Template for SUM: e-Framework editorial work

## Discovery to Delivery

This Service Usage Model addresses at a high level how the library and the resources that it manages can be more prominent within teaching.

Recent years have seen significant changes in the options for and patterns of resource discovery. Focus has shifted from the local LMS OPAC plus a variety of discreet options for such as databases to the more integrated view offered by aggregated discovery services (as offered by Ebsco, ExLibris and Serials Solutions). Whilst there remains concern that Google Scholar trumps all in the minds of many undergraduates, this new generation of discovery services addresses the core service mission of bringing together the trusted resources mediated by the library.

Whilst one of many university libraries treading this path (in their case implementing the Ebsco Discovery Service), Bournemouth is especially committed to bringing resource discovery closer to the world of learning and teaching. The Blackboard VLE and the personalized student home page ('My BU') represent key starting points for discovery and mediation, an approach enabled by the same service and technical team controlling all the working parts (notably LMS and VLE).

The investment in the VLE and the discovery layer has been crucial in adding focus to the longer term transition from print to electronic. This investment is more about strategic direction and commitment of human resource over time than technology investment

Bournemouth and Huddersfield share a common observation – channels that align with user views of how resource discovery 'should' work in the modern (web) world seem to drive resource usage (i.e. students want to use library resources).

This SUM documents at a high level the discovery to delivery options available to students as evidenced from the Bournemouth work in the JISC LMS project.

## Problem description

The problem being addressed by this SUM is essentially one of perception. The library is seen (it is argued) as a second order repository of information when compared to the likes of Google Scholar. There is a perception amongst students that the library is "old fashioned" or "not modern". Thus there is a pressure on the library and the services that it offers to be seen as relevant by the student

body; and thus to be used as a service by them. This is especially true given the economic climate of cuts to funding.

The library notes that the essential differentiator between itself and the likes of Google Scholar is that it provides access to **trusted** resources. This notion of trust is very important. The fear is that if the library fails to attract students, then the students will migrate to Google Scholar and the wider internet. This not only leads the students to 'untrusted' resources, but it could also lead to reductions in the number of trusted resources as the library struggles to justify funding.

At the same time, the library also wishes to showcase the 'value added' services that it can provide, over and above searching. Crucially however, these services need to be presented in a "modern" way in order to capture the interest of the students. The library recognises that Google Scholar will continue to be used, and does not seek to block access to it; rather the library needs to become more relevant at the point of need, taking into account the context of the individual student. In essence, the problem to be solved is "how does the library become 'modern' and 'relevant' to the students?"

## Goal

The desired outcome for the library is to provide a "credible" (defined as "modern", "one stop") discovery environment for students. This has been approached by moving the library away from being a search engine on top of a central catalogue and a collection of databases, into a service that it used by the other parts of the university.

Thus, users do not need to log into the library service using dedicated software or via a "university library website"; rather the services that the library offers are used directly in Virtual Learning Environments, Research Environments and Student Portals.

The goal can be described vis:
*   Integrating resource discovery in an aggregated service
*   Embedding that service plus subject librarian contact into other university services (e.g. VLE).

This approach allows the information and resources held by the library to be presented to students in a contextualised manner, at the most relevant time. For example, as students use the VLE for their course, links to appropriate resources can be presented on the various course pages. If week four of a chemistry course covers enzymes and catalysis, then the week four VLE pages can link to the relevant electronic texts and articles managed by the library (in this case, content related to enzymes). Thus, students are provided with the

resources that they need in context, without the need to search externally (although the option is still there for them if they wish to).

This modern view is not simply limited to directing students to resources; rather the library also makes available time with subject librarians available via online chat, to assist students in finding other resources that are not on reading lists. The subject librarians' blogs are also available to students, as well as phone numbers and email addresses. Naturally, open searching services are also provided. The key emphasis on all of this is ease of access; bringing the library to the student rather than requiring the student to visit the library.

