property) and the pendulum which swung away from university presses to commercial publishers has started to swing back, to libraries as publishers of their institutions' outputs.

University Libraries are bound together by any number of national and international organisations: SCONUL[6], RLUK[7], M25 Consortium[8], LIBER[9], CILIP[10], ARL[11], ALA[12], to name but a few. Librarians spend a lot of time with other Librarians and this is important (as evidenced by the start of this story with the Bloomsbury Librarians). When there is a problem to solve, often the natural instinct is to look to other libraries and Librarians for collaborative approaches to the solution.

Within universities, libraries have a special collaborative relationship with each other that is a longstanding relationship. Libraries have long recognized that our resources get extended by working together and that the sum is greater than the parts. Extending that into the core software that we all rely on to do our business makes sense to lots of libraries. When we go and talk to them that's the pitch we make to them. The value of the foundation is built on something we have been doing for a long time in libraries, this deep collaboration is more about that a lot of our needs are common, and our differences are where we want to concentrate our local specific resources. **MW**

Even though the partnership is small we have included a larger number of people and everyone has adopted the same values and proceeded down the road from the same path as much as possible. Beyond that I have met some longtime colleagues and friends who will know each forever. The dedication of every individual I have worked with, the skill sets have been phenomenal. That mutual regard has helped us move forward. **CR**

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6 Society of College, National and University Libraries http://www.sconul.ac.uk
7 Research Libraries UK http://www.rluk.ac.uk
8 The M25 Consortium of Academic Libraries http://www.m25
9 Ligue Bibliothèque Européennes Recherche http://www.liber-europe.org
10 Chartered Institute of Library and Information Professionals http://www.cilip.org.uk
11 American Research Libraries http://www.arl.org/
12 American Libraries Association http://www.ala.org/

Technology

In the modern era, the Jisc initiatives in the "Integrated Electronic Information Environment" have led to a rich tapestry of digital resources, discovery systems, collective bargaining, advice and support.

Meanwhile IT (in the sense of computers and data networks) has been following its own track. The MainFrame era of the 1970s gave way to the mini-computer era of the 1980s and then the micro-computer eras of the late-1980s and 1990s. Mainframes had served librarians very well, as they held all the information in once place, were well-organised and well-managed (just like libraries) and a number of library systems had developed, based on these technologies. The move to mini- and then microcomputers fragmented the provision, giving rise to the "personal computer" and the "client-server" model, which replaced the centralised model, with the computing power pushed to the desktop.

Library systems during this era went in one direction (mini-computers serving individual libraries) and information provision – once the WWW took hold – in another (clients picking up content from almost anywhere where a server had an internet connection).

IT professionals had to run merely to keep pace with the changes in the computing environments. Networks of "dumb terminals" connected to the 1980s mainframes or 1990s mini-computers were easy to manage compared with the hundreds or thousands of PCs and Macs, which, by the turn of the century, had landed on almost everyone's desk. Delivery of "enterprise applications" (the classic "big three" of HR, Finance and – in universities – Student Records) had likewise fragmented. Instead of computer scientists tending well-managed databases on their beloved PDP11 and Vax and ICL machines, there were "vendors" offering "best of breed" applications for specific purposes, on the new, relatively-affordable (provided you didn't blanche at the prospect of spending £100,000 on a single machine) mini-computers from Sun and Alpha and HP and IBM. These new "clusters" required new job titles such as "database administrator", "systems administrator" and "analyst programmer" to work out not only how to get them to run but more importantly, how to exchange information with each other (not always an issue in the mainframe era).

Library system vendors followed a similar path but for reasons that remain unclear to the present day – maybe because the library requirements were so particular or because procurements were managed by librarians – they became a niche product. "Turnkey" systems were common through the 1990s and into the 2000s: a system supplied by a vendor, plugged into the institutional network, possibly (but not always) sitting in the institutional machine room, managed by the vendor through remote access, sometimes using a dedicated dial-in modem to avoid firewall problems. All the local IT staff had to do was turn the key, make sure the lights were on, check that the terminals or client software on the library PCs could get to the machine, and walk away. The vendor, working with the library, did the rest.

In the second decade of the 21stC, the Bloomsbury Librarians – along with colleagues in other academic libraries across the world – got together and looked at this scenario and said, "there must be something better than this".

> The biggest benefit, not from a technical perspective but as a wide-eyed library systems idealist, was the ethical imperative behind it, the ethical drive to move towards Open Source technology. I believe it is the role of libraries to resist the commodification of public

commons and therefore we should move towards public funds for ownership, community-led structures for software design and maintaining control of own data rather that giving it to private sector companies. I have talked about this in presentations that Open Source requires balancing convenience and control – what you gain in control and freedom over the software and your own data is balanced by a loss of convenience because it is often harder to implement and harder to understand and requires a greater level of skills to implement. In the library it meant a steep learning curve for myself, the other technical people on the project and the library staff who were being exposed to the library management system. It was a big culture change to move from an 'easy' vendor-led solution to a more difficult community-led solution. It required a lot of engagement from SOAS library staff who had to attend meetings, think about software design, suggest new features, file book reports, test drive the system, perform UAT testing – there was a lot of work that doesn't come with a vendor system. Library staff used to cataloguing, circulation and shelving, suddenly had to perform tasks like logging books, user acceptance testing, the formal software developing stuff that they had no reason to be exposed to. It's stuff that you are not exposed to if you just buy a proprietary system. Some library staff accepted it wholeheartedly, accepted they were on an adventure moving toward a new library system, contributing to it and having a positive engagement with the community. Some staff were more reticent at first and that's where the community collaboration with them was important. Digital information is becoming more prevalent in the entire library information sector and I think for continued survival and relevance library staff will need to upskill, become hybrid library/IT people. **SB**

Defining a "pathfinder" approach

The Jisc call

Jisc issued a funding call in 2012:

"Based on a 3-phase work plan, the LMS Change project will develop and disseminate a vision for the future of library systems and a delivery 'roadmap'.

"Working with the companion Pathfinder projects, the project will explore the potential for new approaches to library systems infrastructure, taking account of considerations beyond the traditional LMS to include other business critical and curatorial systems, both within and above campus."[13]

Building upon an earlier initiative called "COILS" (Collaborative Approach to Integrated Library Systems), which was the brainchild of the (since-retired) Birkbeck Librarian, the Bloomsbury Librarians wrote a bid to this call, which was not successful. The Jisc explanation for this was that the "funding pot was cut" otherwise "the BLMS bid would have been successful". The Bloomsbury Librarians decided to spin this by saying "Jisc said we were big enough and ugly enough to manage without Jisc funding". Take your pick. Certainly, the process of writing the bid and thinking through the aspiration was a strong factor in the decision to carry on.

Proceeding without Jisc funding

The BLMS partners decided to get on with it as they all (at that point) wanted a new system. Although not a funded project, they were invited to attend Jisc Programme Management

13 http://www.webarchive.org.uk/wayback/archive/20140614104505/http://www.jisc.ac.uk/whatwedo/programmes/di_informationandlibraries/emergingopportunities/lmschange.aspx [accessed December 2015]

events (with a small travel budget), were featured in the LMS Change Programme's web site[14] and referenced in a number of other archives about the work (e.g. SCONUL[15]). The Bloomsbury project communicated its method and findings widely within this group and beyond, in particular sharing its more "enterprise IT approach" to the library systems world.

As a "pathfinder" project, an output of the BLMS was to provide a repeatable set of processes that could be applied to any institution migrating to a new library system. Key elements in the Bloomsbury Approach were

- Horizon-scanning,
- Options Appraisal,
- Scoping of a suitable shared-service model.

Looking back on this in 2016, a number of the Jisc-funded pathfinder projects have produced results. The most common outcome was a consortial approach to procurement of systems from mainstream Vendors[16]. The BLMS approach was based on a determination to realise its original goal of a "next generation Library system delivered as a Shared Service".

The BLMS Project Executive

At the same time as preparing the Jisc bid, the BLMS partners advertised for a Project Manager. A key part of the bid was the clear intention to proceed with a project to replace the Library systems at the partner libraries with, or without Jisc support. The partners had secured sufficient internal funding to employ a Project Manager at least through to December 2012. An advertisement was placed and the Project Manager started in June 2012, employed by Birkbeck on behalf of the four contributing members at that time (Birkbeck, RVC, SHL and SOAS).

One of the first actions of the Project Manager was to propose that the Project should have a formal Project Executive and that rather than this being a single person, it should be the Librarians from the contributing partners, convened by the Project Manager. This was agreed and a schedule of meetings was set up. For most of 2012 and well into 2013, the Librarians met regularly, generally for an hour on a Wednesday afternoon, as often as weekly, supplemented by several "Away Days". This regular meeting became an important driver for the project and was an essential part of the decision-making process, which was undertaken using a Horizon Scanning method followed by an Options Appraisal.

> [In order to convince Senior Management, you need to]
>
> Look at exactly how much you're spending now and how that compares to what you are going to be doing and projecting what the costs might be in the future for what you're doing now.
>
> If you are in a vended system now, how long is that system going to last, are you going to have to move to another system anyway, how much is that going to cost you?

14 http://lmsguidance.jiscinvolve.org/wp/sitemap/ [accessed December 2015]
15 http://www.sconul.ac.uk/page/library-and-general-shared-services-resource-links [accessed December 2015]
16 A list of these can be found on the SCONUL pages at http://www.sconul.ac.uk/page/library-and-general-shared-services-resource-links [accessed December 2015]

If you are going to go to a cloud-based one, how much is that going to cost you? What if you don't like what they are doing or they go under or something: do you have a plan of how you are going to move it off? **FM**

Decision-making processes: horizon scanning

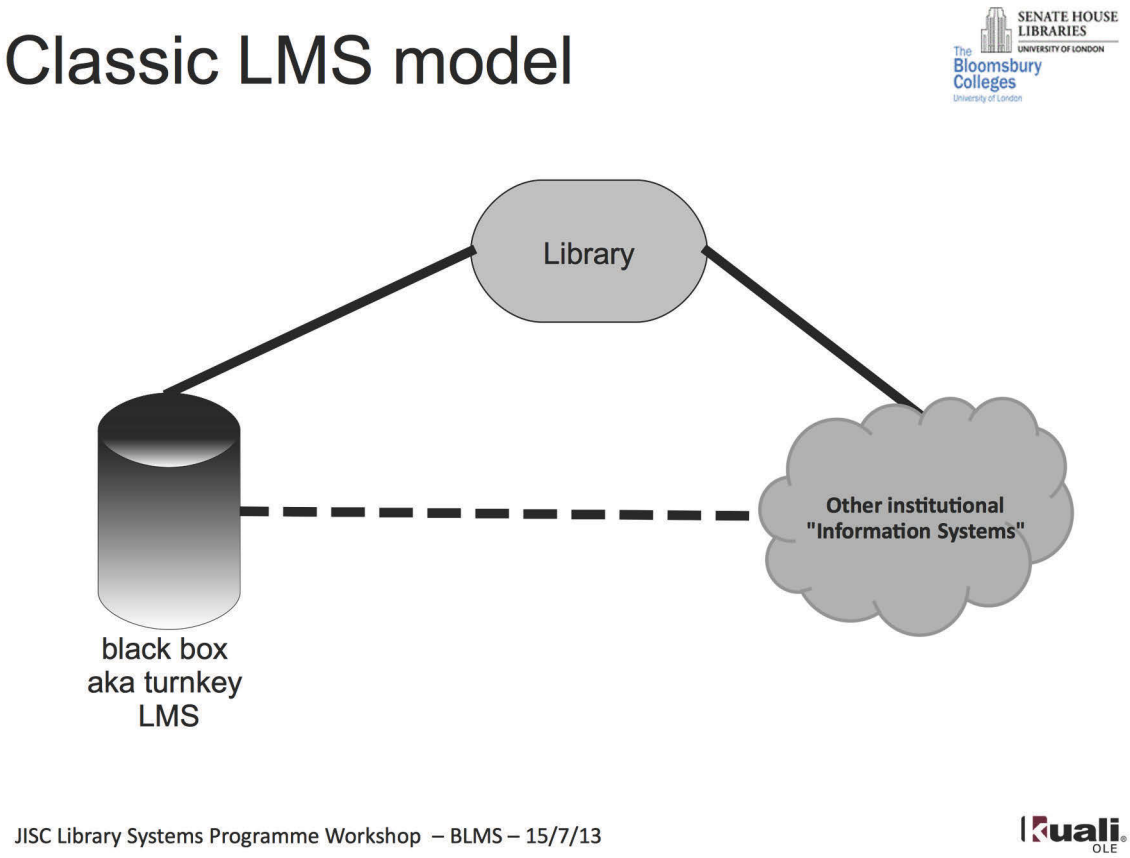
What does "next generation" actually mean in the library technology space? Some contextualisation is appropriate: the situation in 2011/12 was one in which there was a narrowing of choices in vendor systems (most going for major off-site provision with large consolidated databases) and varying levels of systems integration. Against this backdrop, the Bloomsbury libraries (in common with many others) had aspirations for flexibility and extensibility, particularly to deal with the rapid transformation of their libraries from print-based services to hybrid services covering print, digital holdings and subscriptions to electronic information services.

The Horizon Scanning method which the BLMS adopted has a lot to do with how we arrived at our current place but it is also important as we look ahead.

Jisc was very keen on Horizon Scanning. Indeed, it still is, and even has a post called "Futurist in Residence". The principle is simple enough: try to get a feel for where a particular sector or set of technologies – almost anything really – will be in about five years' time and set a strategy based on those observations. Sometimes the horizons are much further away: the joint Jisc/SCONUL "Libraries of the Future" study used a scenario planning method which postulated a number of different environments in 25-50 years' time and asked groups of respondents to brain-storm how Libraries might adapt. (The trouble with that study was that the environment has changed so radically in the five years following its report that the outcomes, whilst interesting, don't really provide a useful basis for action.)

Existing systems

In order to develop an approach to system requirements, the current systems environment was studied and mapped. A starting point was to capture the reasons why all of the libraries engaged in the process were frustrated with their existing systems. A typical vended system model looked a bit like this:



[DIAGRAM-01]

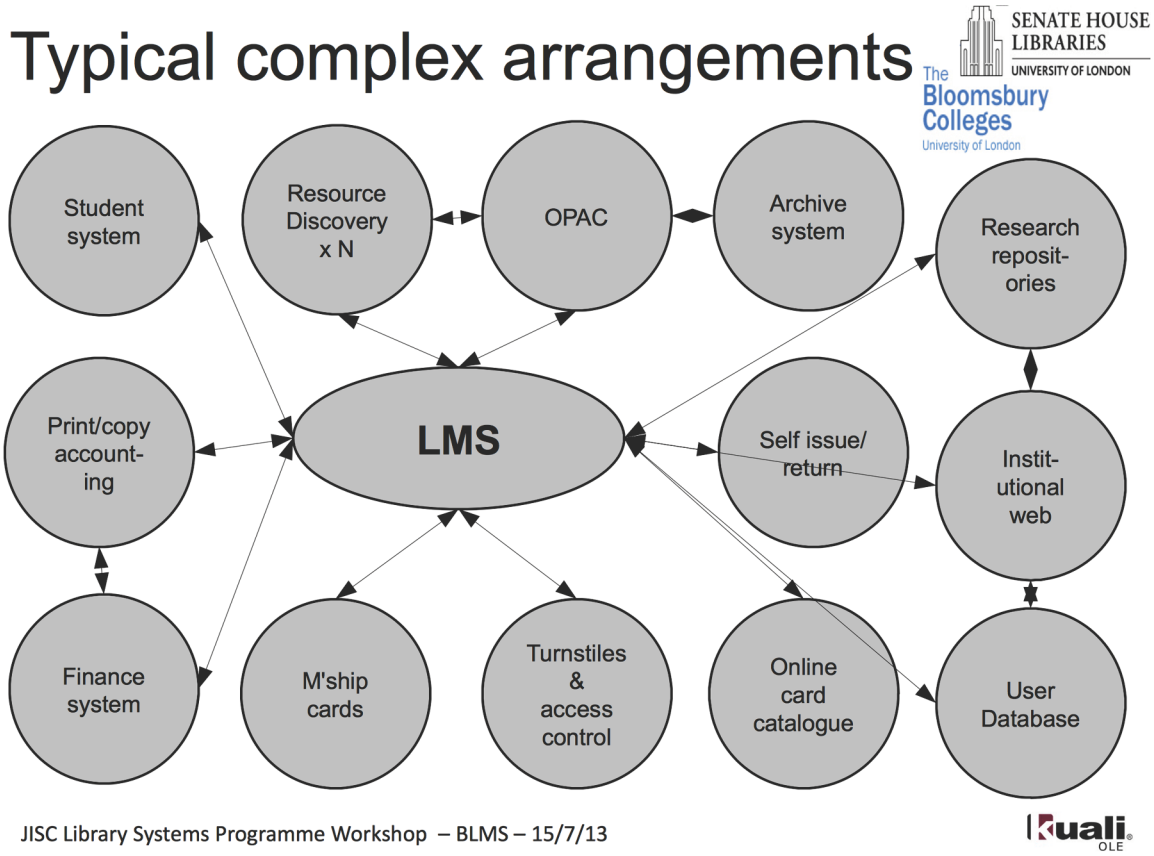
In this model, the Library staff have access to the system via whatever interface the vendor has provided (generally a client application that has to be installed on staff PCs), with a web Online Public Access Catalogue (OPAC) for users and sometimes still with the text-mode option via telnet or SSH. Maintenance of the system is typically provided by the vendor using remote access, and in many cases access to the system by any means other than the vendor interfaces (e.g. by direct SQL calls) is severely limited. Application Programming Interfaces (APIs) might or might not be available for systems integration, and if available, are often subject to additional license and support fees.

One of the drivers for looking at Open Source alongside other options (apart from the obvious need for a system capable of supporting the 21stC Hybrid Library) was an aspiration for much greater access to the Library's own data held in the Library System. The experience of most of the Bloomsbury Libraries was great difficulty in gaining access to the data for import or export other than via the proprietary interfaces.

> In the long run, having control at the level of strategic planning is important for the libraries. A lot of library systems have gone to cloud-based systems and I have a real problem with that because in that case you have really lost control of what is going on and how do you get your data back out. What happens if they keep increasing the costs of subscriptions all the time, which is what happened with scientific and technical information where the information was created in the universities but then it went to profit-making groups to sell it back to the

university libraries and the costs just were not controllable so I would be concerned with a cloud-based system, along with providing the kind of support that we need. **FM**

Most of the libraries in the project had some form or other of a systems cluster rather than a single LMS. These were captured in diagrams like the one below:



[DIAGRAM-02]

Functional requirements

It is clear from the diagram above that one of the key requirements at all libraries was for a system which could integrate with a variety of other systems, ideally in an "enterprise architecture" (meaning, a capacity to exchange data with other systems in an automated or semi-automated fashion)[17]. This became one of the building blocks of the functional requirements document that was used in the horizon-scanning process.

Another driver at the time was an aspiration for the development of a shared-systems model in which the libraries – operating in the University of London Federal Libraries context – would have options to share bibliographic data, patron and circulation data and access controls to facilitate the access of their users to other libraries within the system.

17 See also the reference to this aspect of LMS in the SCONUL Business Case for a shared-service approach to LMS delivery at http://helibtech.com/file/view/091204+SCONUL+Shared+Service+-+for+distribution.pdf [accessed December 2015]

An early task in the project – led by the Project Manager – was the development of a shared Functional Specification document. The Systems Librarians from each of the participating libraries met weekly and prepared a 66-page document that captured their requirements. This document was designed as an early deliverable from the project. If any library chose to walk away from the project, it could take the Functional Specification as a project output (e.g. to use in a conventional procurement exercise). The document itself built upon work done by Ken Chad on a "UK Core Specification"[18]. The specification captured core library and information processes as well the more sophisticated functionality that would make the BLMS a truly next generation system.

