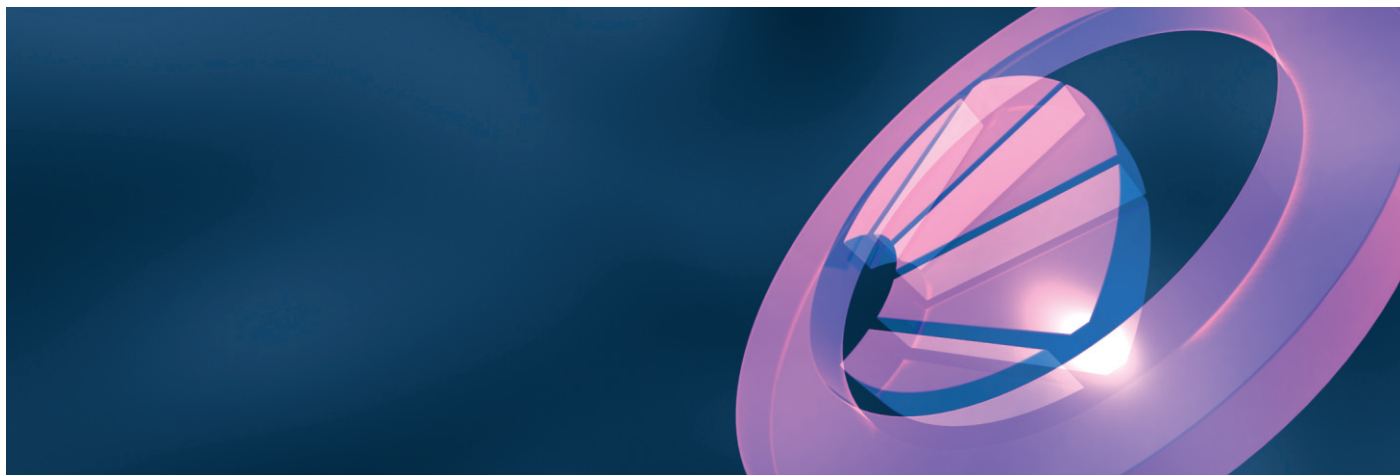# talis

The joined-up institution

talis Keystone

A white paper by

Sarah Bartlett
Product Manager, Talis Keystone

[Version 1.0]   November, 2005

Contents

Executive summary

Today's local authorities and academic institutions are facing a rise in user expectations coupled with a call for greater efficiency. Put simply, they have to deliver better services, often with fewer resources.

Integrating the multiple systems within an institution can help on both fronts. Enabling users to move seamlessly between council and university services will enhance their experiences. Furthermore, streamlining the workflows and processes that slow down the organisation and make it inefficient will optimise resources.

Talis Keystone enables this integration by making it possible to take the ILS outside the walls of the library. This solution is an opportunity to make the library service available in a range of accessible channels. By using Talis Keystone to enhance user experience and improve efficiency, libraries will put themselves at the heart of reform for the joined-up institution.

Section 1: The integration imperative

The need for agile organisations in the modern world

Organisations in the 21st century are under pressure. Rising customer expectations coupled with powerful economic forces mean that many organisations now face a tough challenge. They need to be able to optimise their efficiency by reacting to market changes as quickly as possible – while still delivering the same levels of service.

Local authorities and academic institutions are no different. Like any business today, they need to build as much flexibility as possible into their structures and operations. To survive in the modern world, they must create an agile organisation.

The historical restrictions of ICT

Inevitably, to create a truly agile organisation, the right ICT support is essential. And this is where many local authorities and academic institutions have encountered difficulties. Over the years, most of these organisations have accumulated a wide range of IT applications to meet the needs of particular operational areas. For example, libraries use library management systems while finance departments rely on financial solutions. This is understandable since many of these applications have been developed to address very specific requirements.

