Library RFID: Implementing ISO 28560

A guidance note for libraries, by Mick Fortune and Simon Edwards

Background

Earlier this year the International Standards Organisation (ISO) published the long awaited ISO 28560 – a data standard for the structure and content of RFID tags in the library sector.

Published in three parts – to accommodate irreconcilable national differences over the means by which data is actually encoded – part one of the standard defines the data elements to be used by parts 2 and 3.

It also explains very succinctly why the data standard was needed – and the purposes for which it is to be used:

> ISO 28560-1 specifies a model for the use of radio frequency identification (RFID) tags for items appropriate for the needs of all types of libraries, including academic, public, corporate, special and school.

> (It) provides the framework to ensure interoperability between libraries in exchange of library items with RFID tags, the freedom of the library to acquire or renew equipment or library items from different vendors and interoperability of a single RFID application from the vendor's perspective.

> (It) specifies a set of data elements and general guidelines for implementation, to meet the needs for:

- circulation of library items;
- acquisition of library items;
- inter-library loan processes;
- data requirements of publishers, printers and other suppliers of library items;
- inventory and stock checking of items.

> ISO 28560-1 gives guidelines for item security, profiles, privacy, implementation, migration, label design and location of the RFID label.

> It specifies the data model, system data elements and user data elements to be used in conjunction with ISO 28560-2, ISO 28560-3 and any future parts of ISO 28560.

Up until now libraries have used whatever data standard their RFID supplier has proposed. In most cases this has been something unique to them - usually designed to work most efficiently with the hardware and software they supply.

With the arrival of the data standard, that situation is now beginning to change. The UK RFID industry, through the BIC/CILIP RFID in Libraries Group, has given its full support to the adoption of ISO 28560-2 and to a data subset[1] of it which includes all those elements for which there is a

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[1] (http://www.bic.org.uk/e4librariesfiles/pdfs/110524%20UK%20Data%20Model%20for%20RFID%20in%20Libraries%20final.pdf

foreseeable requirement in the library RFID marketplace. This support has been reinforced by the creation of the 'RFID Alliance' of major companies, including 2CQR, 3M, Bibliotheca-Intellident, D Tech International and Plescon.

 For the first time, then, all new procurements have the opportunity to use tags which can be read by equipment supplied by ANY company supporting it, enabling implementers to pick and choose the hardware and software they prefer – rather than be limited to buying everything from the same supplier - as well as having the comfort of knowing that they can switch suppliers in the future without having to re-tag all the stock.

But what of libraries which have already implemented RFID before the standard was agreed?

Q & A

My RFID supplier already uses 'standards' – so how does this affect me?

RFID is a complex technology so there are a number of standards that will apply to any solution being offered. These will typically control such things as the radio frequency in use, the means by which data travels across the airwaves, how data 'collisions' are prevented, how security is managed etc. The one area that has so far been largely ignored, by the UK market at least, is the actual data present on the tag.

Some countries recognised the need for general agreement on data standards and created their own in advance of the UK. Most frequently mentioned is the 'Danish Data Model' (DDM) and some UK systems may use this on their tags. The DDM is not however interchangeable with ISO 28560.

If you have implemented an RFID solution before the publication of ISO 28560 – i.e. before April 2011 - you **will** be using a proprietary data model.

Apart from the added flexibility adoption of the new standard will offer, there are likely to be a great many other benefits accruing from the use of a common data standard – not least the development of new functionality using the elements now available - so now is a good time for early adopters to consider their options in the new RFID landscape.

Do I HAVE to use ISO 28560?

No. Your existing system will continue to work as it does now, and for as long as your RFID supplier continues to support your data model.

But it is probable that over time RFID suppliers will want to gain the benefits of operating a single tag structure for all their customers, and will encourage you to migrate to the new standard.

What are the risks of changing?