Technology principles

Alongside the Functional Specification, the partners also agreed a number of underlying principles for the technology of their preferred system.

1. A vision of a library system which could sit within a modular enterprise suite of software (Finance, HR, Student Records, Research), enabling reuse of data across business processes.
2. Genuinely open APIs, without such tight control over the codebase that the only option for technical changes was to go to the original vendor.
3. Next-generation capability, vision and roadmap with clear visibility of where tailored requirements/fixes/changes sit in that technology roadmap.
4. Flexibility to request, commission or build changes or developments to the system, and to know they could happen in a timely fashion (including visibility of cost, schedule and resource implications).

As Open Source principles were not reason enough on their own to choose Open over Closed, it was recognised that Open Source options would need to have particular benefits to justify their selection. However, there was a clear bias towards Open Source as can be seen in the scoring sheets which were used in the presentation sessions by suppliers and representatives of Open Source systems.

Vendor lock-in and risk

It is common to hear the criticism of Open Source that it is more risky than commercial systems because there is no supplier to hold to account if things go wrong. Indeed, some of the conversations with senior managers about this question had arrived at a point where the conversation came down to

> Q: what do I do if the supplier does not deliver according to the contract?
>
> A: we will get our solicitors to sue them.

As a risk-mitigation action, this approach has a number of flaws, including the costs of going to law and the lack of service in the meantime.

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18 sadly, deleted from his site at https://libtechrfp.wikispaces.com/ but still available at https://web.archive.org/web/20120427174127/http://libtechrfp.wikispaces.com/LMS+ILS+Specification

One underlying hazard with proprietary systems is vendor lock-in. With a few notable exceptions in the Corporate Systems environment, the selection of a proprietary system locks the customer in to a licensing regime and a single source of support. Thus, if the relationship with the supplier breaks down (as in the example above) or if the quality of the support deteriorates, or the supplier decides to stop supporting the system, the customer can take its business elsewhere but at the cost of having to migrate to a different system. As anyone who has migrated a major system will tell you, this (in IT jargon) is "non-trivial", time-consuming and potentially very expensive. (Even the tactic of withholding payment in order to get service improvements can be backfire if the system relies on a licence key, meaning that the supplier can turn the system off by allowing the key to expire or – worse in the case of an outsourced service – simply turn it off.)

> I've worked for vendors so I know a lot of negative things about going that way to weigh against doing an Open Source thing. You really don't have control; you cannot get at the source codes so you cannot fix things you just need to fix. There were times when we had vended software and I had a programmer who knew exactly what was going wrong but it couldn't be fixed without them fixing it, you can't fix that.
>
> With Kuali, if you don't like the way the systems are operating you can go right in and talk directly to a database or something so that's a flexibility that I think is useful. I have more hesitancy about some of the vended systems and what you are getting yourself into with those. **FM**

Anyone who has worked with Corporate Systems will be aware of scenarios in which the failure of a supplier to deliver an acceptable level of service or the decision by a supplier to declare a system "end of life" has had expensive consequences, some leading to legal action.

The selection of an Open Source system (assuming the software is fit for purpose) can be a viable risk mitigation strategy to avoid vendor lock-in. Open Source gives options and choices for hosting and support. Hosting can be in-house, or with a supplier through several different managed-service models. Support, likewise, can be in-house or contracted out. If a hosting or support arrangement proves unsatisfactory, the arrangement can be changed without having to migrate to a different system. Thus the investment in adopting the system is protected.

The choice of Open Source therefore extends to an Open hosting and support model. Within the Bloomsbury group and the wider sector, sufficient examples of this model were available to demonstrate its viability (generally, at that time, more so in the electronic information services environment than the Corporate Systems environment) and this was another factor in the bias of the BLMS towards an Open Source system, provided that the functional requirements were met.

Vendor and supplier engagement

The Bloomsbury Librarians decided to ask each of the main vendors with whom at least one Library had a relationship, to present its road-map to a group of staff drawn from all six libraries. The exercise was repeated with a selection of Open Source providers. The road-maps were compared with the functional requirements which the Libraries had prepared – collaboratively – and scored methodically. The workshops were held in July 2012, typically attended by up to 20 staff from across the six libraries collaborating at that time. Vendors and

suppliers were given time to make a presentation (categorically not a sales pitch) and then subjected to a question and answer session. Attendees used scoring sheets to ensure that each Q&A session covered the same ground. Each library was able to add extra questions to the sample sheet (below), drilling into its specialised requirements on topics ranging from Unicode, through complicated classification schemes to federated access management.

BLMS Project ***MASTER SCORING SPREADSHEET***

Supplier Horizon Day: Sample Scoring Sheet

SUPPLIER (enter name below)

YOUR NAME (enter name below)

*** Weight = importance of item*

No.	Question	Score (1-5)	Weight (1-3)**
1	Do you think there is a future for traditional siloed LMSes, archives, repository and other curatorial systems?		
2	How might you support a shared service approach for an LMS for a consortium?		
3	What new technologies are you most interested in applying to library systems?		
4	Tell us your thoughts on integrating management of electronic items and media not managed by current LMSs.		
5	How will you ensure you provide a stable and reliable platform but still be responsive to changing customer needs?		
6	Can you imagine your company ever selling support for an Open Source library system?		
7	How do you imagine staff workflows could be improved by new library systems?		
8	What changes are needed in the LMS to support improving discovery especially using new discovery interfaces / layers?		
9	Tell us how a linked data approach could fit with your view of the future LMS and discovery.		
10	TAILORED QUESTONS		
	Enter your own question here)		

[DIAGRAM-03]

Three workshops were held over a period of two weeks: one day was allocated to four vendors; on the other days the staff met a supplier that had put Koha into a number of libraries, representatives of the Library Coop (since disbanded) and a representative from the Kuali Open Library Environment.

The intention was quite straightforward: which supplier or provider or system has a vision of its where its systems are going that is closest to where we want to be?

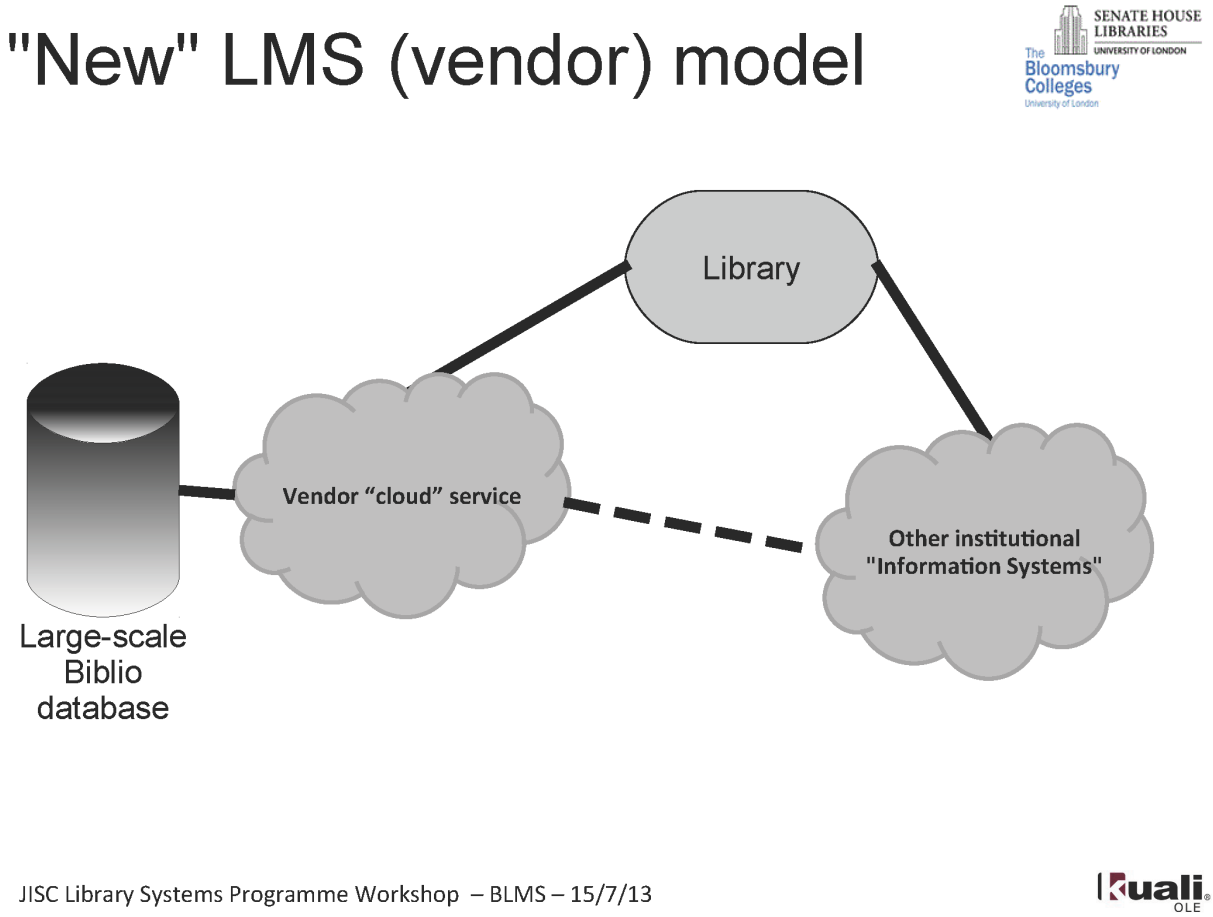
Proprietary systems

Taking the commercial vendors first, two distinct service models were presented, with variations (remember, this was mid-2012):

- an incremental upgrade approach, with little change in the basic setup and few enhancements (single-instance systems, supported by the supplier, hosted on- or off-site);
- a major shift to a fully-hosted, off-site service based on a large-scale bibliographic database with services wrapped around it.

The supplier who presented the first option was so casual about the approach – which seemed to rely upon the inertia of sites that did not want to go through the process of moving to a different system – that we wrote it off almost immediately (but not without putting it through the same scoring process as all the other options).

The second option can be summed up in the diagram below. In the three vendor cases offering this model, there was only one option, which was to move all library management functions into its externally-hosted system. The variations on this approach were that one supplier already had a very large bibliographic database and was proposing to build services around that database whereas the other two suppliers already had Library Systems but were in the process of building up large databases by ingesting customer data into their new, multi-tenant systems.



[DIAGRAM-04]

Noting again that this was mid-2012, and the request was for suppliers to show their roadmaps rather than attempt to sell us something, at least two of the systems we were shown were not yet deliverable and a third was at an early stage, with a number of UK Libraries working as pilot sites to assist the supplier in developing its service.

In addition to the objective scoring, one of the strongest, subjective impressions of all three vendors offering this model was that they wanted our libraries for our data as much as for our money (although the money would be nice).

> For the library I was in they will do better with an Open Source system. For a much smaller library or something you might be better with a vended system or being part of a consortium. Some of the large consortia have to have IT staff to run vended systems so they might be better off in the long run to have an Open Source system but a small library itself it might be more the services they can get from either a vendor or a consortium.
>
> I have a background with vended systems. I have a background with implementations, at this point in time I like the Open Source, I like the flexibility, you have to be willing to do the strategic planning for how things will work in the future but I think it puts the library in a better position for the future. **FM**

Open Source systems

We had already seen Evergreen and Koha demonstrated, including the session in 2011 led by Staffordshire (the first UK University to implement Koha). The primary European provider of implementation and support services for Koha made a presentation which focused on a general discussion of the benefits of the Open Source approach, using Evergreen and Koha as examples alongside some other systems from its portfolio. The supplier was reasonably open about the strengths and weaknesses of its supported library systems and had also looked at the development of the Kuali Open Library Environment.

The Library Coop was a consultancy group formed by six librarians who came together after having worked with the Software Coop[19] on Open Source library systems in non-academic libraries. Their presentation focused on the benefits of Open Source, using their experience with Koha as an example. They talked about the Open Source ecosystem and alerted us to the problems (at that time) with the Koha code-base having "forked" (divided into two different streams with different support arrangements) and some of the disputes which were in progress. They provided a very useful suggestion that the BLMS ought to aim for Kuali OLE as its preferred system but that it would benefit from an interim migration to Koha as a staging system whilst waiting for OLE to be ready. Their idea was to undertake the work in four stages:

1. migrate to Koha, using the process to clean up all data;
2. implement ERM and Link-Resolver systems;
3. replace the Koha OPAC with a comprehensive discovery system such as Blacklight or VuFind;
4. migrate the back-office systems to Kuali OLE.

Their suggestion was that this might be a five-year process, 2013-18.

We had a presentation on the Kuali Open Library Environment (OLE) from one of its representatives who happened to be in London for meetings with Jisc about another project (a collaboration to build a Global Knowledge Base for e-resources in conjunction with the Jisc KB+, which had been funded by HEFCE under the Universities Modernisation Fund mentioned in the Timeline). He described the origins of Kuali OLE in a 2008/09 study funded by the

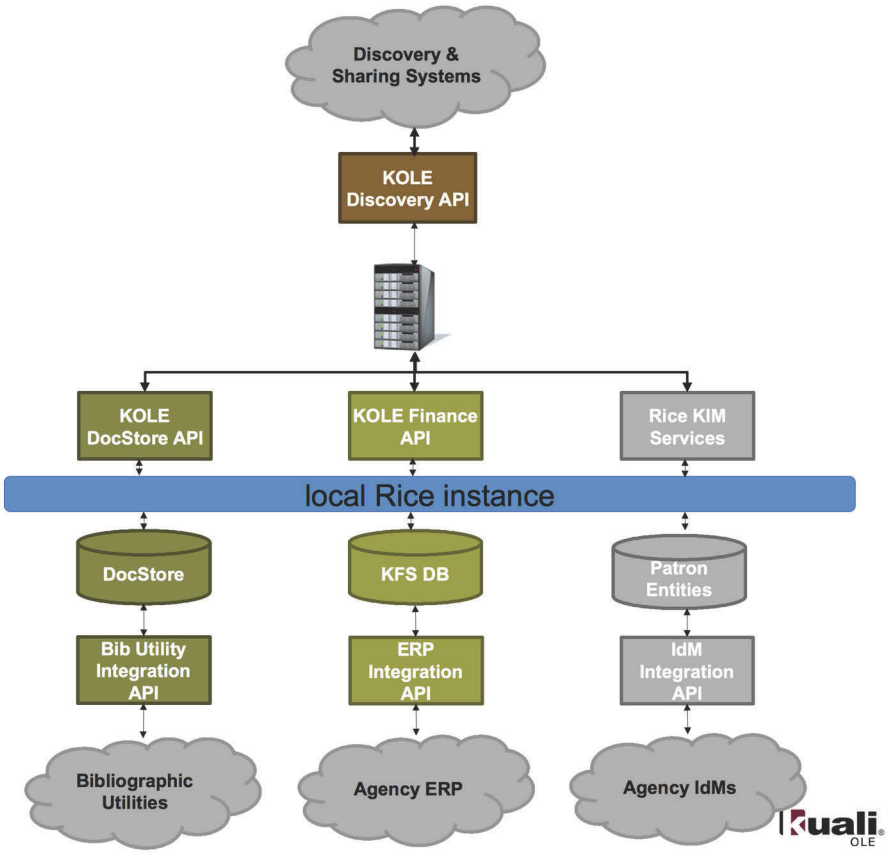
19 http://www.software.coop/products/koha/

Mellon Foundation which resulted in a recommendation to build a new library system from the ground up, operating under the umbrella of the Kuali Foundation, a not-for-profit US organisation founded in 2004 to build Open Source Enterprise Resource Planning (ERP) systems (starting with Finance, moving on to Student and HR).

> We are the solution, we are the developer and we are the customer and there is something empowering about how you manage and influence all three of those vectors to gain what your institution needs. It also puts you in the context of doing something greater than your own position, we feel like we are contributing to what libraries should be thinking about.
> **MW**

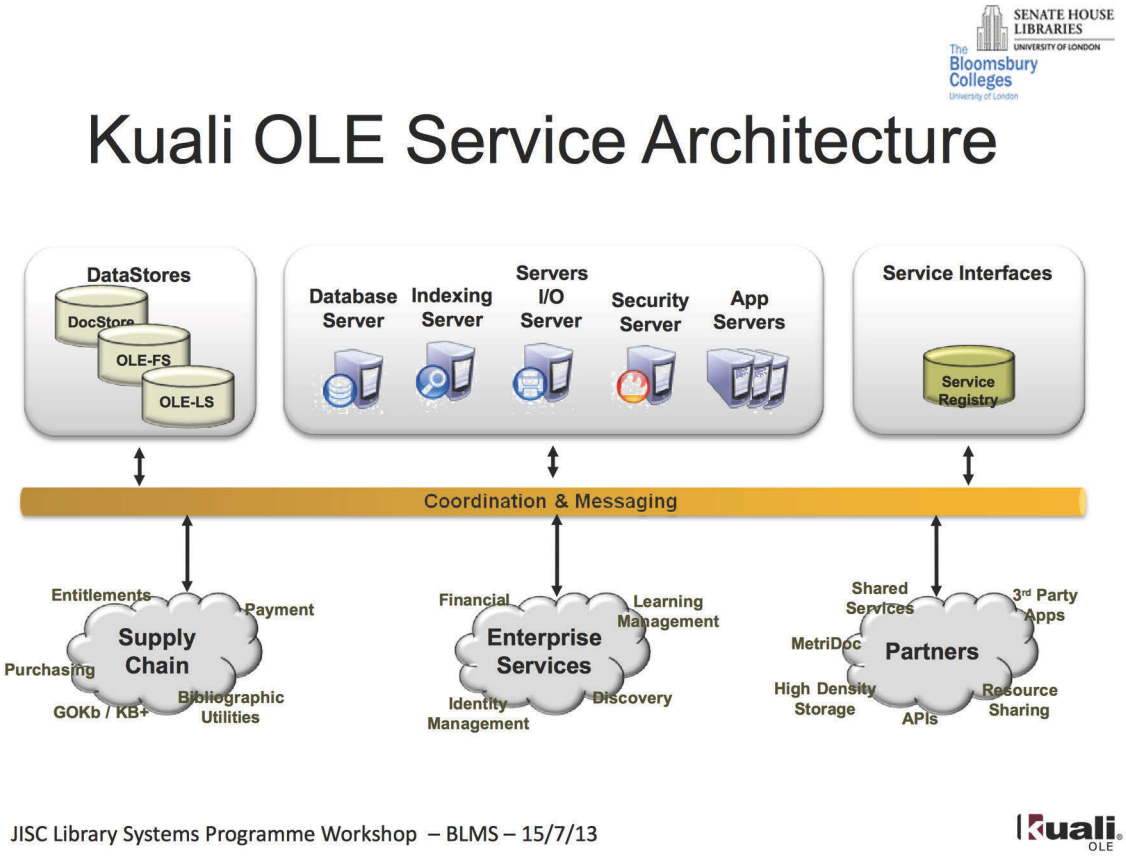
Two things were particularly striking about OLE: the way it was being built in a modular fashion on top of a "middleware"[20] software layer, an essential component of enterprise software architecture; and the strong governance provided by the Kuali Foundation. Unlike most of the presentations, the slides from the OLE session were freely shared (see below). The first slide shows an outline of the software system. as it was in 2012. Kuali Rice is the name given to the middleware layer (the software layer providing connections and data exchange between the different modules in the system). As OLE does not include an OPAC, the Discovery API is used to interface to user systems. The DocStore holds the Bibliographic, Patron and Circulation Data for the Describe and Deliver modules, the Finance API provides the basis of the Select and Acquire module. Further APIs provide interfaces to external bibliographic systems, Corporate Systems and Identity Management.