Unfortunately the use of multiple applications has resulted in multiple silos of information across institutions. Each department has its own application and its own set of data, and none of them are visible to the others. It's not surprising then that these silos of information have gradually led to inconsistency of data and differing views of what is happening across the organisation.

This is the current situation across many institutions and, sadly, it's inefficient, and completely at odds with the profile of an agile organisation.

A monolithic system

One answer is to replace these silos with a huge, monolithic system. There's no doubt that this would solve the issue, but what an organisation might gain in consistency would be lost in terms of flexibility and ease of use.

The integration imperative

The alternative answer is to find ways to integrate these multiple systems. If we could do that, then functionality that used to be confined to the ILS (such as the ability to renew a book loan) could be made available in another (such as a university portal or CRM based call centre). Data about the borrower could be shared across the entire organisation.

An institution's systems could interoperate fully in real-time, delivering significant cost reductions and efficiency improvements.

Section 2: Taking the ILS outside the walls of the library

The technology advances underpinning systems integration

The idea of enabling users to see library data within the context of the wider institution is very appealing. However, taking the ILS outside the walls of the library is inevitably something of a challenge. Fortunately, developments in ICT particularly in the realm of Web Services mean that we can now integrate disparate systems so they can share information and interoperate.

Introducing Talis Keystone

Talis has built on these latest technology advances to create Talis Keystone – a middleware solution that can deliver systems integration.

Talis Keystone provides all the essential building blocks to support the base integration capability. It sits between the Integrated Library System (ILS) and integration modules, which deliver integration solutions for specific areas.

The comprehensive use of standards such as XML and Web Services in this cutting edge technology will enable Talis Keystone to integrate with almost every system in your council or university.

Working in conjunction with the ILS, Talis Keystone enables the library system and the services it provides to move outside the library walls. For example, with View My Account, one of the solution's integration modules, a user can view library account information through a council website or a campus portal. Library services are therefore more accessible to users.

Talis Keystone isn't just limited to Talis products and services either. If you have a non-Talis ILS, you can make use of the NCIP-compliant interface within the Talis Keystone middleware to take full advantage of Talis Keystone's integration capabilities.

The Joined-up Institution. Document Version 1.0. Author: Sarah Bartlett

5

Section 3: How does Talis Keystone address the challenges you face?

The academic challenge

Changes to the student fee structure

The focus for a lot of service planning at the moment is the implications of the changes to the student fee structure in 2006. How would Talis Keystone help us to face the realities of that?

The changes due to take place in annual tuition charges in 2006, from the current flat rate to a variable amount ranging from nothing up to a maximum of £3,000, will strengthen the concept of consumer choice in higher education. Talis believes that this underlines the need to join up the ILS with systems elsewhere in the university. With the cost now varying by course and by institution, universities can expect to come under increased scrutiny not only by students but by their parents as they choose which university course is going to give them the most value for money.

Service delivery

Universities need to prepare for this in terms of service delivery and as a core student service, the importance of the library should not be underestimated. Integrating systems such as the student registry will enable all campus systems to share information about a student, meaning that students won't have to register for campus services such as the library or the sports centre once they've enrolled as a student. Plus, students will be able to view all information pertaining to their 'account' with the university on the campus portal. Features such as these can be showcased at Open Days for prospective students.

Operational savings

Furthermore, it's anticipated that the income generated by the student fee changes will not meet the sector's need for increased funding, so higher education establishments will also be looking to make operational savings in order to meet these service challenges. Integrating back-end university systems (such as the finance system) with the ILS can transform inefficient processes between departments. Orders raised in the library can be transmitted in real-time to the central finance office for example. Duplication of data can also be eliminated – the automatic creation of borrower records using data from the student registry system means no more queues of students at the beginning of the academic year waiting to provide the library with the same information they've already provided elsewhere on campus.

Today's students belong to a generation with high technological expectations – they certainly expect to be able to move seamlessly between campus services offered by the university and are annoyed when this turns out not to be the case. What's more, in the new competitive world in which many academic institutions now find themselves, the university or college simply has to be run as efficiently as possible.

