

**The Antaeus Column* :
UK digital library licences and authentication systems:
national versus local approaches.**

* The title of the 'Antaeus' column derives from the name of the mythical giant, Antaeus or Antaios. The son of Gaia (whose name means 'land' or 'earth'), Antaeus was undefeatable in combat so long as he remained in contact with the earth. Once grounded by contact with the soil, he vanquished all opponents. However, in order to disempower Antaeus, Heracles simply lifted him from the earth, overcoming him totally. Thus, many times through the centuries, Antaeus has been used as a symbolic figure showing how any human aspiration must remain grounded in order to succeed. LIS research must therefore retain its contact with the 'ground' of everyday practice in order to fulfil its potential as a sophisticated research discipline – it must remain empowered by its relevance to practitioners.

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Abstract

<i>Purpose of this paper</i>	To examine the system of electronic library service licences and authentication in the UK, and highlight its hybrid local-national approach.
<i>Design/methodology/approach</i>	A narrative account of our national negotiating and network security practice, combined with brief illustrations of alternative practices elsewhere in the world.
<i>Findings</i>	That the UK system may be nearing the end of its lifespan, given the level of resourcing available to UK HE.
<i>Research limitations/Implications</i>	The relationship between educational funding levels and national licensing practice and authentication systems needs to be explored in some depth by timely, focussed research - research that should show full awareness of other international models.
<i>Practical implications</i>	New directions in model licences and authentication practice in the UK may be very resource-intensive to pursue at grass-roots institutional level. The practical difficulties should be scrutinised very carefully before our time-honoured system is given a new lease of life.
<i>What is original/value of the paper?</i>	The paper challenges the view that the UK information system is broadly as well positioned as it could be in terms of licence and digital library security/authentication systems. We in the UK should take a humble look at other international models and learn lessons from them.

Paper type: Viewpoint

Keywords: Libraries; information services; licences; authentication systems, UK.

Introduction

One of the defining features of the UK Higher Education and Further Education information environment is its approach to the negotiation of contracts with electronic library service suppliers and the management of network security arrangements to support these deals. Many electronic information services are made available to the HE/FE community as a result of national bargaining with commercial publishers via a single body that represents the entire community of HE and FE institutions. This saves individual institutions from the headache of each negotiating largely the same licence or contract hundreds of times over for broadly similar local situations and requirements. The JISC negotiating structure, with the JISC model licence (JISC, 2006a), currently offers a collective negotiating mechanism for the whole of the UK, although other national model licences should be noted (for example, NESLI and CHEST). In other countries, such arrangements are more frequently handled entirely at the local institutional level.

Similarly, the obligation on each institution to police compliance with licence requirements for electronic library services involves the implementation of some sort of computer-based network security system that can control access. Membership of the HEI or FEI creates entitlements to access that must be mediated by online security systems. Conversely, lack of institutional membership implies lack of entitlement, which again can be policed electronically. If the system knows you are not studying or working at the institution, then you will be barred electronically from online access to its digital library services.

Authentication systems can be mounted and controlled at the local level, but in the UK, as with national negotiations, there is a national electronic library service authentication system which is based in one geographic centre. From there local security can be controlled via devolved administrative arrangements.

In practical terms, many electronic library services are made available to UK libraries because they have signed an institutional licence derived from the national JISC model licence, on terms negotiated for them nationally, and secure access to that service for their users is made possible by the Athens system, run from a central national service administered by EDUSERV (Athens EDUSERV website, 2006).

How satisfactory is this system as a way of negotiating and administering secure network access to national information services? And how does it compare with other systems available in other countries?

Benefits: Economies of scale matched to local requirements

Firstly, we should celebrate the fact that this model of national administration for local services in some ways combines the best of both worlds. Local institutions gain from having a skilled intermediary body negotiate on their behalf, thus absolving them of the obligation and cost of employing their own local negotiators. This is a significant economy.

At the same time, these economies of scale do not preclude the fine-tuning of the deal to specific local circumstances – for example, contracts can be tailored to specific local need because of price banding which is directly proportionate to some constant equitable indicator: e.g. the size of institution or to levels of central funding (Clarke, T./JISC Collections, 2006). The smaller the institution in terms of the relevant indicator the lower the banding; the larger the institution, the higher the banding and the higher the price paid for an annual subscription.

This banding system is not the only example of local fine-tuning that can occur within the current framework (there are instances in local institutions which in fact do require significant independent negotiating at a local level). But it does demonstrate how a well designed national system does not imply inflexible 'one-size fits all' arrangements. For example, if a single set price on a standard contract was negotiated centrally without any reference to local institutional size and ability to pay, the system would be unacceptable.