20 https://en.wikipedia.org/wiki/Middleware – in summary, a software layer which enables data-exchange between applications



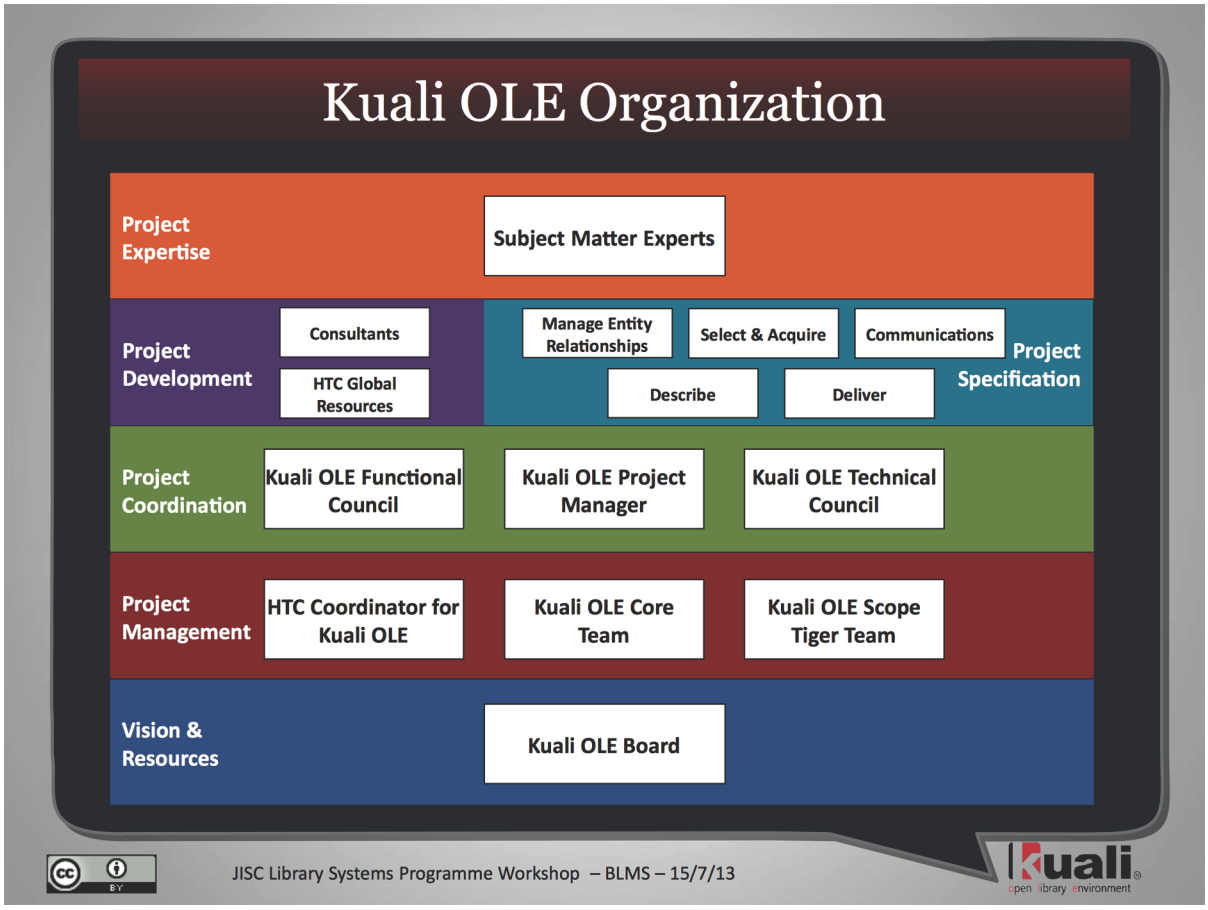
[DIAGRAM-05]

This slide led on to a more detailed view of the Service Architecture. Again, the clear description of the Open nature of the system was impressive when compared with many other presentations.



[DIAGRAM-06]

Finally, the Kuali OLE Governance model was set out.



[DIAGRAM-07]

It is fair to say that many of the Librarians present at the session, who had engaged over the years with the "User Group" approach operated by library system vendors, were struck by the degree of involvement of library staff with the OLE project, at several levels, set out in this diagram.

Analysing the choices

Two exercises were conducted:

1. an analysis of the score-sheets;
2. a SWOT analysis of each of the options which had been presented.

The exercises were conducted by the Project Executive group supported by the Project Manager and senior Systems Librarians. Once the exercise was complete, the decision about direction of travel was made by the Executive, taking into account a number of other considerations.

Score sheets outcome

The scores from the two workshops were analysed separately. The first summary sheet is from the supplier workshop.

BLMS Project

Supplier Horizon Day - Commercial - 5th July 2012

1. TOTAL SCORES - COMMERCIAL SUPPLIERS

No.	Vendor 1	Vendor 2	Vendor 3	Vendor 4
1	59	60	54	30
2	49	68	49	40
3	58	55	57	44
4	57	40	49	37
5	54	55	55	36
6	32	49	42	22
7	21	29	25	22
8	30	31	34	26
9	54	48	37	33
10 - LSHTM	60	34	37	13

TOTAL	**474**	**469**	**439**	**303**
Average	*4*	*4*	*3*	*2*

WEIGHTED	**854**	**838**	**778**	**562**

[DIAGRAM-08]

This scoring was consistent with comments from the workshop participants, which put the most conventional suppliers offering the next-generation, hosted model ahead of the less conventional supplier, with the "steady as she goes" supplier last. The impression was that, if we were to go for a consortium approach to procuring a commercial service, there would be a strong response but with reservations about whether any of the suppliers could respond to the more ambitious aspects of the BLMS approach.

The second summary sheet is from the Open Source workshops.

BLMS Project

Supplier Horizon Day - Open Source - 9th-10th July 2012

2. TOTAL SCORES - OPEN SOURCE

No.	Kuali	Library Coop	System integrator
1	39	48	44
2	47	53	44
3	39	44	39
4	37	43	36
5	25	51	50
6	45	48	49
7	28	15	21
8	25	33	37
9	28	30	38
10	26	48	23
11	42	57	44
12	29	45	41
13	30	41	26

TOTAL	**440**	**556**	**492**
Average	*3*	*4*	*4*

WEIGHTED	**1078**	**1326**	**1194**

[DIAGRAM-09]

What was interesting here was that the Library Coop, which recommended a phased project using Koha as a stepping stone to Kuali OLE came out first. The "librarians speaking to librarians" approach found considerable favour amongst the workshop attendees. The comments about the Systems integrator mentioned that the presentation glossed over the forking of the Koha code base and disputes arising from the fork. Kuali OLE was seen by many as ambitious but not ready for a production environment.

SWOT analysis

A SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis was undertaken for each of the 4 models that were identified through the sessions:

- Proprietary, software-centric;
- Proprietary, data-centric;
- Bespoke, commissioned (Kuali OLE);
- Open Source, build-it-yourself (Koha or Evergreen).

Looking across the analysis, a number of cross-cutting themes were evident.

The unknown

- Impact of the equity finance model on the future of commercial suppliers and their systems.

- Open source projects or commercial suppliers backing the wrong horse in terms of technology.
- BLMS is a relatively small player in the global context of LMS, potentially affecting capability to influence development and keep up with HE sector changes in the UK.

LMS development

- US centric (Open Source and commercial)
- Speed and flexibility of enhancements to suit the Consortium – Open Source being very far ahead

Costs

- High for commercial suppliers – but a known quantity
- Total Cost of Ownership (TCO) unknown for Open Source

Support

- A 'Quiet life' for existing commercial systems by comparison with Open Source
- Unknown requirements for numbers and skillsets for Open Source system support

Governance

- Robustness and reliability of development and release models – clearer with commercial suppliers; solid for Kuali; currently good for Koha; less clear for Evergreen

SWOT Tables

Each model was then analysed in the workshop sessions using the standard SWOT definitions.

Model 1: Proprietary, software-centric	
Strengths • Robust, reliable supplier • State of the art for current systems • Comfortable • Proven/established/stable • Established customer base • Support for core operation	**Weaknesses** • Vendor/Technology lock-in • Lack of adaptability • Reliance on supplier's roadmaps • Properties of the user base/market-share • Possibly region-specific • You are stuck with it • Have to buy everything from one place • High cost • Long enhancement process • Proprietary customisation languages/scripting • Unresponsive to user needs • BLMS is a small part of the overall market share • Non-UK focus
Opportunities • Off-the-shelf system for the basics • No need to re-invent the wheel	**Threats** • Technology dead-end • Quality of support fails

Model 1: Proprietary, software-centric	
• A quiet life for your systems team • Negotiate price on consortium basis • Core modules work	• Can't control costs • Funding is locked to product • Left behind sector, not risk-taking enough • Library relies on supplier to adjust to new developments • You're at risk from their future business choices, including: supplier 'betting on the wrong horse': if they choose the wrong technology, support and then product reaches end of life • Few opportunities • Changing market • Suppliers not keeping UK needs in sight • Can't develop system to meet needs • Equity capital model impact on supplier's direction

Model 2: Proprietary, data-centric	
Strengths	**Weaknesses**
• Innovative end of technology spectrum • Access to massive bibliographic databases • Global reach • Nimble software development (no Legacy) • One variant includes a not-for-profit, membership model • Open APIs around one big database allows for development of your own services • Specifically OCLC, they do know about data on a large scale • Interesting but flawed • Data structure • Membership model based on NFP • Global reach	• Unclear if systems are production-ready • Lock-in to a quarterly update cycle with no opt-out • Few reference sites for any of the examples • Bib data is only part of the system, can this provide a complete system? • Who develops the non-bib data stuff? • Circ stuff etc seems tacked on • Content inclusion per site (relevance) • Records-matching algorithm weak • Supplier tie-in • Agreements with the right suppliers • Unclear on the complete system • New to market • Production ready? • Reference sites limited • No big research libraries
Opportunities	**Threats**
• Join a future-proof system • Interesting technological trajectory • Free up systems staff from generic IT allowing them to do cooler library stuff • More flexible and responsive than a traditional	• Financial buy-outs in the case of two examples • All library data is held off-site by the supplier • You are relying a lot on someone else's

Model 2: Proprietary, data-centric	
model • Synergies/cost savings with content suppliers • Tailoring through APIs • New technology on fascinating trajectory	systems • You're beholden to their future business choices • Challenge of data from different vendors - what if they fall out? • Agreements may only last a short while • Supplier agreements

Model 3: Bespoke, commissioned (Kuali OLE)	
Strengths • Rigorous, bottom-up software design • Carefully structured to be fit-for-purpose for academic libraries • Strong governance model • Interoperability with Enterprise systems • Integration as a complete system for the institution • A solid basis for developing software building on Open Source • Member = shareholder approach; you're your own vendor	**Weaknesses** • Software at Alpha stage • Few early adopters • US-centric at the moment • There is no finished LMS product • Hard to see how this could be done in our university/organisational constraints • Time commitment • Support • No early adopters/reference sites
Opportunities • Bring a European base into the project • Genuine Enterprise system • Integrate with federated ID Management • A great deal of potential for this approach • Influence direction at an early stage of the system	**Threats** • Small consortium (9 Libraries) • Seed-funding may run out • Unknown costs of future development • Uncertainty longer-term, you'd need to maintain the consortium • UOL politics • US-based • Sustainability of resource here • Large bill when seed funding ends?

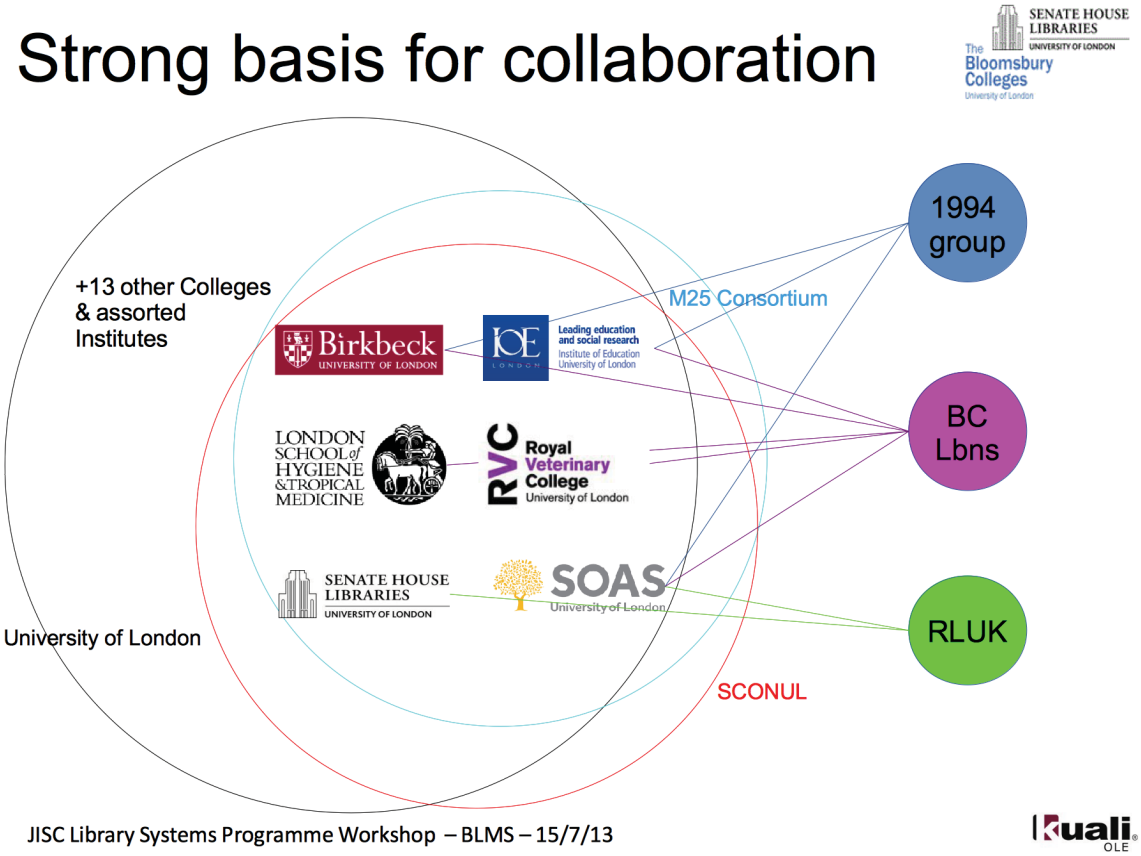
Model 4: Open Source, build-it-yourself (Koha or Evergreen)	
Strengths • Community code-base • Shared/rapid development • No licensing costs	**Weaknesses** • Evergreen does not support Unicode • Koha has a forked code base • Neither system offers Enterprise architecture

Model 4: Open Source, build-it-yourself (Koha or Evergreen)	
• Flexibility, nimbleness, you can develop your own thing • 'Of the moment' • Mutual support from others and community • Flexibility • Short development cycle • Tap into community knowledge • Cost • 'Ace and interesting'	• Have to work with a community • New and different approach, untested • Still need to spend money on things from vendors like a big index of journal data • Lack of ILL system • Support models variety • Suppliers still required • Evergreen not persuasive • Lack of reference sites for both options
Opportunities • Join a growing bandwagon • Shared service is an integral part of the model • Could migrate to Kuali OLE at a later stage • A new and exciting approach, much more responsive • We can actually do it ourselves • Possibility to build on the software • Ease of programming • Migration easier	**Threats** • Risk of choosing the wrong version of Koha • Unknown support costs • Skills-base of own staff • Need to be realistic about what Open Source is really like • Danger of project petering out if you don't have a solid user-base • The usual Open Source dangers such as forking, politics in the community • Back wrong horse

Further analysis

The dynamics of the BLMS Executive Group were a significant factor in the process of decision-making. The technology principles outlined above were important, but so was the organisational context. A lot of thought was given to the nature of the collaboration: what was the primary connection between the libraries? What was the common ground and what was the vision for growth of the envisioned shared service?

The diagram below describes the range of connections between the libraries.



[DIAGRAM-10]

All six libraries were in both SCONUL and the M25 Consortium; all five Bloomsbury College libraries were in the BC Group (the School of Pharmacy by this point was joining UCL); Birbkeck, IoE and SOAS were in the 1994 group (since disbanded); SHL and SOAS were in the RLUK group; all libraries were part of the Federal University of London (along with 13 other Colleges and various Institutes). Which was the strongest collaboration to feed the aspiration for a pathfinder shared service that would grow?

The role of Senate House Library was important. This library already provided a range of shared services to other parts of the University: access for all staff and students to its collections under the University of London Access Agreement[21]; access to a shared book repository; consortial access to its library management system for the other libraries in the School of Advanced Study[22]. As noted in the introduction, Senate House Library in previous decades had also provided a shared version of LIBERTAS.

SCONUL and M25 seemed too large and diverse to form the basis of a strong collaboration. Given the particular role of SHL, the decision was to envision the BLMS as potentially growing into a University of London Library Systems Association. This decision was to have some far-

21 http://www.london.ac.uk/libraries_agreement.html
22 http://www.london.ac.uk/2399.html

reaching consequences for the evolution of the project but in the short-term, it provided one very strong driver for the decision: a vision of like-minded, research-intensive academic libraries collaborating on the development of a modern library systems platform which was flexible and extensible – potentially extensible across 18 Colleges to enable shared access to resources – firmly branded as a University of London initiative.

It was clear, all other things being equal, that the ethos of the Kuali OLE Partnership had a strong resonance for the BLMS Executive when seen from this point of view.

> What's happened here is we recognized that the model needs to evolve in order for us to survive. The original model that we had was based on a Kuali governance model with a Functional Council made up of people who actually used the system, and a Technical Council made up of people who understand the technology and know how to make it work. We still have a Project Manager who helps the two chairs so the Functional Council and the Technical Council coordinate and try to bring together issues which have some synergy and need to be developed together. In the Functional Council they have a more complex structure, we have Subject Matter Expert groups. So for acquisitions, for cataloging and for circulation each have a Subject Matter Expert. Those Subject Matter Expert groups are made up of representatives from each of the partners, and in these groups they discuss what is important to develop and some various directions which are proposed upwards to the council ultimately. What I'm describing is a group which has had the luxury of being able to have representatives from each partner on each of these groups for full participation. I think that has both helped us and proved to be a little bit of a drag on our decision-making process. We make decisions by consensus and it takes a while to get consensus. **CR**

Financial modeling (1)

Some financial modelling was done at this stage of the project, mainly focusing on the potential on-going costs once systems were installed and configured. The most significant early finding was based on a comparison of the financial model in the Open Source options vs the Software Licensing and Support model in the most mature of the "Model 2" systems.

Open Source does not involve a paid-for license but this does not mean there is no license. Systems are released using a number of different licenses. Theoretically, the software can be downloaded and used without payment but the licenses may involve obligations e.g. if the software is modified. The financial implications of this approach were difficult to estimate so it was decided to benchmark against the "Model 3" system (Kuali OLE) which offered a Partnership model with annual fees. Under this model, the BLMS could join as a consortium for an annual fee of around $100,000. This fee provided access to early releases of the code, membership of the various governance bodies and, via that membership, input into the development of the code. Critically for the analysis, the fee remained the same regardless of how many instances of OLE were installed and how large (or small) were the bibliographic databases. Thus, a financial model could be devised in which the cost of the OLE Membership was a constant, shared between BLMS partners and – as the partnership grew – the share per partner would decrease.

By comparison, the leading "Model 2" supplier asked a lot of questions about the volumes of bibliographic data held by the partner libraries and provided an indicative license price based on the volume. The initial annual price was so high (running to hundreds of thousands of pounds) that some data (volumes of holdings catalogued in the Archives systems) were

excluded on the basis that none of the Open Source options under consideration included (at that time) an Archives model. In this model, as new partners joined the BLMS, costs would increase in line with the size of their holdings.