Not just a library issue

A library may not be able to shoulder the cost of Talis Keystone on its own. How can it include the university?

System integration using Talis Keystone means interoperating with systems that reside beyond the library building. So many of the benefits of integrating the ILS are going to be derived not only by the library but by the wider institution as well.

This is particularly true of back-end system integration. A student will be able to walk into the library, inform the librarian that (s)he has moved house and, once the library system has been updated with this change, the student registry will be automatically updated. Any other campus application integrated with the registry will also receive the change. In this scenario, the library isn't the only area of the university to benefit from this improved efficiency and responsiveness.

It makes sense, therefore, to interact with people such as Finance Officers, Corporate ICT and portal developers right from the early stages of an integration project. Talis can work with a library to help align integration solutions with institutional objectives and draw out the ROI (return on investment) with staff across the university. We can even propose cost-sharing models.

Talis is UK-based and therefore can demonstrate its sensitivity to and in-depth knowledge of higher education issues and their impact on the university.

In terms of its internal profile, the library can only benefit from introducing Talis Keystone to the wider institution.

The public sector challenge

Good use of resources

Many local authorities are under constant pressure to provide more with less. Why should they spend their scarce resources on Talis Keystone?

Delivering joined-up services is high on the agenda of local government at the moment, driven in part by the e-Government programme. Local authorities are starting to meet the challenge of integration, one of the principal pre-requisites, and there's no end to the advantages for councils of improved interoperability between departments and their systems.

Holding one set of information about citizens and sharing it among multiple departments would be a powerful capability. Just think of the time and cost savings resulting from the elimination of all that duplication of effort. What's more, without this sharing of information, citizens are unable to move seamlessly from one council service to another. At each service point, they have to present their credentials and provide information about themselves - much of which is already known elsewhere in the council. The library suffers from these inefficient processes and service shortcomings just as much as other council departments.

Talis Keystone provides a framework for integrating your library's software with systems in use in other parts of the local authority. With our rigorous use of standard technologies in the development of Talis Keystone, we have maximised the opportunities you will have of joining up your library with the wider institution. The Talis Keystone middleware works with a series of integration modules to provide specific integrated modules targeting the needs of today's local authority.

With Talis Keystone, the library will be at the forefront of the move to share information across horizontally integrated systems. You can help to shape the council of the future.

Gershon targets

How can Talis Keystone help us to deliver our Gershon efficiency targets?

The Gershon Review (Releasing Resources for the Frontline), published in July 2004, established an efficiency target of £6.45bn for the local government sector. This translates into 2.5% savings year on year for three years to 2008.

Actions that count as efficiency gains are:

- Implementing changes that maintain the same level of service provision, whilst reducing the resources needed for delivery or deploying fewer staff. The integration

of a central Local Land and Property Gazetteer with the ILS, for example, would remove the need to maintain data on multiple systems.

- Implementing changes that result in additional outputs, such as enhanced quality or quantity of service, for the same level of resources. If elements of the library service (such as library renewals) were available on an easily accessible channel such as the council website, then you could expect more citizens to use this facility, resulting in staff savings.

- Implementing changes that remodel the service provision to enable better or equivalent outcomes using the same or less resources. Integrating the library with the CRM system will facilitate the handling of basic library enquiries by contact centre staff.

The reality of Gershon is that the largest gains are not achievable in incremental ways. Broad thinking is needed to bring about more radical transformations, and that may necessitate some investments in the short term.

Local government initiatives

In the future, will Talis Keystone remain in step with initiatives in the local government arena as a whole?

Talis is a member of Government Connect. Launched in March 2005, this initiative aims to help local authorities to meet their priority outcomes by focusing on areas that have proved to be barriers to the delivery of e-government. Talis will be moving forward with them, particularly in the area of identity management.