Bear in mind that the data model in use in many libraries will be unique not just to your supplier - but might also be unique to your library. Many libraries specified data elements to be included on their tags in advance of the publication of ISO 28560, and many suppliers added data to help them provide additional functionality. If you have come to rely on this functionality it may be very difficult to change.

It is possible that some functionality may be lost. In the worst case scenario your tags could have been encrypted or locked and may need replacing altogether (as they cannot be read by any other supplier).

Depending on the strategy you choose there may be some disruption to services, and certainly some additional cost involved in moving to the new standard.

If you decide to switch both data model and supplier simultaneously it would be wise to ensure that your new supplier can read and reprogram your tags to the new standard. There is still some confusion in the market about the difference between 'compliance' and 'interoperability' which could result in your changing to a new supplier only to find later that, whilst they can successfully read the tags, they are still not compliant with the standard. Always have the new tags verified by an independent tester.

… and of NOT changing?

Many RFID suppliers claim to be able to successfully read anyone else's data model. What this generally means however is that they can, eventually, decode the unique identifier (usually the barcode number) that is present on the tag. In most cases they will also be able to determine which security method the tags are using and how the relevant data bits have been set.

With self-service being the single most popular RFID application in use in libraries the limitations of this approach have taken some time to emerge. Self-service typically only requires these two pieces of information and with some additional programming – and often with the help of the previous supplier – new suppliers have successfully replaced old ones without having to alter data on tags.

This situation will change as suppliers – both RFID and LMS – begin to use more of the elements now available to deliver new services. (There is some evidence that this process has already begun in the USA.) Those libraries wishing to do more than self-service will find it increasingly difficult to do so without adopting the standard.

Additionally any supplier using their own data model – rather than a standard – owns the intellectual property rights to that model and so is under no obligation to allow another supplier to use it with their system. This has in the past sometimes caused some problems for libraries seeking to change suppliers – especially if the company being replaced fails to co-operate. Moving to the standard will protect you against the possibility of this happening in the future.

In recent years – as RFID solutions have matured – the suppliers themselves have begun to realise that limiting themselves to using only the ID and security data is limiting their ability to deliver new

products and services to the market. The new data standard will allow existing suppliers – and encourage new ones – to develop niche solutions that can be readily integrated on any site using it.

Libraries still using proprietary models will not be able to take advantage of these changes. Continued support for unique solutions from the RFID market may become hard to find in the future.

How do I change?

This is a more difficult question answer as the circumstances of each library will be very different. Resource may be too scarce to undertake retagging or reprogramming; existing tags may not be capable of conversion for a variety of reasons; new equipment may be needed to carry out the changes.

The RFID Alliance has pledged to provide a migration path for their clients so the first port of call should always be your existing supplier. They can tell you more about the status of your existing solution – what model is being used, what data elements are included, whether any functionality will be lost in migration. Perhaps more importantly they can also tell you what guarantees they will offer for continued support of your existing system.

There have been several discussions of strategies on lists, blogs and websites. 'On the fly' conversion – where tags are converted as items are loaned – is one of the more popular suggestions but the effectiveness of such an option will depend on other variables. Libraries with high turnover rates might expect to have converted most of their stock in a few months but others may not. What are the implications for delivering new services if an unknown proportion of the stock is unconverted? If suppliers begin to deliver new functionality based on the new standard how will older, uncirculated stock be managed?

It may well be worthwhile discussing your options with other librarians – or experts in the field - before committing fully to conversion.

Are there any other benefits I might gain by migrating?

One very obvious benefit – for public libraries – will be the ability for consortia or different authorities to share stock more easily. Using the new standard not only overcomes the difficulties inherent in managing multiple data models but its inclusion of 'owning library' data allows for the creation of a service in which items can readily be borrowed and returned from different authorities.

The borrowing of restricted items by unauthorised users will also be better managed by the new standard – which allows systems to determine what action to take – even when the LMS is offline.

More benefits will undoubtedly emerge as suppliers gain more familiarity with how the standard works.