In summary, the Open Source option represented by Kuali OLE offered fixed, predictable software costs (excluding hosting and support) which could be shared across partners, giving rise to economies of scale. By comparison, the most predictable element of the outsourced supplier approach was that licensing costs would increase as new partners joined.

> The basic financial model of the Kuali OLE system is different from other proprietary systems in the sense that you pay a subscription annually and that could potentially be reduced over time so it was seen as very attractive in attracting other libraries to it hence reducing the costs over years to come and therefore the costs would go down. With a proprietary system the costs are likely to rise so the financial model was attractive in that sense. **RA**

Further, more detailed financial modelling was undertaken at the Options Appraisal stage of the project.

Follow-up investigations

At this stage in the project, the BLMS Executive focused on two questions:

1. how to develop BLMS as a consortium;
2. which technology option would have the best fit for the BLMS.

The Project Manager was tasked with obtaining further information from Kuali and the Library Coop (the Koha option was already well-documented by Staffordshire University) and also tried to get information from libraries which had recently chosen the leading commercial option about their experiences (on the one hand) and costs (on the other). The experiences of the early-adopters of this new system were mixed and the sense that it was a very expensive ("gold plated") option confirmed, although no-one was prepared to reveal full details of their financial arrangements with the supplier.

During the period July-October 2012 the functional specification was completed and an outline Options Appraisal prepared. The Executive was strongly drawn towards an Open Source option and saw that Koha or OLE were the only viable choices due to the lack of Unicode in Evergreen. The split in the Koha community gave cause for considerable concern although a lot of time was given to considering the suggestion by the Library Coop.

It became clear that a decision was needed in order to focus on the detailed Options Appraisal which would include financial analysis and business cases for institutional support. With Open Source as the first preference, there was confidence that a commercial option would still exist as a fallback if the Open Source approach proved not viable.

> There are a lot of advantages to [Open Source], one of which is financial in terms of costs going forward over years once you have the system in place, that partly depends on a group of libraries working together so it suits that type of arrangement […] With proprietary systems if you wanted to change something or you need some information from them they will often charge you. [T]hat isn't an issue when you have a group of libraries working together, developing software. One of the key messages that was attractive about Kuali OLE at the start was the fact that they were developing a system and librarians were heavily involved in developing the system as opposed to a company producing a system that they

thought librarians would need but it was actually librarians who were heavily involved in creating the system itself so that again is incredibly attractive. **RA**

Decision in principle

In October 2012 the BLMS Executive published the following statement on its project website:

> *The Bloomsbury Library Management System consortium has made a decision in principle to develop its 21st Century LMS using Kuali OLE Open Source software as a platform.*
>
> *Extensive options analysis and specification work over summer 2012 have indicated that an Open Source solution will offer the most flexible and future-proof direction to deliver the visionary shared service.*
>
> *Strategically, Kuali OLE fully supports the direction and goals of the consortium members whilst also providing best value for money in terms of project and recurrent costs.*
>
> *Technologically, the roadmap for Kuali OLE and the underlying enterprise technology, is delivering a truly next generation system.*
>
> *Detailed planning and specification work will continue during the remainder of 2012. The programme of development work will continue during 2013, with a pilot service targeted to go live in late 2013.*

The post was followed up by a second post titled "We scanned the horizon and found something interesting"[23] to provide further detail about the background to the decision. The posting summarised the reasons for the decision in the following terms:

> *Three things about Kuali OLE persuaded us to make it our preferred option:*
>
> 1. *a group of large university libraries looked at the LMS field and, having decided that nothing on offer addressed their functional requirements, set about building one based on a systematic and detailed analysis of their library workflows, using a combination of their own resources and a large grant from the Mellon Foundation;*
> 2. *the Kuali system, developed and maintained by the Kuali Foundation, has interoperability at its core, offering extensive modularity based on the primary principle that data should be managed once in the appropriate place and software modules should be able to address that data directly rather than importing and replicating it;*
> 3. *whilst offering its software through the open-source model, Kuali is a membership organisation with strong governance and high levels of assurance about both the quality and longevity of its systems with members able to have direct and continuing input into the choices about the development of the software and systems.*

23 http://www.blms.ac.uk/scanning-the-horizon/ [accessed December 2015]

(Anyone who has struggled to get a vendor interested in its requirements for changes to or developments of its LMS will understand why the third point is so significant.)

In summary, Kuali OLE provides us with the opportunity not only to build a truly next-generation LMS, but to approach levels of cooperation (through the focus on interoperability and data-sharing) which go well beyond the scope of a simple "shared-service LMS".

In making its Decision in Principle, the BLMS Executive was aware of the need to assess the impact of its decision on existing systems as it was clear that partnership working with the current vendors would be essential during the development and parallel running stages of the project. It was also clear that a great deal of work was required before the Decision in Principle was translated into an implementation plan. What was not anticipated was the response of the vendor community.

Fear, uncertainty and doubt

It is an unusual experience, to put it mildly, for a Library Director to find him or her self more or less pinned against a wall in the middle of a major conference by the representative of a Library Systems provider who has grabbed him or her by the lapels and is shouting about the "terrible mistake" which has been made. It is certainly an unusual sales technique but such was the tone of the "Fear, Uncertainty and Doubt (FUD)" sales technique (invented, some say, by IBM back in the 1960s) which was unleashed by the BLMS decision.

Kuali may not have been a byword in the UK (indeed, the BLMS statement on its website admitted that it had only come into view quite late in the horizon scanning process) but it was well-known and attracting a lot of attention in the US, where the competition to be first in the "next generation ILS" stakes was becoming quite intense. It might be said – in 2012 – that the large suppliers who had coasted for years on the strength of their user-base and the fact that libraries don't change systems very often had been caught on the hop by the speed with which the transition from print to hybrid libraries had changed the landscape for systems support. The money that the Mellon Foundation put, first into the Kuali Finance system, then into the 20098/09 study which developed the OLE concept, followed by the seed funding for Kuali OLE, had attracted a lot of attention and the "energy and enthusiasm" for OLE had not gone unnoticed.

> The reason [we] decided to go along with this project was because it is Open Source. We in Library Technology Services have been working with a lot of Open Source technology – we had the Moodle system for our course management software, we had Drupal for our website. On the library side we used VuFind for our discovery layer or catalogue. We were already trying to move away from vendor world and this would be another move to move away from our vendor.
>
> We just saw costs going up and [the vendor] hadn't made many changes to the library system that we were thrilled with – we didn't see much movement towards working with electronic resources but our collections are slowly moving towards electronic resources. We did not see our vendor changing their development at all to take into consideration electronic resources – that was a big one – plus we wanted control over our own data and have our system analyst and technology team be able to get their hands into code and look at the code and that you can't do in a proprietary system. **SW-Y**

For a supplier, winning the business for a consortium which could – potentially – extend across the University of London would be a major coup. More than one supplier lost no time in letting as many librarians as possible – at University of London colleges and across the sector – know what a "mad" thing the BLMS was doing. A senior manager from the University of London reported that he was approached by a Librarian from a different university who told him that the BLMS Librarians were "barking".

The decision ended one stage of the project but marked the beginning of the next, in many ways much more difficult phase: to build a robust consortium model which would support the implementation of Kuali OLE in the BLMS partner libraries.

The moving horizon

As described above, three years later SOAS Library is on the new system and the other UK libraries are sitting in the wings. The lessons learned about Shared Service and Consortial working are documented below. If we repeated the horizon scanning exercise today, what would we see?

Clearly, the environment has changed dramatically. Not only the local circumstances mentioned above have changed, but also the national environment. The Tory-led coalition, which was in power in 2012, has given way to a Tory government faced with weak opposition and able to pursue its agenda of marketising the UK higher education environment with few constraints. In the autumn 2015 enrolment sessions there were no caps on the recruitment of home and EU undergraduates and – especially for smaller HEIs – the situation is more turbulent than ever in living memory.

The UK Comprehensive Spending Review has the potential to change – again – the funding structures in HE. Central funding for initiatives such as Jisc may vanish. Institutions may be told to find the costs of central, shared-services from their (allegedly increased) fee income whilst also attempting to generate strategic reserves to replace their lost capital grants.

The "cloud" has become a pervasive marketing term which refers to a range of service offerings which might be genuine, collaborative efforts or simple efficiency gains, but might equally be further privatisation of services previously operated as core business by HEIs. To a considerable extent, the public appreciation of this approach to information systems provision has been constructed around the "free" services delivered by large, mostly American corporations.

It is hard to find a university in the UK that has not moved its e-mail, calendaring, collaborative document-authoring and much else besides to a "free" provider. Where not completely free, subscription charges are set so low, and data allowances (measured in tens of gigabytes) so high, that the "offer" is exceedingly hard to refuse. When asked, "is it really safe to put our data onto someone else's computer", most of the IT practitioners brokering access to these services mention reassuring pieces of paper but in reality, the answer is, "nothing bad happened … yet and besides, it's cheap".

The Open Data, Open Access agenda has moved dramatically since 2012. Libraries, particularly Research Libraries, are at the forefront of the move back towards the curation, preservation and publication of their institutions' intellectual property. In this context, health warnings about the "cloud" come in to sharp focus. It is one thing to commit the ephemeral e-

mail, calendar and document floods to some vast data centre in the sky (but don't mention this to the social historians); another thing altogether when it comes to the data that is the primary intellectual property of the institution. We spend a fortune securing our physical archives: why would we not give our digital holdings the same attention?

> We are completely emancipated from a vendor who owns our data. But from a moral point of view if you work on a system and you invest quite a lot of time and your profession is cataloger you want to believe that the catalogue record belongs to the institution who is paying your bills, but it never did: vendors owned that data and they would charge you to take it out of their environment. So that is a leap forward in the way the libraries store their data. **CM**

Looking ahead then, a considerable tension arises between the proprietors of big data, happy to take anything we give them at little or no cost and the requirements of Libraries to ensure that their holdings are safe for now and posterity. Once the data leaves the building, the digital Dark Age is really only one light-switch away.

Scholarly Communications and Open Access

The challenge of Scholarly Communications and the protection of the Scholarly Record has also come into sharper focus, especially for Research Libraries. At present, publicly-funded research outputs (books, chapters, journal articles) are freely-given to large publishing conglomerates who call upon the labour of other academics to "peer review" the material before publishing it in "quality", "high impact" journals or hard-backed volumes which they then sell back to the sector which gave it to them, at eye-watering profit margins. Members of the tax-paying public who in many cases funded the research must stump up their own cash to get the outputs, unless they are lucky enough to be associated with a university or learned society.

In the digital age, it has never been easier to publish. Every academic library that has set up an open access repository is already a publisher, and shared platforms are emerging for the rest. Funders are demanding that research is put on open access as soon as possible after publication and in many cases that should also include the original data so that others can re-use it or at least test the research. There is already evidence of a strong trend for universities to revert to publishing their own material once they have re-established their credentials as authoritative publishers.

In the commercial Library Systems sector, a number of things have also changed. Through a continuing process of mergers and acquisitions, the number of suppliers is shrinking and it is becoming clear that there is an aspiration amongst some to provide a seamless web of library management, discovery and content services. The Kuali Foundation meanwhile has established a spin-out company to accelerate its goal of providing a comprehensive suite of Open Source Enterprise applications on a managed-service basis and the OLE Partnership is considering where it stands in relation to this initiative.

If we started again today the only thing that is certain is that we would end up in a different place. Such is the nature of decision-making processes: decisions have consequences and often it can take years for the full implications of those consequences to be worked-through.

Phase two: options appraisal

It was one thing to make a "decision in principle" for Kuali OLE but quite another to work out how to put the decision into practice. What models of practice did exist were either to be found in the American libraries considering their implementation plans, or in other enterprises. A number of examples could be found in the UK of universities taking Open Source software and building effective services: very few of them in Libraries.

> Three tips for a successful Kuali OLE implementation:
>
> - hire good staff and resource the project properly – it's a project which requires a lot of technical staff, more than we had at SOAS and I would recommend them not to underestimate the skill levels involved rly and often, as I've said it is quite a culture change, it's a community driven project and you need to have the library staff on your side to implement it effectively because pushing against library staff makes the whole thing a lot harder,
>
> - plan well ahead of time; really think about what you are going to need, what the system is going to do. Plan these things out with functional specifications, a project manager for a workflow and business analysis going up with technical specifications – do a lot of planning.
>
> I'd say that OLE needs a couple more years to develop into a mature product, so the state that the software is in now I would say would need a medium size HEI. You need a lot of staff for it, so you need a moderately sized organisation with a good IT department who can hire and assign staff to the project. Conversely you don't want too large a university because of the sheer quantity of data and data analysis and data transformations that need to take place. **SB**

In order for the BLMS to move from its decision in principle to implementation therefore, a number of detailed options were studied and obstacles negotiated. We also had to prepare business cases for investment by each of the partner institutions, which would be keen to see the financial modelling showing not only the up-front implementation but also the on-going support costs.

First, the obstacles.

Conventional wisdom

There is a conventional approach to the selection of information systems and services that starts with a specification written up as an Invitation To Tender (ITT, described in the US as a Request For Proposals or RFP), released to "the market". If the value of the system or service is above a certain threshold, the notice of intention to procure must be placed into the Online Journal of the European Union (OJEU) to ensure that anyone in the EU can bid.

Depending upon how it is defined, this approach has the potential to reduce the options for obtaining a service. Universities typically have Procurement Offices to prepare the paperwork and Vendors are geared up to respond. Procurement can work well when the thing being procured is a commodity such as desktop computer equipment or network equipment but it can create problems if the intention (as in this case study) is to implement an Open Source system. A typical ITT (or RFP) will ask for "supply and support" of a system or service, possibly (in the case of an information system) including hosting and will ask for reference sites where the bidder has previously installed such a system. This tends to favour the

Vendors of proprietary systems, leading to Vendor lock-in, as few Vendors will allow a choice of support providers, meaning that, if one does not like the level of support being provided, one has to migrate to another system with all the costs that involves.

At least one university in the UK succeeded in obtaining an Open Source Library system via conventional Procurement, by specifying Open Source as one of the "mandatory requirements" in its ITT but many Procurement offices will object that such a requirement restricts the "market", and there are many more examples where the "pre-Qualification questionnaire" was constructed in such a manner as to exclude almost any bid based on Open Source.

There is some evidence that the ITT/RFP process does not always produce a good outcome. Ken Chad, for example, writing in the Jisc "LMS Change" Wiki, says

> *I'm rather against the detailed functional RFP process myself – maybe part of that is the scars I still have from working for a variety of vendors for over 20 years and writing responses to tenders/RFPs … More recently, as a library consultant I have worked with quite a few libraries to help them determine requirements and I try to avoid detailed feature lists – and yet it seems libraries still seem to cling on to them.*[24]

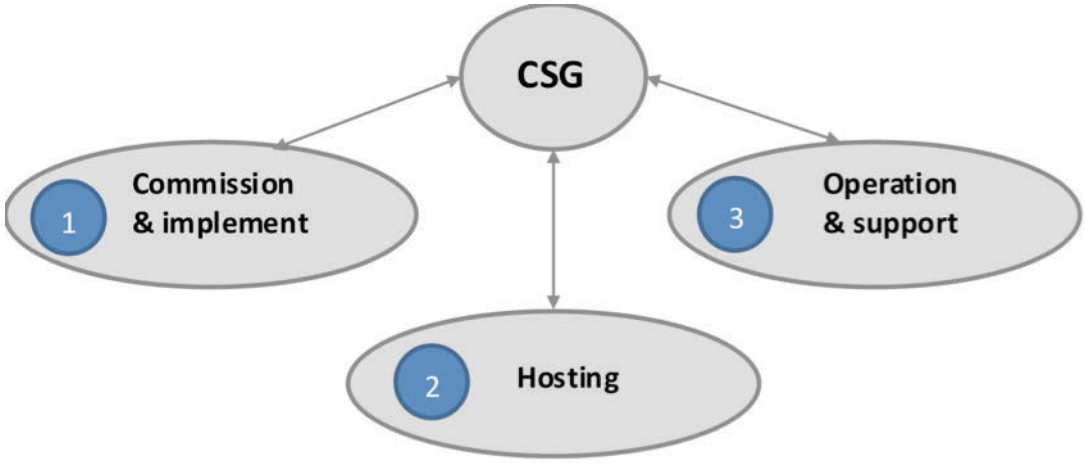
Choices: purchase, commission or build?

In the Bloomsbury case, we avoided this hazard by working through an Options Appraisal approach to answer a basic question: "are we purchasing, commissioning or building our new system?"

The answer to the first question was quite simple: we had decided on Kuali OLE, which meant that we were not proposing to purchase software. The software was available to us on an Open Source basis, meaning that it was available to download. In point of fact, we had decided to join the Kuali Foundation and the OLE Partnership, giving us a stake in the development of the system and early access to code releases, meaning that we could say, "we don't need to purchase the software as we already own it".

This left the other two questions to answer: commission or build? This led to further thinking (again before approaching the Procurement question) about how the service model might operate. The intention at this stage in the project was to scope a shared-service approach to hosting and support. We decided to disaggregate the two questions in order to maximise the flexibility once we moved towards implementation. The diagram below shows how a disaggregated service model might look, based around a "Cost Sharing Group" (CSG).

24 http://lmsguidance.jiscinvolve.org/wp/about-lms-change/ [accessed December 2015]



[DIAGRAM-11]

Commissioning, hosting and support

Hosting was a relatively straightforward question. Most of the partner libraries at that time were based in institutions with IT services set up for local hosting and with one exception, existing Library systems were hosted locally. The situation at Senate House Libraries was slightly more complicated than the others as its internal service (the University of London Computing Centre or ULCC) was also operating as a provider of managed services to other Colleges and external users, hence it charged back the cost of its services to the Library via an internal market. At that time (2012), Infrastructure as a Service (IaaS) was starting to become an option, hence it was possible to scope various scenarios ranging from local hosting, through managed service from ULCC, to alternative IaaS providers. Finally, the decision on hosting would come down to cost, functionality and security. If local, in-house hosting was the best option, no procurement was required; if outsourced hosting was under consideration, a procurement effort would be required.

> Information Technology is idiosyncratic to each institution. At some institutions the Library Dean can have lots of latitude in this area to solve their own problem. At other institutions there's a stronger core to the technical solutions that a university may be pursuing and the library needs to consider the wider organisation. There are strategies they are pursuing that the library needs to be aligned with. A lot of it is being somewhat situational to your specific circumstance. Carlen is in a statewide loose affiliation of libraries that are attached to universities who are trying, as a state university system, to achieve certain types of goals. The libraries have this longstanding relationship with each other of resource sharing and in many cases technology and collection sharing. **MW**

Putting that question to one side left us with the decision about commissioning or building the new service. We already had some experience in shared staffing, as we had taken on a Project Manager on a consortial basis and were planning for a shared Business Analyst. As a benchmark, we calculated the cost to set up a Systems Team of three (Senior Analyst Programmer supported by two Analyst Programmers), which came out at £190-250K p.a. depending upon how the overheads (office space, computers etc) were calculated. We assumed it would take a year for the team to get up to speed and at least another year to commission the systems. An outcome of this approach would be to create a team that could –

potentially – form the basis of a shared support service. If all partners bought in to the process from the start, this could be a viable approach.

> We are beginning to look seriously at how does a large organisation work, there are models out there for us, and there are well-established models for Kuali already. There are other organisations that we can look at and say what motivates people to join the partnership and sustain this effort and what are the right mechanisms for participation whereby people feel like they are influencing the outcomes that aren't as participatory as the current. There is a tension between more partners would bring in more income and should drive down costs because you are sharing it among a larger community. On the other hand a larger community demands more resources so the support for example, if we got up to 25 partners we may have to hire people to do frontline support, like a helpdesk as a vendor would have. That's a cost we don't need to have right now. **MW**

The alternative was to seek external assistance. The Kuali Foundation was operating a model of "Kuali Commercial Affiliates" (KCAs): companies that could provide commissioning, hosting and support services for its members (the Foundation at that time did not offer these services directly, focusing instead on administrative support for the various Kuali projects). The OLE Partnership had contracted with HTC (a systems integration company with offices in the US, India and the UK) for the development of its system and we contacted the company for an informal estimate in order to compare the cost of build vs commission. The response at that time (early 2013) was "about £100k per Library plus VAT", provided that all the Libraries were commissioning on a similar time frame.