Talis is also working towards full membership of the Adapters Club - a group of ICT suppliers to local government who are together building a library of standard XML schemas.

Talis is also planning to be e-GIF compliant by the end of 2005 and keeps a watching brief on the outputs of all national projects to ensure that we're compliant to the standards emerging in the local government sector.

Not just a library issue

A library may not be able to shoulder the cost of Talis Keystone on its own. How can it include the Council in this initiative?

Most library-related system integration projects (particularly those involving back-office systems and processes) will deliver benefits to the wider institution as well as to the library. The Head of Acquisitions may retrieve expenditure data of the year to date from the council's finance system. This will enable her to build a more accurate forecast of spending for the rest of the year, and she can enter this in the ILS which will then update the finance system in real-time. In this scenario, the library isn't the only area of the university to benefit from improved efficiency and responsiveness.

It makes sense therefore to interact with people such as Finance Officers, Corporate ICT and CRM project managers right from the early stages of an integration project. Talis can work with your library aligning integration solutions with institutional objectives and draw out the ROI (return on investment) with staff across the council and propose cost-sharing models.

Section 4: Talis Keystone components

Talis Keystone is a platform-independent, object-oriented web application designed and developed using open standards. It draws on the best of the Open Source community and follows an Agile development methodology.

What Talis Keystone offers, therefore, is a vendor-independent, robust, secure and scalable enterprise application. It is also a densely tested and fully featured solution to integration demands.

Talis Keystone Integration Modules

At the most basic level, Talis Keystone and its integration modules work in conjunction with the ILS to make library content available to the wider institution.

Front-end Integration Modules

View My Account

View My Account enables end-users to view details of their library accounts from electronic service points throughout the institution. For example, using the CRM system, a local authority call centre operator handling a customer enquiry can access library account details. Citizens could view the same information from the council website. Alternatively, it could be in the Virtual Learning Environment (VLE), giving students access to library services while they discover learning resources or look up next week's assignment. It could even be in the campus portal. What it means, of course, is that library information is no longer trapped within library systems and becomes accessible in a seamless way between disparate systems.

Portal

Talis Keystone's Portal module will deliver OPAC functionality within the portal, website or CRM systems, where users will be able to place requests, search the catalogue, and do everything, in fact, that it is possible to do in the OPAC.

This will mean that library information and functionality will be delivered to the end-user, wherever they choose to log in. By making it easier for end-users to perform transactions, such as renewals, on a self-service basis in the portal or website, library staff are freed up to provide more value-added services.

ePay

The Talis Keystone e-Payment module will help support the trend of paying for public services electronically, by enabling end-users to pay their library fines, charges, purchases, and so on from a range of end-user applications such as Talis Prism.

A Web Service, situated within Talis Keystone, will communicate with an external payment engine. Applications such as Talis Prism or non-Talis OPACs will incorporate a payment interface and will call the e-payment module, which will then carry out all the payment processing.

The e-Payment module will be supported by the requisite back-end finance integration capability.

Smartcards

Smartcards offer a powerful way to provide secure and convenient access to multiple services. Users will be able to use the same credentials required by the library to access other services such as sports facilities.

With the establishment of standards in this area, it should be possible for someone who lives in one local authority to use their smartcard to pay for parking on a shopping trip in another.

But the benefits aren't restricted to public libraries. Academic libraries too have a lot to gain from a single smartcard enabling access to all campus services– so students would no longer have to perform transactions such as presenting proof of identity separately for each local authority or university service he or she wishes to use.

Back-end Integration Modules

CRM

Customer Relationship Management (CRM) systems facilitate the centralisation and management of customer information. While their origins lie in the private sector, public sector organisations are increasingly looking to take advantage of their ability to pull together all customer-related information held in separate systems. CRM systems offer local authorities significant benefits in terms of improved joined-up services for citizens as well the efficiency savings of joined-up streamlined processing across the council.