It should be noted that the services described in this SUM present one view on the elements required in modernisation; other services could be (and are) used. Further, much of the success of this SUM depends not on technology but rather on the relationship between the library and faculties; and a shared commitment to the VLE and to the promotion of electronic resources above print.

## Use case (Business Process Modelling)

**Actors:**
Library staff:
- Manage the Library Management System.
- Manage the Virtual Learning Environment.
- Manage the Institutional Repository.
- Deliver resources to students and staff.
- Provide help via online chat to students and staff.

Subject Librarians:
- Work with academics in the schools to keep resources held in the library relevant and up to date.
- Work with students to provide mediation in searching.
- Maintain blogs to detail new e-resources available, and other stories of interest.
- Provide help via online chat to students and staff.

Academics:
- Create courses
- Create reading lists for the courses.

Subscription Agents:
- Provide access to e-resources as required by the university.

**Business Objects:**
The business objects used in this SUM primarily relate to the e-resources that are available for the students to search for and access.

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Reading Lists – The list of Resources that are suggested reading for a particular course of study. The list includes Resource Link Data to be processed by a link resolver.

Resource – content that is managed by the library for use by staff and students. Examples include articles, journals, books etc. Resources will typically be described in terms of metadata.

Resource Link Data – metadata that enables location and download of a specific resource.

**Processes**:
This approach supports three student discovery workflows relating to taught courses – directed, mediated and serendipitous – directed discovery through reading lists, mediated through online links to subject librarian support and serendipitous through the aggregated discovery layer.

Directed Discovery
This process is the simplest form of discovery-to-delivery. In essence, students are directed to relevant e-resources via reading lists which are coupled with the position of the students relative to the course.
- Academic Staff creates a reading list for a particular course. Articles and texts are divided across the context of the course. How this is done is outside the scope of the model. (e.g. Course could be divided into weeks of study, or by subject).
- Reading list is added to the course in the VLE, links to the e-resources on the reading list are put on the relevant course page as per the context division of the course.
- Students undertake a course of study, and use the reading list to discover the e-resources indicated as relevant to their position in the course.
- The link resolver provides the relevant e-resource to the student.

Serendipitous Discovery
This process covers what would be regarded as unaided searching.
- Search 'boxes' which allow simple text based searches are added to the VLE, student portal, and any other university systems which need to provide searching to end users.
- Search terms are entered into the search boxes, and the search is executed across a range of catalogues (internal and external to the university).
- Results are aggregated and presented back to the end user.
- E-resources of interest are accessed via link resolvers.

Mediated Discovery
This process is a hybrid of the two other discovery methods. Students are encouraged to search for resources, but rather than searching blindly, they draw on the experience of the subject librarian.

- The subject librarian maintains an up to date Blog which details news and information pertaining to e-resources in a particular subject area.
- Chat boxes and contact information are added to the VLE, student portal and any other university systems which need to provide searching to end users.
- Students use the online chat, email, telephone or pay a visit to the subject librarian who assists in searching for relevant e-resources to the student.
- E-resources of interest are accessed via link resolvers.

## Functionality

The functionality offered by the SUM maps directly to the business processes described above.

### Read (Directed Discovery)

Directed search consists of a user being presented with a reading list of suggested Resources, browsing that list, and selecting one or more Resources to download.

Ultimately, this is a resolve request. The user has retrieved the link data from the VLE in the form of a reading list. Thus, this is a single request to Resolve.

Creation and maintenance of a reading lists, how they are added to VLEs and other systems is outside the scope of this model.

Behaviour:

1. The resolver translates the Link Data into a URL which allows access to the targeted resource.
2. The resolver redirects the end user to the Resource.

### Search (Serendipitous Discovery)

Serendipitous Discovery consists of a user putting search terms into an interface.