We now had figures on which to base a budgeting exercise. We also had the basis of a model for how to implement the new system: disaggregate the service elements of software, hosting, commissioning/building and support. In order to proceed to the next step, we needed to work out what the service-delivery model would look like.

Financial modeling (2)

Before that, we needed to provide some notion of what this was going to cost our host institutions. Using the benchmarked staffing model, we came up with some initial costings:

Option 1: employ a Systems team for two years			
	Year 1	**Year 2**	**Year 3 on**
Kuali Membership fees	£89,600	£89,600	£89,600
Systems Team	£250,000	£250,000	
Total	**£339,600**	**£339,600**	**£89,600**
Three-way split	£113,200	£113,200	£29,866
Option 2: outsourced commissioning over 1 year			
Kuali Membership fees	£89,600	£89,600	£89,600
Commission 3 systems	£360,000		
Total	**£449,600**	**£89,600**	**£89,600**

Option 1: employ a Systems team for two years			
Three-way split	£149,866	£29,866	£29,866

On this model, the net cost per library over three years of Option 1 is £256,266 and for Option 2 £209,598. If Option 1 is chosen and then the Systems Team kept on for support, annual costs are £133,200. The attraction of the second model was the lower annual costs (Kuali fees only) but it left the matter of on-going support unresolved.

Both models demonstrated an economy of scale: if a fourth or fifth library joined, the annual costs would go down by sharing between more partners and the fact that only three were committed at the start was a factor in the decision about whether to go with a local systems team or outsourced commissioning.

On-going support costs

This was the hardest part of the scoping process. What does support for an Open Source library system look like? Our starting point was to look at current arrangements. Each of the partner libraries had a Library Systems team of some description. As noted above in the analysis of current systems, the involvement of the local IT service (however it was configured) tended to be relatively basic: keeping the "lights on" and the terminals connected. Beyond that, technical support for the system itself came from the suppliers and the Library Systems teams were operationally-focused, treating the system by and large as an appliance and supporting Library processes.

One of the tensions which had grown over the 2000s, leading to the impulse to look for something better, was the expansion of the Library System into a cluster of systems alongside the need to support the management of electronic resource access, for which the legacy systems had no meaningful support.

Individual members of the Library Systems teams in the partner libraries had branched out into innovative areas. Birkbeck for example had implemented a VuFind system to replace its legacy OPAC because the local Systems Librarian became interested, persuaded IT to give him a server to play with, and configured the system. A Systems Librarian at IoE had also been looking at Data Analysis tools, using VuFind and this shared interest led to a very productive collaboration which resulted in two of the BLMS libraries putting up VuFind systems that were very well received by library users. SOAS had been an early-adopter of the UK Access Management Federation[25] which used the Shibboleth implementation of SAML[26] to manage off-site access to electronic resources, a project which led to a very productive collaboration with the section in the local IT service which operated the SOAS Identity Management system.

Other Systems Librarians had had to become familiar with turnstile control systems and self-issue and return systems. When the Systems Librarians had their regular meetings it became clear that, taken as a group, they had developed a considerable range of technical capabilities.

25 http://www.ukfederation.org/ [accessed January 2016]

26 Security Assertion Markup Language: a system which exchanges user credentials between "identity providers" and "service providers" using encrypted data channels exchanging anonymised credentials

> I have used other systems and I have always found the most help and the most collaboration is not with the vendor as much as with other customers, so in our last system, if we had a question and we knew the institutions that were a little ahead of us or had done some functionality that we hadn't done yet, we would call them directly, we wouldn't go through our vendor so I think this is a good point to make about the Open Source we were very collaborative with each other and we could solve some problems with each other too which was really nice with our data and our tables and getting into our tables which under a closed system we couldn't get into like the underpinnings of the data. **SW-Y**

The ingredient missing in each instance (with notable exceptions) was productive engagement with IT staff. It was still quite common at that time for conversations to go along the lines of, "there are corporate systems, and there are library systems". For some reason, many IT staff simply didn't see library systems as "serious". For their part, many Library staff were intensely frustrated that their requests for assistance seemed always to be parked in the "pending" tray at the local IT service.

It became clear that a number of libraries in the UK had resorted to setting up their own IT support teams for the simple reason that it was the only way to get things done. The BLMS model therefore considered what a dedicated Library support service might look like.

Putting to one side the process by which the team could be formed, the obvious solution was to create a Library Systems Technical Support team with the skills required to support the configuration and operation of the chosen Open Source systems. The work had already been done to scope an in-house implementation team and this formed the basis for a simple financial model, building on the scoping work for the implementation phase.

Item	Annual cost
OLE Partnership Dues	£89,600
Senior Analyst Programmer/Developer (team leader)	£55,000
2 x Programmer/Developers (team members)	£88,000
Office provision (assumes located in a partner college)	£31,500
Allowance for administration costs	£20,000
Travel	£10,000
TOTAL	**£294,100**
Rate per partner if split three ways	£98,033
Rate per partner if split four ways	£73,525
Rate per partner if split five ways	£58,820
Rate per partner if split six ways	£49,016
Rate per partner if split seven ways	£43,104

The model excluded infrastructure costs as these were absorbed locally under a range of different arrangements. It was benchmarked against the net spend of the partner libraries on their current arrangements (software licenses and support by the suppliers). It became clear

that three libraries was not a large enough group to make the model viable but from five libraries onwards, the cost of the support model came close to what the libraries were already spending and hence affordable on a like-for-like basis. It was pointed to some kind of banding model would that need to be developed to account for the different sizes of the partner libraries.

Choosing an implementation method

At this point, with three libraries definitely planning to implement, it was decided to share the costs of the OLE Partnership fees but to put the other shared support elements on one side pending new partners joining the consortium.

The follow-on decision from this was that employing a Systems Team for the implementation was risky for two reasons: the time taken to recruit and bring them up to speed; the burden upon the institution which took the lead as employer if either or both of the other partners pulled out, leaving it to pick up the employment costs.

The commissioning option was therefore selected on the basis that

a) it was a fixed cost; and

b) the supplier had indicated the work could be done in a year.

Following from this, a procurement effort was required to secure the services of a commissioning company. Two of the three partners had Procurement Offices and the respective managers were consulted. It was agreed in both cases that a single-supplier procurement was justified as (at that time) there was only one company available with the expertise and experience to implement a Kuali OLE system. The third partner was willing to take the advice of the Procurement officers. The commissioning company was then engaged in detailed contractual negotiations.

This decision left the matter of on-going support in abeyance. Work was required to determine how a support team could be employed in such a manner as to engage effectively with all partners, open options for new partners to join, and avoid unnecessary VAT charges.

The decision also triggered invitations to any number of seminars about the future of library systems, launched several staff from BLMS partners across the Atlantic to Kuali OLE planning meetings and set in train planning for a "Kuali Days UK" conference at the Senate House of the University of London in 2013.

> I didn't actually go to Chicago and Lehigh but I went to two Kuali conferences and a couple of other events in the States, where the Kuali OLE community got together, talked about the project, did programming. We got together and discussed OLE, the direction of the project overall. Those face to face interactions were incredibly valuable on getting that long-term perspective on what the software would achieve, where it would go, how it would develop, not only in terms of technical stuff, what code basis but in terms of how it would reach and communicate with other libraries, get more people to adopt it [with] a long-term view to adjusting the library systems market place. Also as part of my role I attended on-line meetings every week so I was on the technical council and the functional council of OLE. We would meet on WebEx every week and talk through an agenda, highlighting any outstanding issues and particularly when SOAS went live talk about our experience and warn other people about potential problems. **SB**

Phase three: planning the shared service model

Three things make for a successful shared service:

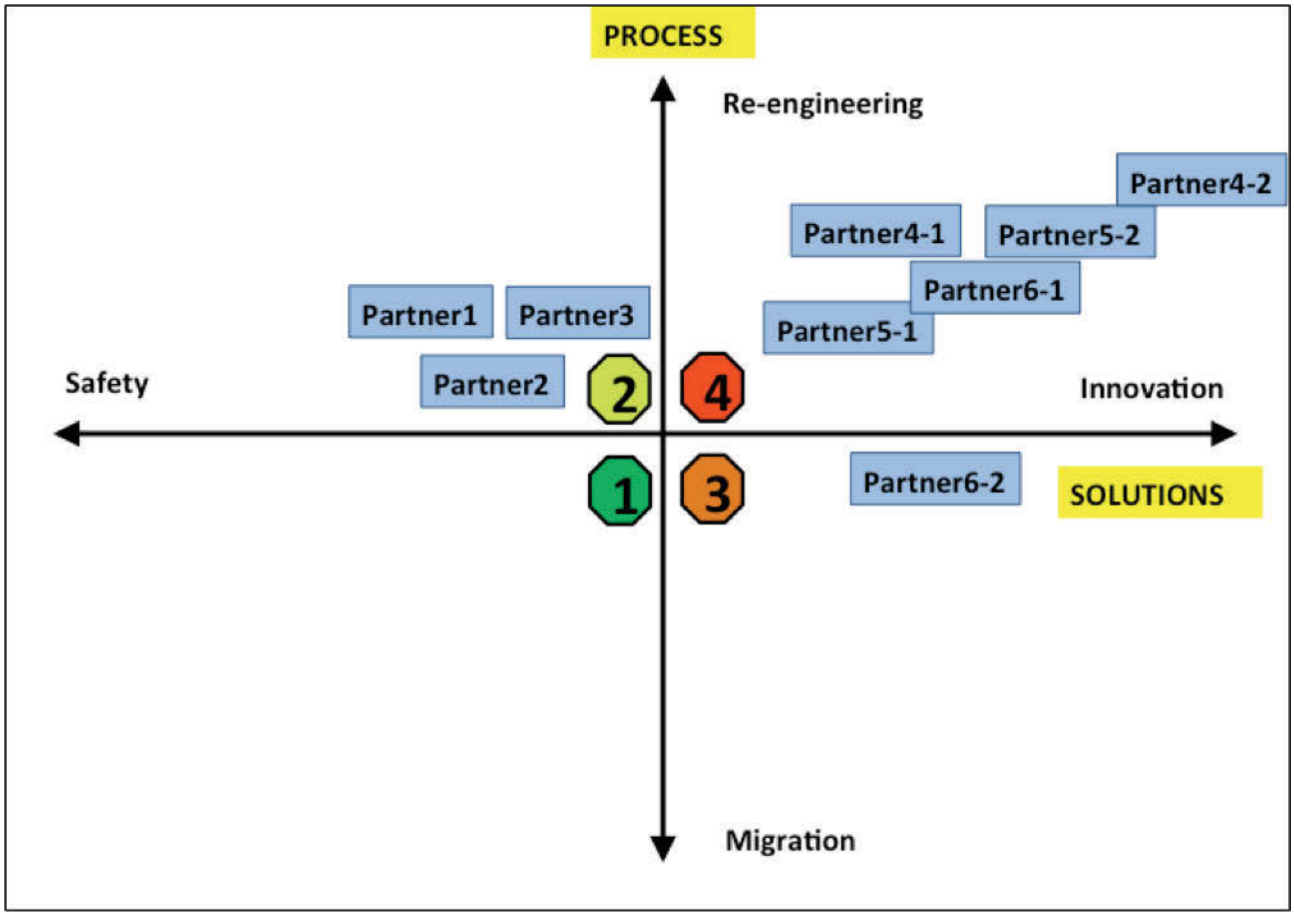
1. partners already having a strong basis for collaborating with one another, including a clear understanding of their shared values;
2. partners sharing a clear need for a system or service that they are going to have to obtain in any case, with a business case for investment which will stand up in their institution, and senior management support for proceeding collaboratively;
3. the option of buying, building or commissioning the system or service through a collaborative model giving better value or delivers a better outcome than the partners could obtain working on their own.

These factors certainly obtained in the early stages of the BLMS project. They also apply to the members of the Kuali OLE Partnership and the success of the Partnership to date is testament to these factors being present.

> [To be successful at Open Source] you need to
>
> - setup a good project,
>
> - make sure you have a really good test system,
>
> - get data into the system as soon as possible and be looking at your own data as soon as possible,
>
> - build into the schedule a good testing thing, that's not just an Open Source thing that's true of any implementation.
>
> Don't schedule a bunch of other things if you are going to try to implement this. Reward people for making the change and moving into the new way of doing.
>
> You would want to make sure that you have a couple of good technical people and that they can work with the other technical people from the other libraries, because that's what Open Source really is like. It works well with programmers and technical people because they like to do that. **FM**

The innovation and shared-service spectra

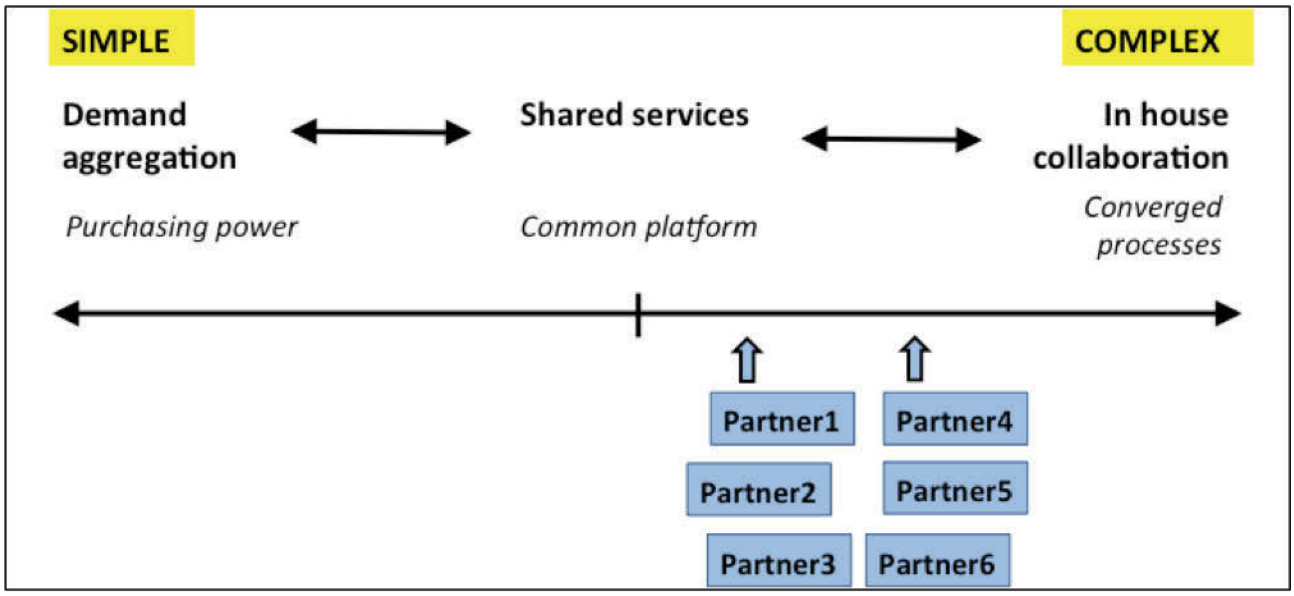
In a series of workshops, the Bloomsbury Libraries considered where they wanted to be on the shared-service spectrum, the innovation spectrum and their appetites for risk. The workshops were attended by representatives from all 6 of the original partners. A discussion-based approach was taken to positioning their appetite for taking on the various categories of risk associated with the project (e.g. financial, reputational, technical, service delivery, political):



[DIAGRAM-12]

On this grid, three of the partners appear twice (Partners 4, 5 and 6) as there were different risk appetites between their Directors and Systems Librarians.

The next grid places partners on the Shared Services spectrum:



[DIAGRAM-13]

Based on this work, there was a clear appetite to move beyond collaborating on a Procurement exercise that would most likely result in a shared purchase of a proprietary system, to the creation of a common platform with options to converge some Library operations.

Models of provision

In order to proceed to build a Shared Service, a service model is required. There are two aspects to this question:

- how are the services put together?
- what is the governance model for the service partners?

As noted above, the decision had already been taken to disaggregate the primary service elements in order to offer maximum flexibility for the partners. (A risk-mitigation feature was that the detailed Functional Requirement and Technical Specification documents had been drafted in such a way that, if a partner decided not to proceed into the Shared Service, it still had something to take away: a set of documents which could be adapted into a conventional systems Procurement exercise.)

Service models were produced, setting out the context in which the new systems would operate, how the service elements would be commissioned and detailed work on the possible systems architecture.

Models of governance

Key to success was finding a governance model that gave all partners a high level of assurance that they were working as equals. This was important because one of the partners (the University of London) was considerably larger than the others (the Bloomsbury Colleges) and the University was already a provider of Managed Services to the Colleges, through its Library, its International Academy, its Accommodation and Counselling Services, and the University of London Computing Centre (ULCC). The clear direction from Senior Management at the Colleges was to avoid going in a direction that would result in a Library system delivered by the University as a Managed Service. (Whilst this might seem to be a constraint placed upon the project for political reasons, where questions of governance and autonomy are at stake, negotiating local politics becomes essential.)

Governance models were also an important part of the decision to join the Kuali Foundation and OLE Partnership. The view was that the well-developed Kuali model provided a high level of assurance that the software would be sustainable, and partners' requirements would be met.

Several models for the BLMS were considered:

- a lead institution (not the University) commissioning or procuring the shared service elements and employing the staff, billing back to the partners;
- a "Joint Activity Not An Enterprise" (JANE) in which service elements are distributed around the partners, billing back to each other as appropriate;
- a Joint Venture delivered through a company.

The Bloomsbury context already had a number of examples of the first two models. In these cases, the billing-back process involved VAT with the potential to increase costs (e.g. a salary paid at one partner institution when billed-back to the others became a service subject to VAT).

Around this time, the UK Treasury announced some changes in taxation regulations, which gave rise to the development of "cost sharing groups". Once this became a possibility, there was further work on which service model would provide such a benefit. Detailed advice was obtained from

- HEFCE,
- BUFDG (British Universities Finance Directors' Group), and
- Commercial Accountants.

The BLMS was strongly advised to form a Company Limited by Guarantee Having No Share Capital, based on a number examples of other such arrangements (UCISA, RLUK, SCONUL, LMN, M25, Jisc etc).

The need for each partner to have an equal voice was also important. The Joint Venture in a new Company was the best means to protect the partner interests and it was clear that the maximum VAT benefit derived from using the Joint Venture as an employer of shared staff. The basis of the VAT exemption, as explained by the accountants at that time, was that a membership organisation might be able to avoid some or all VAT on services provided to its members (depending on the category of service) hence there would not be the 20% uplift on salary costs which would be seen in the model where one partner employed staff and billed back the costs to the other partners.