Integration between the CRM system and the ILS may exist at a number of levels:

At the front-end…

With the Talis Keystone View My Account module or the Portal module, Call Centre staff will be able to field basic library enquiries from members of the public. This will free up staff-time in the library for the provision of more value-added services. Most CRM systems can be configured to determine at what point in the workflow an enquiry is to be rerouted to a specialist such as a librarian.

At the back-end…

Updates to a citizen's details made in the library can be centralised in the CRM system and possibly transmitted to other connected systems, for example Leisure Services. Borrower data held in the library system is thus kept in step with information held elsewhere in the council.

By holding a complete list of library transactions (current and historical) for a given end-user in the CRM system, you are releasing the powerful capabilities of the CRM system to the library in terms of planning and monitoring the service you offer to your communities.

> **Maggie, the contact centre worker, eases a customer's daily commute**
>
> Maggie works in a local authority customer contact centre. She has just helped an anxious caller to move from 10 to 12 monthly council tax payments in order to ease her household budgeting difficulties. The next call is from a man who works within the borough. His query: does his working arrangements entitle him to use the library even though he lives elsewhere? Maggie confirms that this is the case. She starts to ask him for his personal details but then asks: "Do you happen to have a smartcard with your home local authority?" He does, so he reads out his 16-digit identification number, which incorporates a local authority identifier. Maggie is then able to view his details on the CRM system, and flag that he works in the borough. She then emails him the standard 'Welcome to our library' message which includes the URL of the council website. He then has online access to library services as well as the location details of the nearest branch library to his office. A week later, he is happily facing the daily commute with a number of CDs he has borrowed from the library.

Student Registry

Today's students have a tacit expectation of integrated services – they only notice when the integration is not in place. So once they've registered with the university, they don't expect to have to register separately with the library. Why should they? Universities are keen to present joined-up services across the campus to their students, and equally importantly, to their prospective students as well.

Integration with Student Registry software facilitates the sharing of borrower data effectively across the university or college. Borrower records could be created and updated according to changes in the student registry system. And when a student informs the library of a change of address, for example, the student registry could be updated in real-time.

This underpins the delivery of an institution-wide view of the student's 'account' with the university as a whole, student fees, hall fees, course information as well as library-specific information. Borrower data held on the library system could be consistent with information held elsewhere in the university about that student. Duplication of effort across the institution could be eliminated as data only has to be entered once, resulting in impressive efficiency savings for the university over time.

Addressing

Local Authorities update their Local Land and Property Gazetteer (LLPG), a property and land referencing system, which in turn updates the National Land and Property Gazetteer (NLPG). The Gazetteer can provide library systems with a definitive index of addresses compliant to standard BS 7666. In conjunction with the Talis Keystone CRM integration module, all customer changes of address, updated on any council system, can be centralised in the CRM system and then all connected systems, including the library systems, can be automatically updated. The Gazetteer holds a unique property reference number (UPRN) for a property and also a grid reference which, in conjunction with a mapping tool integrated into the ILS, can help the library to plan its services more effectively.

Finance

Integration of library systems with institutional finance systems would support processes such as ordering, invoicing and budgeting. Finance integration modules will be made available in an incremental fashion, according to customer demand.

Manish pays his fines – at home

Manish has just completed his university course and is looking forward to graduating. So he isn't happy when he receives a letter from the Faculty office to say that he won't be able to graduate until he has paid his outstanding library fines. Anxious to sort the matter out as quickly as possible, he brings the letter into the library and asks the librarian on the circulation desk for help. The librarian explains that if he pays the fine now his record on the central finance system, which triggered the letter in the first place, will be instantly updated.

Manish has left his wallet behind but, fortunately, he discovers that he can log onto the campus portal and pay his fines from home. His debt on the University finance system is instantly cleared and he receives an email confirming his graduation date.

Self-Service

Why offer self-service facilities in your library?