Nationally negotiated banding also avoids the danger of less experienced institutions naively accepting high rates for a service. The national negotiating body knows what "the going rate" is for various HEIs of different sizes, whereas a smaller institution might unwittingly negotiate a costly deal which would really only make sense for a larger institution.

Centralisation of online security at a single national UK centre also gives good economies of scale. Most libraries want access to the same networked information services. So why have hundreds of separately maintained authentication servers maintaining the same type of secure barriers to the same services – and why have different automated systems asking the same sort of user the same sort of question ("Are you a member of this institution? If so, which services does your membership entitle you to access?") One national Athens system can police users at every local institution.

At the same time, passwords are administered locally, allowing for local flexibility – if a certain group of users is only allowed to get access to a particular database, that degree of specific access can be created via the devolved local control functionality of the Athens system.

But there are inevitably downsides to this 'best of both worlds' approach.

Compromises and disadvantages

The disadvantages of the 'local-national' approach adopted by UK librarians can become clearer when these idiosyncratic British arrangements are subject to greater scrutiny.

Firstly, it is impossible to negotiate an exceptionally good deal on the part of your local institution: although there is pressure for greater transparency, traditionally national deals have been confidential. Local librarians can feel like passive onlookers to the deal-making process. This makes it particularly galling if we then hear of the negotiating prowess of a foreign institution (who achieved a deal worth 20% less than the standard UK deal) when your own British institution may have no latitude to enter into such brilliantly negotiated local arrangements. Although some may think that any librarian with the skills to establish such a ground-breaking deal would probably be working in the City of London and not in a scholarly environment, we should not underestimate our profession's ability to cut a good deal when given the freedom to do so.

But national deals preclude the possibility for brilliant local negotiators to play clever poker games with commercial companies for the unique benefit of their own institution. And if there is a sense that those negotiating on your behalf could have done a bit better if they'd been as clever as you, you will never have the chance to find out because you will never have the chance to negotiate on your own behalf!

Secondly, it remains the case that, by and large, strictly local network authentication procedures are the order of the day for all educational institutions for the bulk of their network services. Access to the local virtual learning environment, and the student information server, and email or standard software packages, all comes through the local network authentication system. The fact that non-library electronic authentication in the UK is local, but electronic library service authentication is national, means that two password systems are the norm. In many other countries, a single sign-on password for both local IT services and local electronic library services, has long been standard.

This duplication in the UK is not ideal. It is essentially inefficient to have two parallel password systems where one – a single local sign-on system - could do the same job. Lack of a single-sign on system means that two local security systems are administered side by side, which wastes local staff time and local resources. In addition, the user is burdened by multiple passwords for a single set of local electronic services that come from the same source. They have to memorise two sets of security data and distinguish between the types of service to which the different sets of security protocols apply. It seems clumsy. For anyone coming from a typical US or Australian library environment, it simply is very clumsy.

New developments

There is currently a push at national level in the UK information environment to create a post-Athens national permissions system with a single-sign on system at local level, and a more complex set of flexible entitlements to all sorts of new categories of users - users abroad, part-time users, distance learners, life long learners, contract staff, visiting staff, commercial users and so forth (JISC, 2006 a and b). The aim of the new authentication environment will be to move beyond “the clumsy or over-centralised models which have catered for the needs of the Higher Education community [in the UK] up to this point.” (McLeish, 2005)

Although the possibility of single-sign on has of course existed before (via AthensDA), in practice this has not been widely implemented, and new possibilities are now opening up for a more pervasive adoption of such an integrated approach to permissions.

Similarly, definitions of institutional membership that have been available via nationally negotiated licences have been fairly restrictive, centring on the old-fashioned concept of a single, geographically circumscribed place of study and research isolated from commercial activity. These membership definitions have been difficult to apply to the modern educational environment where activities span more than one institution and where commercial spin out companies are seen as an essential function of applied academic research. Institutions wishing to expand into new forms of continuing professional development courses (e.g. Cranfield University, 2006) or into foreign campus development (e.g. the University of Nottingham, Malaysia and China campuses) need electronic library service arrangements that can support these expansive goals.

We clearly need a more generous, wide-ranging and more flexible national model licence system which gives UK institutions the ability to develop in ways that befit their ambitions. We also need permissions systems that support these licence provisions. The UK's Joint Information Systems Committee is consulting and negotiating to this end at the time of writing.

What are the likely outcomes of these new developments?

'O dreams, O destinations'

If the intended extensions of the traditional 'national-with-local' UK approach bear fruit, then it is quite possible that we will continue to reap the benefits of our past system on a much larger scale and much wider canvass. We will have a bigger, better model licence structure and a better, more usable permissions system better suited to local need.