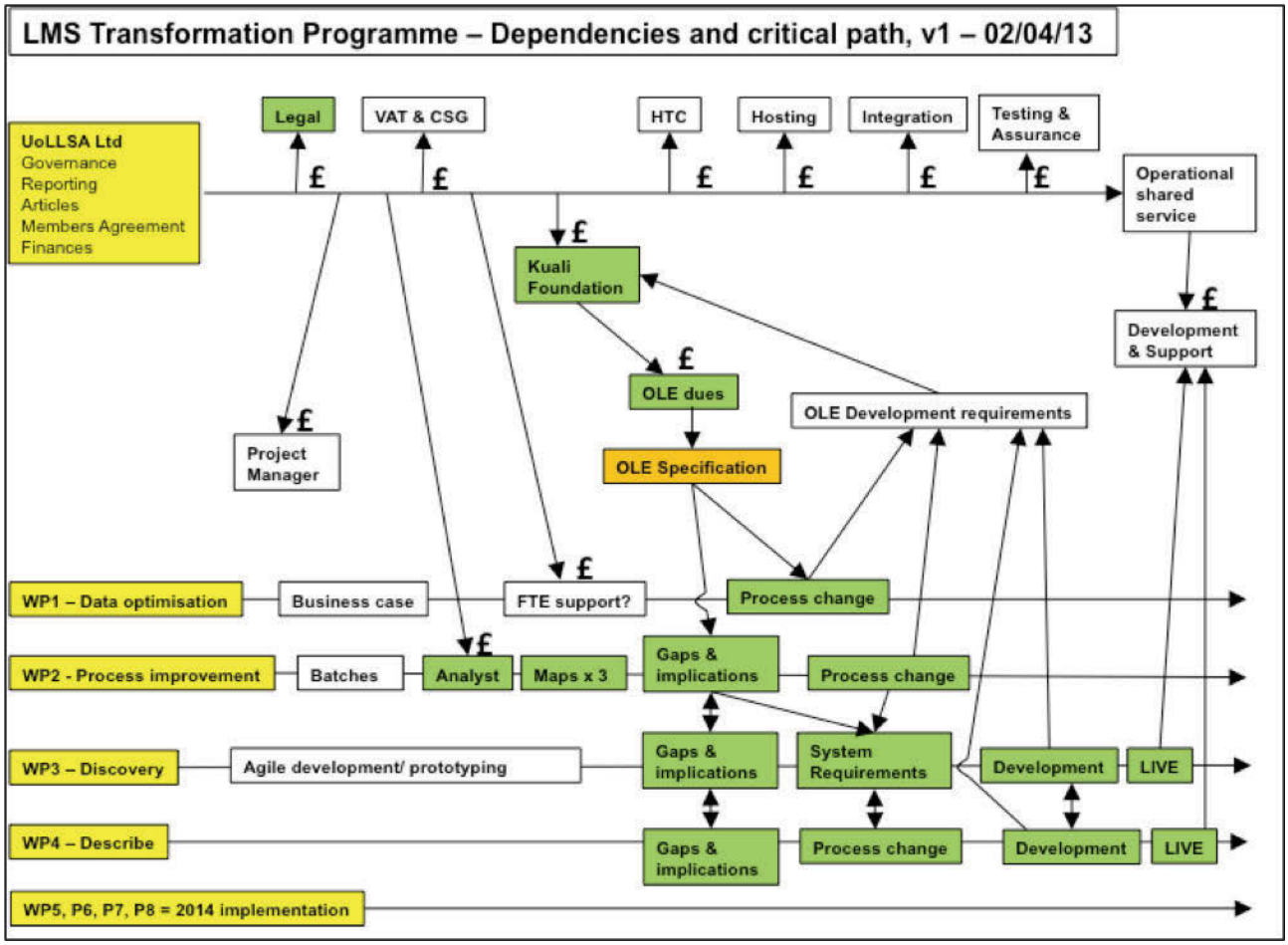
The model developed to the point where draft Articles of Association were prepared and a Shadow Board drawn from Senior Management at each potential partner formed.

At the time the concept was so new, that the BLMS would have been the first implementer of a CSG (Cost Sharing Group) in the UK and would have been a test case for HMRC.[27]

Planning for company formation

A "swim lanes" style roadmap towards the preferred Shared-Service model was used extensively in discussions during 2013/14, summarising the Work Packages 1 through 8 that fed into the preferred outcome:

27 Since that time, Jisc has done a major analysis of this approach, resulting in a situation in which its membership subscription invoices do not attract VAT.



[DIAGRAM-14]

Throughout 2013, the partners worked on the assumption that this roadmap would be followed. As the plans progressed, the Articles of Association were prepared by a firm of solicitors and the contracts prepared for the commissioning of a system for each library. But when the moment came to sign the various documents, the partners hesitated. By December 2013 it was clear that SOAS was ready to proceed but the other partners were moving towards a "wait and see" position. By April 2014 there was still some hope that one of the other libraries would start its implementation but by July it became clear this was not going to happen during 2014. The Shadow Board for the proposed Joint Venture company met for the last time, the Articles of Association were consigned to the bottom drawer, and SOAS continued to work towards its implementation of the Kuali OLE system, making it the third library in the world to move to this system, following the libraries of Lehigh University in Bethlehem Pennsylvania and the University of Chicago.

Stepping back from the brink

What made the partners hesitate at the point of moving into the Joint Venture? The Shadow Board had a loss of confidence. Why?

Moving from a conventional approach to systems replacement to a novel approach where several variables are changed at the same time (Open Source, shared support, joint venture,

consortial membership of a US Foundation and Partnership) requires strong and continuous input from the champion at each partner.

The change in the BLMS approach was the outcome of circumstances beyond SOAS' control. To summarise:

- first the School of Pharmacy and later the Institute of Education merged with University College London, reducing the Bloomsbury Colleges' alliance from six to four;
- the Librarian at Birkbeck, a strong advocate for Open Source systems, retired;
- the Librarian at Senate House Libraries, a strong advocate for the BLMS, moved on;
- the Librarian at LSHTM moved on;
- the Registrar at SOAS, a supporter of the BLMS, moved on;
- the Director of SOAS, a supporter of the Senate House Library, libraries in general and the BLMS project in particular, retired;
- the atmosphere around the notion of "shared service" had cooled, when not actually obscured by the "clouds" which have become the lingua franca of the managed service brigades in all their variations (CoLocation[28], Joint Tenants[29], SaaS[30], IaaS[31]).

At this point, the robust insistence on each partner having something to take away at each stage of the project came into play. It was agreed that partners could commission their systems at different speeds, with local hosting (as this was cost-neutral compared with existing arrangements); the Joint Venture would go into abeyance, with its focus moving onto the need for Shared Support – once three or more partners were up and running on the new system.

> The concept is still a great one, this sense of libraries working together on an Open Source system has a lot of potential to it and if indeed SOAS are able to create some momentum behind the system and other libraries join in, the financial model does work very well – if you get a group of libraries then the costs go down and it's really good. The costs vary depending on the number of libraries involved. The costs were a bit vague at the beginning and alarm bells were raised at that point especially among senior management at Birkbeck when it wasn't clear at that first board meeting what the cap on the budget was. All senior managers are fairly fearful if you have a project where it doesn't seem to have a cap. But it was a new concept and that added to the risk element, so I think people were a little bit wary about that but as I say the concept is still an interesting one and could potentially work. **RA**

The shared Project Management and Business Analyst arrangements were confirmed. SOAS became the Lead Partner, charging back the shared costs to the other partners.

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28 A shared facility (power, cooling, data, security) in which a client can put its own equipment, managed by itself

29 A single, out-hosted, managed service which is used by multiple, separate clients

30 "Software as a Service" in which a client can subscribe to an out-hosted, managed service in which it gets access to a software platform dedicated to its requirements, where it manages the content but not the application layer

31 "Infrastructure as a Service" in which a client can rent access to a complete platform upon which it loads its application and data, managed by itself

Lessons learned?

The lesson for any potential collaboration is that, when things change, it can be difficult to carry on if the original premise is not strong enough to carry the activity through the bumps along the way. It is essential to have good risk mitigation in place so that changes can be accommodated. SOAS therefore was able to lead the way on implementing Kuali OLE for its library management system during 2014-2015, successfully going live in April 2015.

> The only other thing that happened was that Senate House began to get cold feet as well […] and the fact that Senate House's involvement as far as we were concerned was quite important as they're a flagship library and once they started dragging their heels on the project it was looking like just us and SOAS, it began to be a slightly less attractive prospect. The vision originally was built on the idea of lots of libraries joining in on the shared service and it just seemed to that another library was pulling out, a key library in our view, and that had financial implications […] Without that potentially ourselves and SOAS would have to pay more. So all of this was gathering momentum which made us want to draw back from the project rather than go towards it. **RA**

The shared service ethos continued as, by the point that SOAS went live in 2015, it was a member of an international shared service in the form of the Kuali OLE partnership. This is a highly collaborative community, whereby development, technical support and governance are shared across its members.

The Kuali OLE community's full partners pay an annual fee, abide by a Memorandum of Understanding – and all have an equal voice in the development and support of the OLE software.

Most of this collaborative group are major US research universities, with SOAS the only full international partner. SOAS has therefore had a critical role in channelling UK and European requirements and priorities through into a shared software development community.

At the time of writing (January 2016), the Mellon Foundation has made another grant to the OLE Partnership, its membership has grown to include two German Library Service Consortia and two new US Universities and it is considering its options for developing from a Library Management System to a true Library Services Platform using a new technical architecture delivered via a re-vamped "Agile" development process.

Reflections (1): Open Source technology and cultural change

At the beginning of this journey, there was a clear aspiration to work collaboratively and use – if possible – Open Source software for library systems. The impulse arose from a number of factors, some top-down (the enthusiasm of the Library Directors for a new approach) and some bottom-up (the frustration expressed by many Library staff with their current systems).

Whilst collaboration between Libraries was seen as potentially transforming, leading to a Shared Service approach, what was less understood at the start was the potential for the new initiatives to disrupt and, potentially, change working practices within Libraries. The problems that this disruption needed to address manifested in a number of ways which can be described through scenarios.

Scenario 1: capability gaps

This scenario varies depending upon the size of a Library and the ways in which it has developed its staff. For a relatively small Library, it is not unusual to find a "library systems team" of one or two people. This was certainly the case across most of the BLMS partners. In the case of the SOAS Library, a single post was allocated to this function, with a further half FTE within one of the Corporate Systems teams allocated to the "systems administration" function.

The Systems Librarian was able to interact with the proprietary system via its client software or its "dumb terminal" interface for those functions which could not be operated via the client (its web interface was limited to provision of an OPAC). Some key functions in the system, or troubleshooting of problems, or application of patches, could only be done by the vendor. For most of the time during which the system was in operation at SOAS (a period of almost 20 years), the vendor's Help Desk was located on the west coast of the US, which added an 8-hour time-zone difference to the mix. One of the tasks of the Systems Librarian therefore was to try to explain problems to the Help Desk towards the end of the UK working day and then, the next morning, see whether the problems had been solved overnight.

In a pinch, the Systems Librarian knew how to re-start the application but not how to reboot the system. The Systems Administrator, on the other hand, knew how to reboot the system (a server running the Sun Solaris version of UNIX) but not how to restart the application. The maintenance agreements on the Sun hardware and software lapsed when Sun was purchased by Oracle and the system was two releases out of date on its operating system, with no patches having been applied for a number of years.

At the point where the limits on the capability of the Systems Librarian to diagnose a problem was reached, problems tended to go unresolved as the vendor Help Desk did not see its role to include diagnosing problems and was quick – in the case of problems interfacing to other systems – to pass the buck. Hence, in one particularly frustrating example, an on-line payments module purchased for the Library System (at considerable expense) took more than four years to configure whilst the various systems vendors blamed each other for the problems and the local staff lacked the capability to identify the source of the problem and hold the correct vendor to account. This pointed up the difficulties which manifest in another scenario.

Scenario 2: internal stand-offs

As already noted, it was not unusual during conversations with staff in Corporate Systems to hear them describe "library systems" as, somehow, *other* ("we look after corporate systems not library systems"). This extended in the early days of the project to a range of stand-offs between Library and IT staff, who sometimes seemed to live in different universes. For example

- an interim Librarian left his job early because he "liked the Library, but would prefer never to have to deal with IT again"
- a request to upgrade one of the servers handling an important piece of Library software (a link-resolver) was repeatedly delayed until the machine in question failed, leading to an emergency replacement using kit which had to be sourced (by the Library Director) via eBay

- a new Discovery service from a Library Systems Vendor took several years to configure because of a dispute about network security and the firewall rules
- an EzProxy system took three years to get working whilst arguments raged about who would pay the license fees
- the need to update computers in the Library running the OPAC software was repeatedly deferred due to disputes about whose responsibility it was to maintain the computers
- a Librarian demanded the removal of most of the non-OPAC computers in the Library because the "noise of the keyboards" was annoying users in the silent spaces and no-one in the IT section was prepared to consider the possibility that better keyboards might solve the problem

In general terms, the attitudes on each side could be characterised as a mixture of frustration and anger: Library staff had the distinct impression that IT staff would say "yes" to their requests (possibly to get them to go away) but then do nothing; IT staff saw the demands of the Library as a nuisance to be avoided. One IT Manager, when challenged about his lack of interest in the users in the Library declared "I don't support users, I support IT".

Scenario 3: abjection

In the face of intransigence from the local IT service and an almost completely moribund approach by the main external Library Systems vendor (happy to take 10s of 1,000s of pounds each year from the library in return for a remote Help Desk and very occasional software patches), Library staff had become resigned to the point of abjection about the possibility of any improvement in their systems environment and on-line services to users. Any real progress that had been made, generally arose from external engagement, for example

- the Jisc-funded "LEAP" project for Research Repositories led to the Library using ePrints on a local server, but installed and supported by staff at the University of Southampton,
- another Jisc-funded project ("SHIBBO-LEAP") led to the Library becoming an early adopter of the UK Access Management Federation replacement for the centrally-funded ATHENS service, with most of the initial effort provided by staff at other LEAP Libraries.

It became commonplace to hear Library staff declare there to be "no point" in asking for systems improvements because none of their requirements ever seemed to become priorities at IT Support. This situation was ripe for disruption.

Reflections (2): disruptive innovation

Two innovations happened at SOAS that have – over a 7-year time-span – led to significant changes in the working culture of the Library:

- the Library was moved, in 2009, into a new "converged services" directorate alongside IT, MIS and AV services under a single Director;
- the Library joined the BLMS project.

Disruption by reorganisation

The first innovation created the circumstances for the second to produce a successful outcome.

[As an aside: when comparing notes with the other two libraries which were early-adopters of the Kuali OLE system, it became clear that there was a common thread between all three of the early adopters. In each case, the Library was either part of a converged service (Lehigh and SOAS) or had a very strong, long-standing relationship with its local IT service (Chicago). This was an important success-factor for early adoption of an Open Source library system.]

Over time, the notion – at SOAS – of an "IT department" has been eroded, alongside an initiative to re-engineer Library and IT user-facing services as "customer services". The SOAS Library & Information Services directorate is organised into three divisions: Customer Services & Operations (CSOPS); Information Systems (IS); Research Library Services (RLS). The Customer Services & Operations division is the most converged of the three, combining what was Library Reader Services with the former IT Help Desk and the Audio Visual service under an Assistant Director. A service model has been put in place under which front-line enquiries which cannot be dealt with at the first point of contact by CSOPS staff are escalated to specialists in the IS or RLS divisions. Where responsibilities cross management boundaries between divisions, Working Groups meet regularly, combining relevant staff from the divisions and teams to ensure a coherent service provision.

> Some of our managers are on the Subject Matter Expert teams, so we all had a part in writing specs for the functionality and suggesting how the functionality in OLE should work. We never as functional people in libraries had that opportunity before to work with developers to set the functionality we needed and work with developers to see how they were going to build the code, we never had that communication line to a developer before. I think that brought us closer to the technology side. We are very close to our systems analyst and our own library so we've learned a whole new world of technology that functional people never had to know before and I think that's a real benefit because our systems analyst and our developers now know – we go back and forth saying this is the spec that we need this is the functionality but its so powerful. There are many libraries in the 70s that developed their own library system and then we went to vendors doing it and now its time for us to get our data back and do our development together as well as letting our systems analysts locally have a chance to contribute code. **SW-Y**

With these arrangements in place, the environment was created in which the BLMS initiative, once it moved into its implementation phase, could, in principle, be supported by appropriate cross-divisional teams (provided relevant managers and team leaders engaged pro-actively with the project). In addition to this, the business case for implementation of a new system (as part of a new suite of Library systems which also included repositories and research data management) included a new Analyst Programmer post that was added to one of the Corporate Systems teams with a brief specifically to support Library systems.

Disruption by technology

I have described above how the decision to adopt an Open Source library system meant working against the grain of conventional approaches to system procurement. This approach also disrupted the normal ways in which Library staff were used to interact with the technology provider.

As noted above, the attitude of many Library staff towards their systems was one of powerlessness, bordering on abjection. To a considerable extent they saw themselves as the passive users of the system. Indeed, for some staff who had started their Library careers in the 1960s and 70s, and had been through the entire life-cycle of "library automation" (from cataloguing on 3"x5" cards and book issuing via rubber stamps, through "retro-conversion" to on-line systems addressed via "dumb terminals" and the introduction of bar-codes, to the system they had been using since the mid-1990s), their conceptual model of "Library data" was what they saw on the screen when logged in to the Library system.

> I think it's fair to say that people did get a little discouraged when they ran into bugs and we couldn't move some of our records through like our order process. For a little bit things were getting held up, but once we resolved those I think the staff felt like they had some skin in the game because they identified the problem and they got to work with our system analysts who worked with the developers so I think people felt like they could have a direct effect on it. Our serials cataloguers and serials acquisitions suffered the most but I think other than that most people just carried on with what we could do and left open certain projects we couldn't move ahead on until a bug patch got put in. Because we had direct line into the developers to tell them what we were running into and what we needed straightened up and our system analysts could tell them what part of the code wasn't working, they could even see the code well enough to find out that piece of code needs to be changed. We could have never done that in a proprietary system. **SW-Y**

The selection by the BMLS project of the Kuali OLE system was heavily influenced by the aspiration to empower Library staff to become much more actively involved in the selection, configuration and operation of their systems, not merely wait for the replacement system to be dropped onto their desks, delivering a "like for like" service in a brighter, shinier web interface. Indeed, the Kuali "community source" software approach (as encapsulated in the quote from the 2009 report at the start of this document) set out to involve Library technology users in the entire life-cycle of the software from scoping, through specification, design, coding (with certain caveats), to testing and implementation.

The community-source, peer-support processes in the Kuali approach are examined in detail below. On the technology front, for the BLMS libraries, there were several stages of disruption based on specific choices.

Discoverability

Jisc did a great deal of work during the first decade of the 21stC on "discovery to delivery"[32]. This led, by the second decade, to a widespread appreciation, in Research Libraries and beyond, of the need for "discoverability". With the exception of a small cohort of researchers willing to come into the Library and dig through card catalogues, indexes and other paper records, for the vast majority of library users, if material can not be discovered on-line, it might as well not exist.

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32 http://www.webarchive.org.uk/wayback/archive/20140614100238/http://www.jisc.ac.uk/whatwedo/programmes/resourcediscovery/d2dateandm.aspx

The first deliverable from the BLMS project was a set of new Library Discovery systems. Several Open Source systems were evaluated and VuFind[33] from the Falvey Memorial Library at Villanova University[34] was chosen. Development of this system was a truly collaborative effort by the Systems Librarians from all the Bloomsbury College Libraries (at that time) and Senate House Libraries, resulting in new systems being put into production at Senate House and SOAS, with upgrades to the existing system at Birkbeck and a system managed by the IoE Systems Librarian used for the analysis and cleansing of bibliographic data.

For Electronic Services Librarians in particular, the creation of this system was an eye-opener. It was the first resource discovery system that they had seen, which was not delivered by an external supplier. Having struggled for several years with the difficulties of configuring the proprietary link-resolver and federated search systems, they were given a new system which provided, through a single interface, discovery of print materials, serials and respository holdings, with direct click-through to electronic sources where available. Configured and installed locally, by local staff, with no licensing costs. Meetings about discovery systems, which had previously become bogged down in complaints about the faults in the proprietary systems turned quite rapidly to discussions about how best to present material to users, what kinds of faceted searches should be available, how to lay out the interface: all elements which could be defined and configured locally.