Enabling users to issue, return and renew books on their own terms, whether at machines or over the telephone, is undoubtedly popular with many library users. And with society as a whole increasingly supporting self-service, in banks and shops for example, this 21st century phenomenon is a way of life for many people today.

Self-service can demonstrate to the customer that the library has taken steps to provide a more efficient customer-centred service. It can take some of the administrative burden away from library workers and enable them to concentrate on other areas. What's more, a robust self-service facility can enable the library to stay open throughout the night without the need for additional staff.

Introducing Talis SelfServ

Talis Keystone has an integration module, SelfServ, which facilitates communication between a library's circulation system and any SIP2 compliant self-service device. Not only does it support library self-check solutions such as 3M Self Check, but it also supports automated telephony systems such as Talis Message. With social inclusion an important consideration in the planning of today's library services, the universal quality of the telephone as service channel is important. Users can access the library at a time and place convenient to them, and libraries find that staff-time is freed up to add value in other ways.

Moving forward with Talis SelfServ

Talis SelfServ has the ability to support devices that incorporate electronic payments, plus more sophisticated sortation capabilities, supporting RFID-enabled self-return machines, enabling returned items to be by collection type (for example children's literature) or by shelfmark using an RFID sortation machine. This will greatly ease the reshelving process, and gives us a tantalising glimpse of the streamlined processes that will result once RFID technology has been embedded right across the library's operations.

As library self-service moves from SIP2 to the broader NCIP (NISO Circulation Interchange Protocol) standard, potentially transforming library self-service facilities by enriching their circulation capabilities, Talis SelfServ will be interacting increasingly with the Talis Keystone middleware to share the NCIP functionality that will be needed for other integration modules.

How will Talis SelfServ interact with RFID technology?

Radio Frequency Identification (RFID) is a technology being employed to track stock of all kinds. It has obvious attractions to libraries in being able to handle stock automatically, but until recently cost and evolving technologies have been barriers to take-up. For most libraries, the starting point in the adoption of this technology is self-service. RFID makes the self-check process a lot simpler for users.

Talis SelfServ supports RFID technology in self-service applications. Corporation of London and London Borough of Haringey have both successfully implemented RFID-enabled self-service projects using Talis SelfServ. A number of other Talis customers are now running similar projects to introduce RFID technology into their libraries.

Stephen adjusts his work-life balance

Stephen works long hours for a hotel chain but has ambitions to start his own business. A few weeks ago, he borrowed a book from his local library to help him prepare a business plan, but now the library has emailed him asking him to return the book as another customer has reserved it.

After yet another evening meeting, Stephen heads off to the library, which, thanks to its new RFID-enabled self-service facilities, is now open 24/7. When he enters the library he returns all his books via the RFID-enabled return sorter. The sorter is able to identify the book that has been reserved and directs it automatically to the reservations bin. He selects four more books, places them in a pile at the RFID self-issue machine. The machine simply reads his RFID-enabled smartcard, then reads the RFID tags in the books and issues the books to Stephen.

Conclusion: Why should libraries adopt Talis Keystone?

With Talis Keystone, you are now opening up your library system to the world outside. By making your library services available on external channels, such as portals and websites, you're effectively raising the profile of your library by increasing its visibility.

Increase levels of service for users

You are also helping your users by taking the service to them, rather than expecting them to come to you. For example, joining up your service means that your customers can easily find you while they're paying their council tax or halls of residence fees or booking a badminton court.

Realise efficiency gains

Taking the heat off your frontline staff by providing more self-service channels is just one way of achieving efficiency gains that start with the library and extend right across the institution. Back-office staff will certainly benefit from the streamlined processes that arise when the library system can share information about customers and finance in real-time with departments across the university or council.

With these benefits available, it's time for libraries to exploit the exciting new wave of technology and enjoy all the benefits of system integration.

Libraries interested in Talis Keystone should contact Talis now. Existing customers can talk to their Account Manager and organisations using a non-Talis ILS can contact sales@talis.com.