However, seen from the outside what we are struggling to achieve may be viewed as in some sense impossibly complex and perilously demanding at local level. Where we dream we will get to in terms of national licensing and authentication systems may not be the ideal destination that we hope for. If the old system was 'clumsy', it was also practical and affordable for local institutions, whereas new SAML-compliant models (such as Shibboleth) will be much more onerous to implement at local level:

"Shibboleth is a complex piece of software, and its installation is likely to stretch many institutions - particularly when it comes to setting up the infrastructure needed for it." (McLeish, op. cit.)

How easy will it be for local institutions, who have been absolved from the resource-intensive problems of single-sign on systems to date, to adapt? Will the need for extra resourcing in fact undermine the resourcing of HE libraries? Computer Services and Registries will require the appropriate resourcing to take on this sort of installation – the 'clumsy' centralisation of the classic Athens model took the burden away from them. Is Shibboleth just losing the national economies of scale of the good old Athens system? And will the consequence of this be to redirect the resourcing that used to be dedicated to Athens administration in libraries to Shibboleth administrators in IT departments?

To illustrate our difficulties from a different point of view, take these informal comments which I have threaded together from conversations with English-speaking librarians working outside the UK, to create a factitious and imaginary single foreign voice, informally analysing the national UK information environment today:

"Overall, I am glad I don't work in the UK library system. I admire the way you manage to sweat the maximum economies of scale from your national negotiating structures and national permissions systems. It's pretty efficient.

"But it just seems a nightmare to work with: we prefer to be able to make our own arrangements directly with publishers, and if they cost a lot, I know I can recover the costs. Admittedly we charge a lot more in our country for going through Higher Education, but the benefits for a Library are immense. And we have to offer a simple, customer-friendly system (no multiple sets of passwords, thank you very much) because our students are paying so much to do a degree and they expect a lot for their money. But because they pay a lot, we can give them a lot, we can fulfil their expectations.

"So we can buy commercial licences for databases and electronic journals which give us scope to do a lot more with electronic library services – for example, we can give access to these services to users after they leave the University, so that they have a lifelong relationship with us. Non-commercial

licences don't give you that level of flexibility. So you have to work within a less government-controlled, more entrepreneurial education system to be able to raise the wherewithal to invest in those sorts of library services. Or find a country with a government willing to hand out more tax dollars to HE (are there any?).

"Anyway, I don't want to be undiplomatic, but put it like this – I'm not emigrating!"

Conclusion

The sophistication and complexity of our national licensing and authentication systems within the UK are remarkable and have been highly effective in creating affordable digital library services that the UK HE/FE sector can implement in a usable form to our students and staff. However, what seems to some a marvel of complexity and centrally controlled economies of scale may seem to others a growing nightmare of over-elaboration that will be impossible to extend indefinitely. Trying to channel the full complexity of highly differentiated local electronic library service needs through a single national licence system may be increasingly impossible. The image of a camel and the eye of a needle springs to mind.

However well the system has worked to date, the range of electronic library services that we are offering is not as great as we would ideally like to provide, and it is not as technically straightforward as the infrastructure supporting the better services offered by our competitors in the world HE market. The cumbersome nature of the national negotiating and security systems that we use for information services may be simply another unfortunate result of our having to gain the maximum economies of scale for an HE/FE system that is both under-resourced and over-burdened. New initiatives to resolve these difficulties may cause as many problems as they resolve, especially for libraries - libraries may have to be stripped of their own dedicated resources to help deal with new local IT/Registry burdens being experienced elsewhere on campus.

In turn, it could be argued that all such dilemmas are the consequence of a government-led expansion of student numbers that has not been supported by effective policies to provide equivalent increases in funding. That increased funding could come either from the government's own taxation-generated resources, or from the national government allowing our Universities to charge a market rate for the educational services they offer. Or from a combination of both - the nature of such funding is broadly political question, the answer to which it is not in the remit of the LIS profession to dictate.

But these resources have to come from somewhere, or the end result from such starvation will be a diminution in the quality of electronic library services that matches a general diminution in educational quality in UK Higher Education. This has seen the closure of formerly world-class British academic departments and the start of a migration of the best UK students to better funded universities elsewhere in the world.

So, it is right to applaud the efforts of national information bodies to create an economic and flexible structure for information provision in HE and FE in the UK. But as the struggle to form such a better national structure rises to a new pitch of complexity, it is right to ask the question whether these efforts are perhaps in part a symptom of under-resourcing for the national information system in general. And to

ask whether other systems elsewhere in the world might offer us a more fruitful way forward for the future?

Nicholas Joint
Centre for Digital Library Research/
Andersonian Library
University of Strathclyde.

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Received 17/11/06, Reviewed 20/11/06, Revised 24/11/06, Accepted 26/11/06