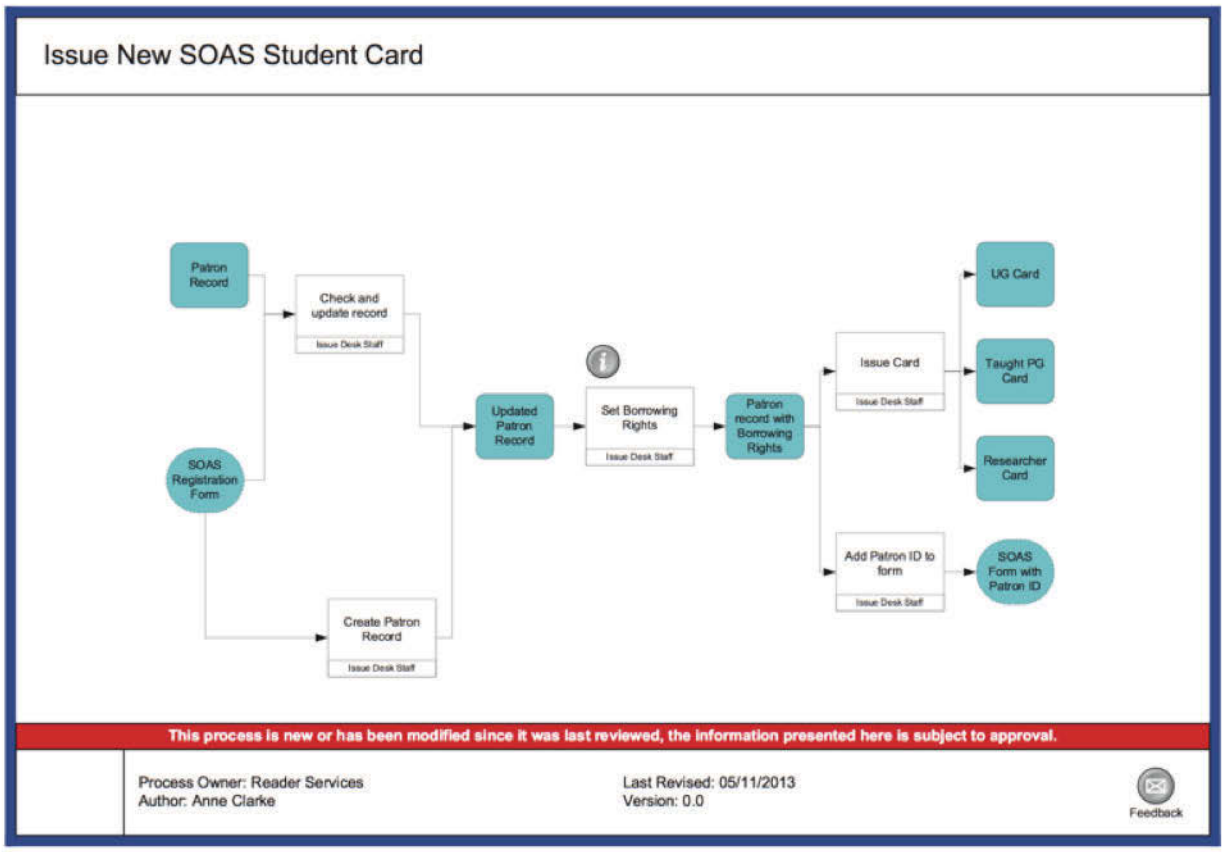
Phase four: implementing the system

Library systems specification

A business Analyst was employed, shared between the three BLMS Libraries planning early adoption of the new system. The Analyst spent time with many of the functional teams in the libraries, talking through their work processes and documenting them with special software that generated diagrams. She layered up processes and use cases to produce "the wall", which was an invaluable communication and change tool when looking at implementation and efficiency gains. The wall was built up from a series of process maps. See below.

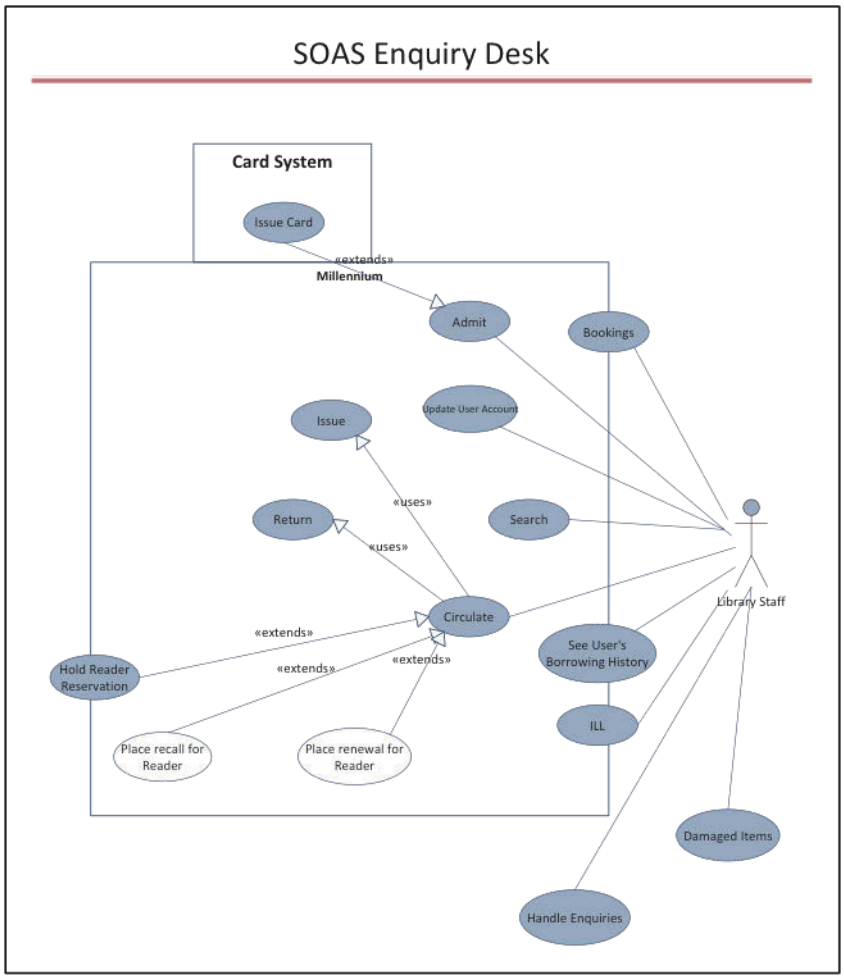
33 http://www.vufind.org [accessed January 2016]
34 https://library.villanova.edu/ [accessed January 2016]

[DIAGRAM-15]



[DIAGRAM-16]

Which was then worked into a Use Case:



[DIAGRAM-17]

This iterative process, repeated across teams and libraries, laid the groundwork for two kinds of expectation:

1. that Library work processes were worthy of study and possible improvement (not something everyone took for granted); and
2. that the process of implementing a new system provided opportunities to obtain a greater alignment between Library work process and the underlying systems.

This latter expectation was, for a number of Library staff, also a novel thought in a context where their work had been tied to the capabilities of a particular system for such a long time.

This work led into the processes which were kicked off at the point when a contract was signed and systems implementation could begin.

Systems implementation

Implementing an Open Source system using differs in a number of significant ways from working with a vendor, particularly when it comes to the "acceptance testing" criteria for the new system. On the one hand, with a vended system, it is likely that the contract will make payments dependent upon results so that, if there are bugs or faults in the system, it is the responsibility of the vendor to fix them with a financial incentive to do so. On the other hand, if there are features missing and they were not specified as "mandatory requirements" in the

procurement process, the vendor is likely to say "tough" or, if feeling generous, "we'll put them in the roadmap".

With Kuali OLE, there was no vendor in the conventional sense: the OLE Partnership is responsible for the development of the system. As a member of the Partnership, the library (in this case, the SOAS Library) is directly involved in the process of specifying the system requirements and testing the software as it is delivered. This was explained to library staff through the simple statement: "we are the vendor". If there are bugs or faults in the system, the library can report them through the Partnership via the governance structure and, depending upon priority and criticality, they will be fixed. If there are features missing, the library can propose them for development via the relevant SME or, if it has the resources, develop the features locally using whatever programming talent is available.

As an early adopter of the system therefore the SOAS Library (in common with the other two early adopters) was simultaneously loading its data onto the system, testing the functionality against its own requirements and testing the software itself against the specifications recorded by the Partnership. Many issues in the software did not become apparent until it was loaded into a development and test environment using the full data sets exported from the old system in an iterative process. The SOAS Library, through its contract with HTC (the company also contracted to the OLE Partnership for software development) was able to have some issues resolved directly and contribute the fixes back to the code base, whilst others were flagged for attention by the Partnership.

Library staff had already been exposed to a systems development environment during the implementation of the Open Source VuFind discovery system, becoming familiar with the idea that software is loaded onto multiple systems called Development, Test and Production and terms such as code releases, patches, upgrades, jiras and test scripts. The Production system is the one which the library users connect to. New features or bug fixes (the "patches") are loaded onto the Test server and library staff are asked to follow the test scripts, checking that the system is safe to move into production. Major new software releases are first loaded onto the Development system for more extensive testing before being considered as candidates for moving into Test and Production.

For library staff used to complaining about a moribund system that never seemed to change, and a supplier that never delivered much in the way of improvements, this approach was a dramatic change in their work practices. It is fair to say that some staff took to it much more enthusiastically than others. For some, there was a lot of mumbling and grumbling about job descriptions and how "we are librarians not software people". For others, it was a breath of fresh air and they were soon pointing out deficiencies in the screens, faults in the data and – most usefully – reflecting on the work practices that the system was designed to support.

Phasing in the new system

One of the most controversial aspects of the implementation was the decision to phase the system in over an extended time period with basic functions configured first, to the point where it was adequate to move full service across from the old system, and other functions enabled progressively. This decision was taken for a number of reasons:

- the old system was operating at risk as the hardware on which it was running was out of date;
- a number of the features in the OLE system were either untested, or still in development;
- staff had been working on preparations for the new system for most of 2014 and were starting to question whether it would ever be ready.

> One of the things that we did at SOAS which no one else did, is to deploy the system in a phased approach rather than in a full functioning system. Chicago and Lehigh went live in Sep/Aug before we did, and they turned on everything and found many things to be missing. So we turned on the sections that we knew were working, having learnt from our predecessors, and we learnt that one part. My intention was to turn on other parts of the system later. If the staff were engaged they would have known that more was coming, but they weren't they just complained about it. We turned on the basic circulation functionality, then focused our efforts on testing the rest of the functionality and turned it on when ready.
>
> So that's an approach that we took that was different, the other two institutions that are coming after us have not learnt from that approach and are still going for a big bang. What they're doing is they know some of the functionality is not there so they are delaying their start. I feel in this type of environment that is ill advised because it is only when you try to go live and start using the system that you truly test and prove it. They have yet to realise that, because there is no vendor responsible for getting the software better, then waiting longer is not going to make it unless they're engaged with it. **CM**

The implementation had originally been planned for a switch-over in July 2014. This was initially delayed until December 2014 when it became clear that key elements of the circulation system (the OLE "Deliver" module) were not ready. The delay gave time for the technical issues to be resolved (mostly associated with the operation of the self-issue and return machines) and also for library Customer Services staff to spend more time in training and familiarisation sessions. By December, the Cataloguing ("Describe") and Acquisitions ("Select & Acquire") modules were configured and ready for use but there were still problems with the Deliver module, which turned out to be the most complex part of the system. A further delay was agreed, with the new go-live date set for Easter 2015.

In the event, the implementation schedule was as follows.

Process	Go live date	Rationale & Challenges
Phase 1: Cataloguing and Acquisitions	December 2014	Bibliographic records migrated into production-ready server Acquisitions and Subject Librarians as targeted group to enrich existing records
Phase 2: Basic Circulation and Full Cataloguing & Acquisitions	April 2015	Circulation: Borrow, return, renew
Phase 3: Reservations	June 2015	Circulation: Holds and Recalls via OLE Client and VuFind
Phase 4: Notices and Fines	September 2015	Courtesy and Overdue Notices - Fines triggered and paid via OLE Client only

Process	Go live date	Rationale & Challenges
Phase 5: On-line fines payment	January 2016	Technical difficulties with interfaces requiring further programming effort

One benefit of this approach (for Library users) was an effective fines amnesty from Easter 2015 onwards, with fines only re-started in the 2015/16 session.

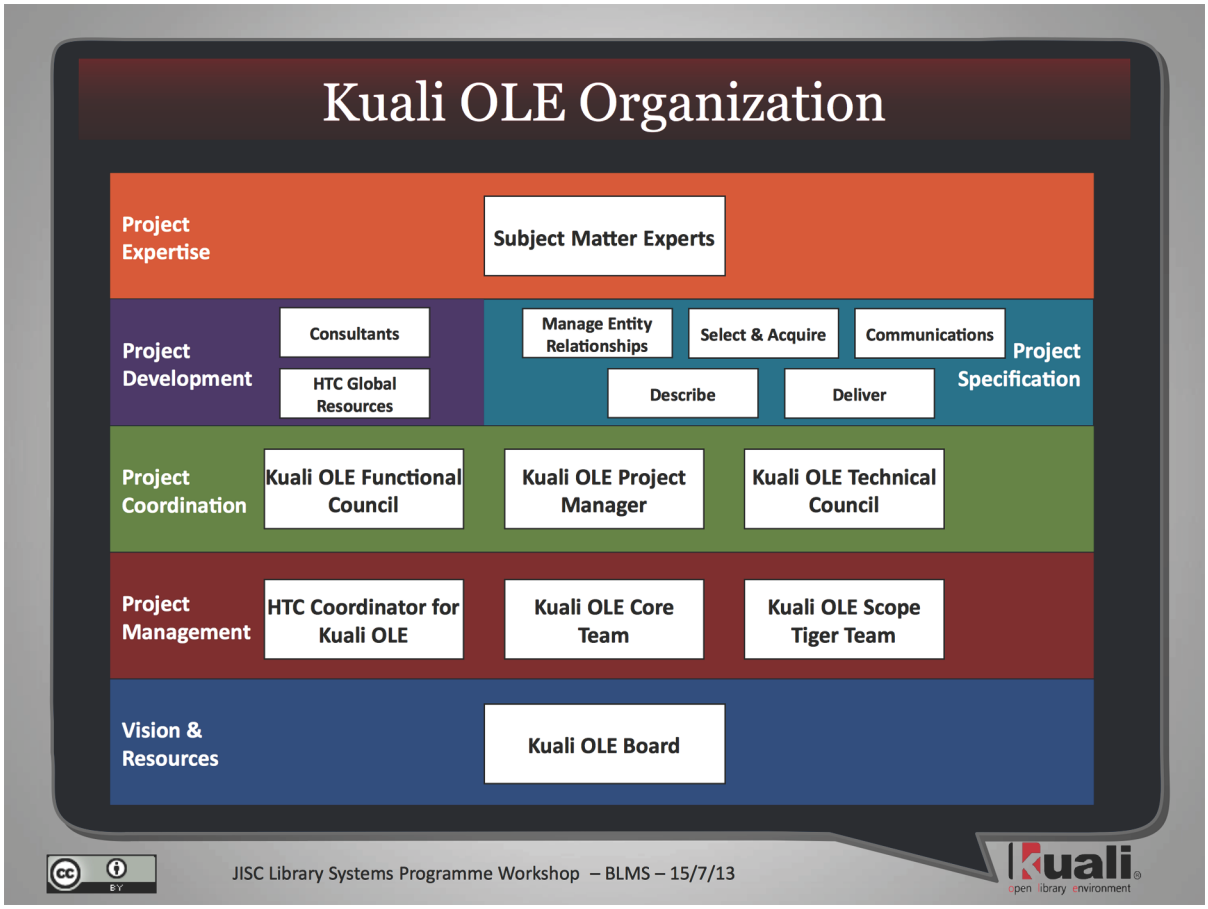
At the time of writing (January 2016), the implementation work is on-going. SOAS is using version 1.6.2 of the OLE system. Versions 2 and 3 are scheduled for release during the first half of 2016, offering new features (an Electronic Resources Module) and improved user interfaces. During the first part of the implementation, considerable improvements have been made to systems integration functions, particularly in relation to authentication, the issuing of ID cards, and interfaces to access control systems. The next phase of the work will focus on further improvements, particularly in the interface between the Select & Acquire module and the central Finance system, with the aim of eliminating a lot of redundant manual processes.

Peer-support networks and "Agile"

Starting with their collaborative ethos and aspirations – expressed at the start of the project – to be part of a shared service, the BLMS partners saw the Kuali OLE Partnership as an exemplar of both. The OLE shared service has succeeded and is growing (whilst the BLMS has gone on hold). There are a number of reasons for this to do with the way in which the partners have signed formal agreements and committed funding and labour, which is mobilised via a formal structure. Partners who have implemented – or are about to implement – the new system look to the Partnership for support. What is less apparent, seen from the outside, is the way in which the OLE Governance Model (referenced in the "Options Appraisal" section above) delivers a comprehensive peer-support network for staff in the partner libraries.

Research into Open Source or Community Source development and governance models reveals a wide field and – as expected – strident criticisms of the various approaches by proponents of alternative approaches. It is clear there is no general model of what "works", just as there are a variety of Open Source licences, some more Open than others. It is not the intention here to interrogate the various models other than to comment that the Kuali OLE Partnership model derives from the models put in place by the Kuali Foundation since its formation in 2003 and these models are now under review in the face of aspirations to accelerate the software development processes. What is of interest here is the ways in which the development and governance models provide library and technical staff with support for their own professional skills and development, alongside the production of the software. The metaphor of a jigsaw could be used to describe the ways in which the various groups interact.

By way of reminder, here is the diagram of the OLE Partnership governance model presented at the Horizon-Scanning stage of the project.



[DIAGRAM-18]

Jigsaw pieces (1): Subject Matter Experts (SMEs)

SMEs are a fundamental piece of the Kuali governance jigsaw, providing the basis for staff to focus on the functionality required in a system which supports their daily working practice. In the OLE Partnership, there is an SME for each of the modules: Describe, Select & Acquire, Deliver, Systems Integration. The concept is reasonably simple: the SMEs define the functional requirements for the modules, log these into "Jiras" (an on-line bug-tracking and feature request system) which are passed along the chain for review and potential inclusion in the "work packages" which make up the systems development "roadmap". SMEs then play a key role in testing software releases and "patches" to ensure that their functional requirements are met.

For staff in the Partner libraries, this manifests as a regular (weekly or fortnightly) schedule of virtual (on-line) meetings, supplemented by "face to face" meetings once or twice a year. Depending upon the particular SME, staff joining the meetings might be cataloguers, acquisitions librarians, systems librarians, counter staff, subject librarians, e-resource librarians, programmers, ICT staff or Corporate Systems managers. What is fascinating, for those staff who have joined these groups and call in to the regular meetings, is the opportunity for regular, detailed conversations with their peers in other libraries who are all, they discover, grappling with the same sets of problems and challenges. Engagement with the SMEs is a two-way street: staff find they take away from the engagement as much as they put in.

One Partner library provides an "SME lead" (essentially, the chair of the group), a role which rotates around the Partners from time to time. These leads are an important in the next pieces of the jigsaw.

Jigsaw pieces (2): Functional Council (FC)

The job of filtering the input from the SMEs into a coherent, deliverable system roadmap falls to the OLE Functional Council. The Council is formed from the SME leads plus additional members to ensure that all Partners are represented. Members are defined as "Voting Members", "Alternates" and "in attendance". When decisions (e.g. on the prioritisation of work packages) cannot be reached by consensus, a vote is taken.

The FC also considers the medium-term view of the system development, referring back to the original vision (referenced at the start of this paper), testing to see whether the current line of development is consistent with the vision. From time to time, major decisions are required which need Board sign-off. For example, on one occasion, the needs of the early-adopter Partners (important test-beds for the viability of the system) were prioritised over some of the "nice to have" features in the requirements coming up from the SMEs; on another occasion, FC provided detailed commentary on proposals by a "Commercial Affiliate" to invest in a significant overhaul of the underlying systems architecture.

Jigsaw pieces (3): Technical Council (TC)

Each Partner nominates at least one Voting Member and perhaps an Alternate to the TC. This council is tasked with considering the technical architecture of the system. It also suggested that it has a role in Quality Assurance (QA) of code contributions, acting as a gatekeeper to the code repository, into which Partners who have signed a Code Contribution License (CCL) may deposit source code that they have written or modified as part of their implementation processes (whilst there is a member of OLE staff working on the QA process, in practice the gatekeeping role had defaulted to the Lead Developer from HTC to which OLE has contracted-out the programming effort).

> The councils were artificially separated and there were flaws in the Technical Council who never saw their brief being the nitty-gritty, let's figure out how the system works and ensure we have a system of quality they never saw that as a brief. The Functional Council stayed with lofty ideas of what the aims were not the nitty gritty. This particular governance model did not work: it could be a symptom of the disparate services where it's not a single site. If it worked as a single site with one development house and everyone working in a core location that could have worked. **CM**

Jigsaw pieces (4): the OLE Partnership Board

Each full Partner nominates a Voting Member (possibly an Alternate) to this Board, which has the authority to determine the use of Partnership funds, the overall strategy, applications for membership, hiring of staff and other matters which are typically dealt with at Board level. Members of this Board are, generally, Chief Librarians or Library Directors from Partner libraries (in the US they are often known as Library Deans or Vice-Provosts in addition to the formal title of Librarian). The FC and TC chairs and a representative of the Kuali Foundation are "in attendance" (without voting rights).

> The issues [with consortia] and the thinking can appear to be different so there is politics involved as well as what is happening with development. As more consortia come on and we gain more experience we will be able to manage those situations. For anyone working with a consortium, even the proprietary systems, it is different. You are not just talking with the hands on people about what's needed, you are talking with a whole other layer and there's a whole other layer of politics. It is a mini community with all kinds of conflicting desires and interests. If you have a very good Executive Director of your consortium; everyone will be closer to the same page. If you don't have someone, or your philosophy is loose it is a lot more difficult to organise and get into any system. **CR**

Putting it together: a group for every peer

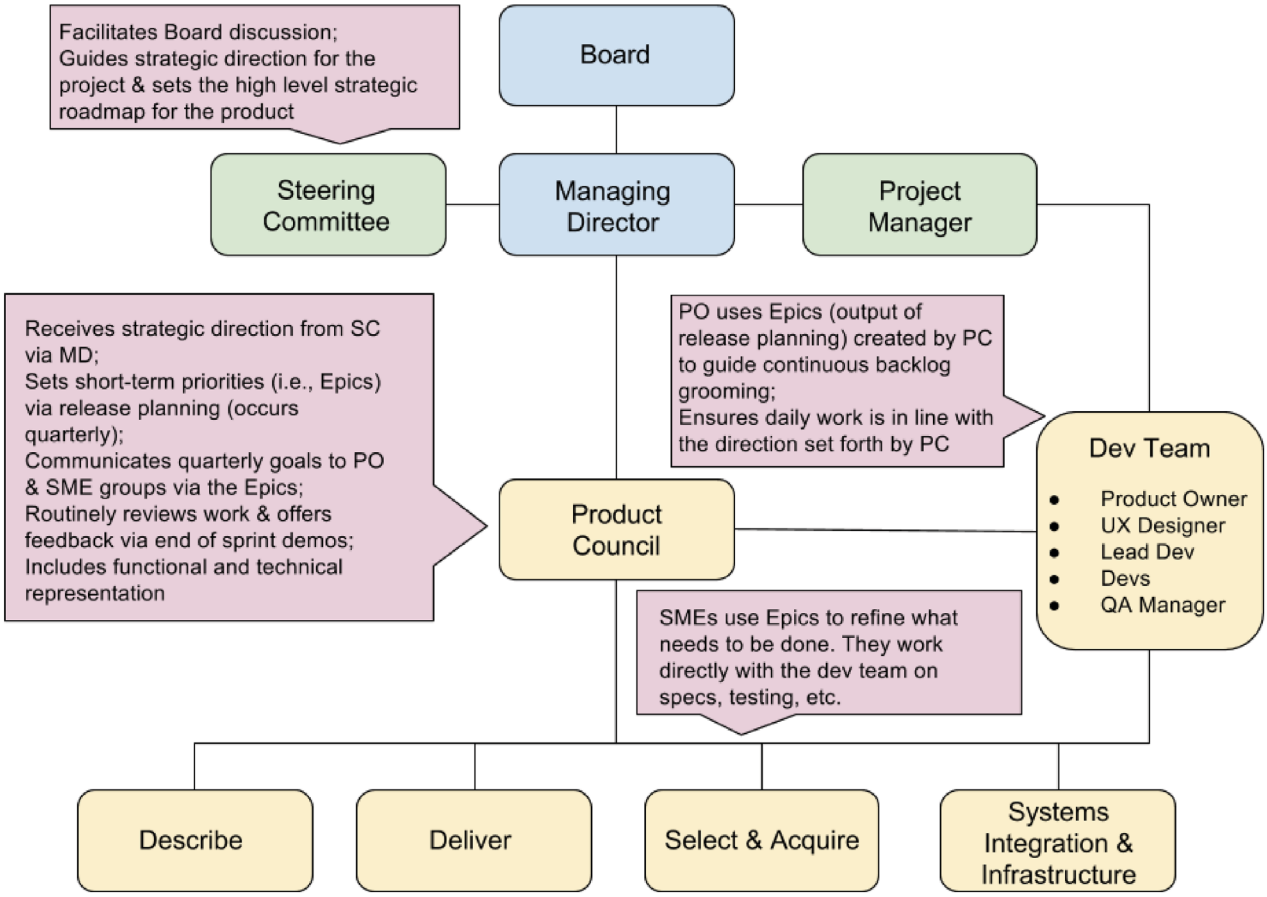
The outcome of these arrangements, taken together, is a comprehensive set of groups that many members of library staff, from Cataloguer to Director can join. Whilst it is undoubtedly a time commitment with a certain workload attached (an issue for some staff), the process of engagement can also be rewarding and encouraging at both a systems and personal level. It is of no small import that the libraries contributing to these groups include large and prestigious US universities such as Cornell, Chicago, Duke, Penn, Indiana, Maryland, Lehigh, Villanova, NC State and Texas A&M, two large German Library consortia and representatives from HTC and EBSCO.

The degree of engagement of SOAS staff with these peer-support networks has been slow to take off, as the process of cultural change works its way through the various teams. There is still some resistance to the notion that Library staff become confident with IT-related questions and likewise IT staff (particularly Corporate Systems) still tend to see the "business systems" as taking priority. On the positive side, some staff have had opportunities to attend conferences and workshops in the US, with further events planned (including events in the UK and other parts of the EU). As the work progresses on the next phase of the implementation and the OLE approach changes, the benefits of the peer-support networks will become more evident.

> Working collaboratively with other libraries and high-level professions and the passion they have for the system is refreshing and encouraging. I'm not from a library background but I want to believe that if more of my colleagues that currently work in the library had had the time to engage with the other libraries it would have been a much better experience for them. The US colleagues chat amongst each other quite freely and exchange ideas with each other freely. If SOAS had managed to change the cultures to engage the staff into this experience they would be better for it. **CM**

The move to "Agile"

The OLE Partnership has recently reviewed its organisational structure to ensure a more "Agile" approach to software development. This term has a precise technical meaning in systems development terms as well as the implied colloquial meaning of developing in a more rapid, responsive manner. A new organisational structure has been proposed to support this approach.



[DIAGRAM-19]

The SMEs continue to have a critical role in this structure, along with the Board, whilst some of the functions previously allocated to the FC and TC are redistributed to the Steering Committee and the Product Council. The introduction of a Managing Director post recognises that the Board members are generally too busy to attend to detailed operational planning and needed to have someone to whom to delegate this work. The structure has also been adapted to work with a distributed development model in which a number of partners will either host or fund development teams.

> I've learnt a lot and I would have a strong voice backed by evidence arguing against similar collaboration in the future. Collaboration is not needed, what you need is a single driver. Parts of the system that work better have been principally driven by Chicago who had very specific needs who developed a relationship with the lead developer and got what they wanted. That's how systems work. **CM**

For members of SMEs, the outcome will be that agreed functional requirements are wrapped up into "sprints" (rapid development of software components) and they will be asked to test the components. This will require more input, but the result should be a more rapid delivery of the software improvements.

> We are the solution we are the developer and we are the customer and there is something empowering about how you manage and influence all three of those vectors to gain what

your institution needs. It also puts you in the context of doing something greater than your own position, we feel like we are contributing to what libraries should be thinking about. **MW**

Outcomes for library staff

The net effect of this approach on library staff and their working practices has been quite dramatic. It is now well-understood that they are no longer *consumers* of library systems software, but *collaborators* in a process of continuous testing, feedback, upgrades and improvements. The sense of abjection in the face of impenetrable systems is markedly reduced. Library staff meet regularly with their peers in other libraries as well as local Project, ICT and Corporate Systems staff to review progress on the development of a suite of library-related systems – most of them Open Source – that are now recognised to be as important to the institution as the "hard admin" systems (Finance, HR, Student Records). As a process, the question of whether this represents a true "convergence" of the IT and Library functions at SOAS, remains to be seen.

Reflections (3): voices of the partners

I have been in a leadership role from the very beginning and one of the things about working in a community project is that you may be supervising staff in other institutions so I have had responsibilities for supervising staff in various places, we don't work in the same office so its remote, right down to writing annual staff evaluations. That's something that even though you work collaboratively in many other environments I have never before had the experience of actually supervising someone who doesn't work for my organisation. What we have described is this is a new paradigm of working together, it's not the first collaborative project but the way we have approached it has made it somewhat unique. Particularly in managing staff that work in other organisations is one of those key issues, there will be more and more projects like that in the future but we are one of the earlier ones. **CR**

There is a cultural element here about change. I worked in the public sector for many years before moving into education and I worked with three other universities namely Kent, Greenwich and Canterbury Christchurch. It came to a moment where there is a lot of resistance against any kind of change. Even the best intention change has to be conveyed in the most meticulous way. It is not just the library management it is a whole cultural issues. Even if Kuali had the perfect from the beginning I say we would have had the same level of resistance. What I never stopped doing, my team is the largest and the main users of the product, I never stopped educating. Right from the beginning I do weekly communications every Friday when I write to people about new features, what's changed and what you need to tweak. I have also seconded members of the team to the project team to help with refining the project and because of the frontline experience of how it works they have been able to translate their distress into the design. So whenever the designers are doing something wrong they will quickly say this will not work on the frontlines. Because of these measurements and because its ongoing I find that the complaints are just dying. Now people practically report stuff to me and we don't get many things going wrong, before I would write 10 or 20 things on weekly comms I now struggle to find things to write.

At the beginning before we went live we made champions from the user group, people in archives or special collections had to nominate a champion. We had the most champions but

it was a distraction because they still had their day to day work to do and also had to engage in technical design. Not doing technical work but sitting with the project team explaining to them we need this etc because the people designing the project have no library experience they are just designing a tool so we had to make sure they didn't get it wrong. I still have two people seconded to that team, they have been there for months now and it is likely to carry on until January next year. But they are not complaining, this is a secondment I advertised and it took off. **AA**

Even though the partnership is small we have included a larger number of people and everyone has adopted the same values and proceeded down the road from the same path as much as possible. Beyond that I have met some longtime colleagues and friends who will know each forever. The dedication of every individual I have worked with, the skill sets have been phenomenal. That mutual regard has helped us move forward. **CR**

SOAS and to a certain extent Senate House were in a more urgent position in terms of changing their library system than we were. We were quite keen on the idea, we […] still have a system which is relatively old and we would like to change it at some point. […] I don't think we've quite got that sense of urgency so what we've done at the moment is leave it as it is and we are taking a more leisurely approach. That's not to say that we are not interested in the Kuali OLE concept […] but it would probably be something where we would look for SOAS to be running it successfully for a period of time. They went live with it in Easter this year so it is definitely early days and we are certainly interested in talking to SOAS about how that develops and we will be interested in some point in looking at the system again […] **RA**

I left the project when the system had been in place for 3-4 months. It was well bedded in, it was established. I think it was a success. It could have gone a lot worse. The system was running fine, it still needed some support and some development around it but I left it in a good position for people to build on the work that had been done, with clear objectives as to what needed to be done and what needed to be implemented technically. I think it would be about the same if not longer[for a vendor system], because the thing with the OLE project and Open Source software in general is that it requires more upfront planning so we had planned to the nth degree up front for the implementation and we well aware of everything that needed to be in place whereas with vendor-led software it tends to come along very suddenly, the vendor does a lot of work up front but the library staff don't necessarily see that or feel the benefits of that and so suddenly a new system appears and it takes a while for them to get used to it, whereas with OLE with all the user-acceptance testing and bug reports everyone was well aware of what the software looked like before it was implemented. **SB**

I would advise any potential adopter of this system to come in as soon as possible, to become part of the collaboration to make the next stage of the product better, this initial stage feels like a pilot. Future adopters will have more robust code. The challenge is that the benefit they get is directly related the amount of effort we put into documenting, which is not something we have found the capacity to invest into. If you haven't written it, it is not there.

Definitely when it comes to the governance the amount of resources that need to be in-house that will duplicate the cost of the vendor relationship during that initial stage in order to transition to a non-vendor system. We won't go for a vendor but the resources will go into the implementation. But we need those resources then, permanent staff to come in beyond the staff you have. **CM**

Conclusion

As flagged at the beginning, SOAS has a next-generation Library system, Open Source, as part of a shared service. It is not the system or service it imagined at the start, but the impulse remains. What are the key lessons that can be taken away by others who might wish to follow the same path?

A sceptic might ask (indeed, more than one sceptic has asked), "if the BLMS failed, why did SOAS carry on?"

The first point to make is that the BLMS did not actually fail; it was merely put on hold as a result of the various changes in circumstance detailed above. The concept remains intact and it would only require one or more of the UK libraries currently "reviewing their options" to decide to move ahead with OLE to get it moving again. As set out in this document, the notion of a shared approach to the support for – if not the operation of – library systems is sound and is validated each time a Librarian comes to SOAS and asks, "when can you offer this to me as a managed service?"

This highlights a second point: the relationship between libraries and their IT services is uncomfortable at best and distinctly difficult at worst. It is no accident that many libraries are attracted to the idea of managed services, as they want to minimise their dependency upon IT beyond the basics (PCs and Macs which are up and running, connected to the network, able to access external services). Clearly, it also suits vendors to push the line that "we are the experts in the delivery of service X, don't worry about the details, we'll deliver the service to you for a price, with an SLA".

It's not a failed system, it's failed only for the people who didn't understand there was going to be a phased installation, so we put in parts that we knew worked when we thought they were good enough. If staff were more engaged they would have understood that and then been more proactive in making do with functionality rather what we got was just complaints that the system was not the vendor system.

It was a learning experience, slowly people are coming round and you see glimmers of hope. It was a challenge and I think small institutions would need to consider the practicality of this Open Source there are companies that give you a managed service, so you get the Open Source but they manage it for you, its halfway between. The part-serviced solution might be what I recommend for people considering any Open Source initiatives: don't do it on your own, it's too much! **CM**

SOAS did not get to the point of operating Kuali OLE as an internally-hosted and supported service as part of a consortial approach to software design and delivery by setting out to separate itself from its IT service. On the contrary: the SOAS Library is part of a service "directorate" which includes Learning services, Classroom services, IT support, ICT services and Corporate Information Systems. The SOAS Library is faced with the challenge not only to

modernise its back-office systems and improve its working processes, but also to deal with the need – as a major UK Research Library – to support Resource Discovery across a complex field, Research Repositories, Open Access Publications and Research Data Management, all of which must be integrated with its existing Teaching and Research Support operations. As a large Library in a relatively small college of the University of London, the SOAS Library simply cannot afford to take each of these functions as a managed service from an external provider. The only viable strategy is for it to build up its library digital services suite and support expertise around a cluster of Open Source systems. In this context, the choice of OLE is as much about the need to build capability within the Library, and to move the Library culture on from being consumers of software to collaborators in the development and support of software as it is about the specific need for a back-office library management system.

Two other key factors apply. Firstly, as a Research Library, the SOAS Library is acutely aware of its need to develop, preserve and present its unique and distinctive collections. Traditionally these were the books, serials, rare books, manuscripts, archives and other materials, which it collected in line with its institutional and national remit. In the modern era, a large portion of this material comes in digital form. Digital curation and preservation operates to the same standard as traditional curation and preservation, which requires that the "vital" data be held as close to home, and as safely, as possible. Such an approach is not – in the present environment – compatible with most of the so-called "cloud" offerings from major vendors. Collaborative work with other libraries is feasible, but not yet mature. Hence the SOAS Library must build capability and expertise. Working with OLE alongside the other Open Source providers is consistent with this approach.

Secondly, the SOAS Library does not operate in isolation from its institution. One of the original functional requirements for a new library system was enterprise integration. In order for the Library to go about its daily business, its systems need to inter-operate with student systems, HR systems, Finance systems, authentication services, access control systems, printing systems, discovery systems and a range of other infrastructure and corporate services. This presents a challenge: how can we move Library staff, on the one hand, to recognise that they are also Information Technologists, and Corporate Systems staff, on the other, to treat library systems as having equal importance with the other "hard admin" systems?

We got here, then, because this is where we need to be. It is not an easy place to be, nor is it necessarily a comfortable place to be. The Kuali OLE system is currently at version 1.6.2 and the SOAS Library is still only the third library in the world to be using to operate its services. There are many rough edges in the system: some things don't work as well as they should; some things work differently from what we are used to. Whilst SOAS is planning for its upgrades to version 2 and then version 3, the software architects are already talking about the "next generation" of "middleware" which will change the underlying structure of the system to make it even better at the enterprise integration and outward-facing inter-operability which was – for SOAS – one of its unique selling points.

The other points remain: it is an open system, with open architecture, based on Open Source principles. SOAS has already achieved things with this system which it could not have managed with its previous library system but there is a long way to go and the biggest

challenge remains a cultural one: moving from "the supplier should fix this" to "we can fix this".

Signs of the times

What does this mean for SOAS and its (currently dormant) BLMS partners in the larger Kuali context? It comes back to my primary thesis about ethos, collaboration and technology. For Libraries to survive the technological onslaught they must look to their values, the ethos they share with other Libraries and their host academic institutions. Without collaboration, they face a serious risk that the technological imperative embodied in the vast data-gathering conglomerates will overwhelm them. Computing technology as it currently operates has a fundamental drive towards large-scale, centralised data models in which content is reduced to data-flow and consumers become the consumed. Some might call this a tendency towards technological totalitarianism.

Libraries are the inheritors of the Age of Enlightenment, custodians of the knowledge that makes Reason possible. Do we stand back and allow this knowledge to be taken from us and put somewhere that appears to be accessible, but in fact is only given back at the whim of the "provider"? Or do we work together to preserve the knowledge and wisdom of the previous and current generations, for the generations to come? The choices may not be obvious today, and the offer to "put it in the cloud" – where we don't have to worry about all the messy technologies – can be quite seductive, but is this the right thing to do?

Meanwhile, not that far from London, in places which are of particular interest to SOAS, malign forces are at work, seeking to return entire regions to the Dark Ages sooner rather than later. "Terrorist" incidents have become almost a daily event but remember: not all barbarians come brandishing swords and Kalashnikov rifles.

Enlightenment: the casting of light upon the darkness. Libraries have an important role to play, even if it is just to ensure that the stocks of candle never run out.

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