A search request is made to the service. The request contains:

- Search terms which describe properties of Resources to be returned

Behaviour:

3. The request is passed to one or more search services.
4. Resultant Resources from each of the services are aggregated and presented to the end user. Each Resource includes Link Data for subsequent use.
5. End users may select one or mote Resources to download;

6. The resolver translates the Link Data into a URL which allows access to the targeted resource.
7. The resolver redirects the end user to the Resource.

**Search (Mediated Discovery)**
Mediated Discovery includes human contact with a subject librarian. It is a hybrid of the directed and serendipitous discovery processes.
- Blog Entries are maintained by the subject librarians
- Messaging (e.g. chat or email), may be undertaken between the end users and the subject librarian.

Search requests are made, using guidance from the subject librarian (typically, specific resources may be recommended). The request contains:
- Search terms which describe properties of items to be returned

Behaviour:

8. The request is passed to one or more search services.
9. Resultant Resources from each of the services are aggregated and presented to the end user. Each Resource includes Link Data for subsequent use.
10. End users may select one or mote Resources to download;
11. The resolver translates the Link Data into a URL which allows access to the targeted resource.
12. The resolver redirects the end user to the Resource.

## Service arrangement

**Directed Discovery**
Description: this function encompasses the discovery to delivery process when the 'discovery' has been performed in advance. Thus, the function is a simple call to a link resolver, with link data provided. Note: in this case, the link data has come from a pre-prepared reading list (Simulated here via the call to Read).
Orchestration:
- Call Read
- Call Resolve

Service Name:  Read
Target Business Object: Reading List
External Systems: VLE
Actions:
- The Reading List object has been attached to the VLE (in a context sensitive manner).
- The List of e-resources is displayed to the end user.

Service Name: Resolve

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Target Business Object: Resource link data
Actions:
- The resolver needs to perform resolution and redirection given the link data and the personal identifiers of the student.

**Serendipitous Discovery**
Description: this function needs to allow a user to search across multiple databases and resources, aggregate the results and allow the user to download one or more of the e-resources described in the results.

Orchestration:
- Call Search
- Call Aggregate
- Call Resolve

Service Name: Search
Target Data Sources: Library Catalogue, Journals List, Subscriptions, Repository
Target Business Object: Resource, Resource Link Data

Actions:
- All search endpoints need to be searched for resources that match the search term. (Note: how searches are implemented is out of scope of this model. Multiple searches could be run, or a single search service might front several federated searches).

Service Name: Aggregate
Target Business Object: Resource
Actions:
- Where multiple results sets are returned for a given search, the results are combined into a single result set.

Service Name: Resolve
Target Business Object: Resource link data
Actions:
- The resolver needs to perform resolution and redirection given the link data and the personal identifiers of the student.

**Mediated Discovery**
Description: this function uses humans to more tightly define search terms.
Orchestration:
- Call Blog
- Call Messaging
- Call Search

- Call Aggregate
- Call Resolve

Service Name: Blog
External Systems: Blog
Actions:
- The subject librarian makes blog entries related to the subject field (perhaps covering new titles that are available).
- Students can read the blog entries to discover items of interest to them, perhaps to use in subsequent searches.

Service Name: Messaging
External Systems: Email System, online chat
Actions:
- The subject librarian and student communicate with each other around the subject in question. The librarian aids the student in coming up with a set of search terms believed to be optimal to resolve the problem at hand.
- Armed with these terms, and insight into searching, the student can search for the required resources.

Service Name: Search
Target Data Sources: Library Catalogue, Journals List, Subscriptions, Repository
Target Business Object: Resource, Resource Link Data

Actions:
- All search endpoints need to be searched for resources that match the search term. (Note: how searches are implemented is out of scope of this model. Multiple searches could be run, or a single search service might front several federated searches).

Service Name: Aggregate
Target Business Object: Resource
Actions:
- Where multiple results sets are returned for a given search, the results are combined into a single result set.

Service Name: Resolve
Target Business Object: Resource link data
Actions:
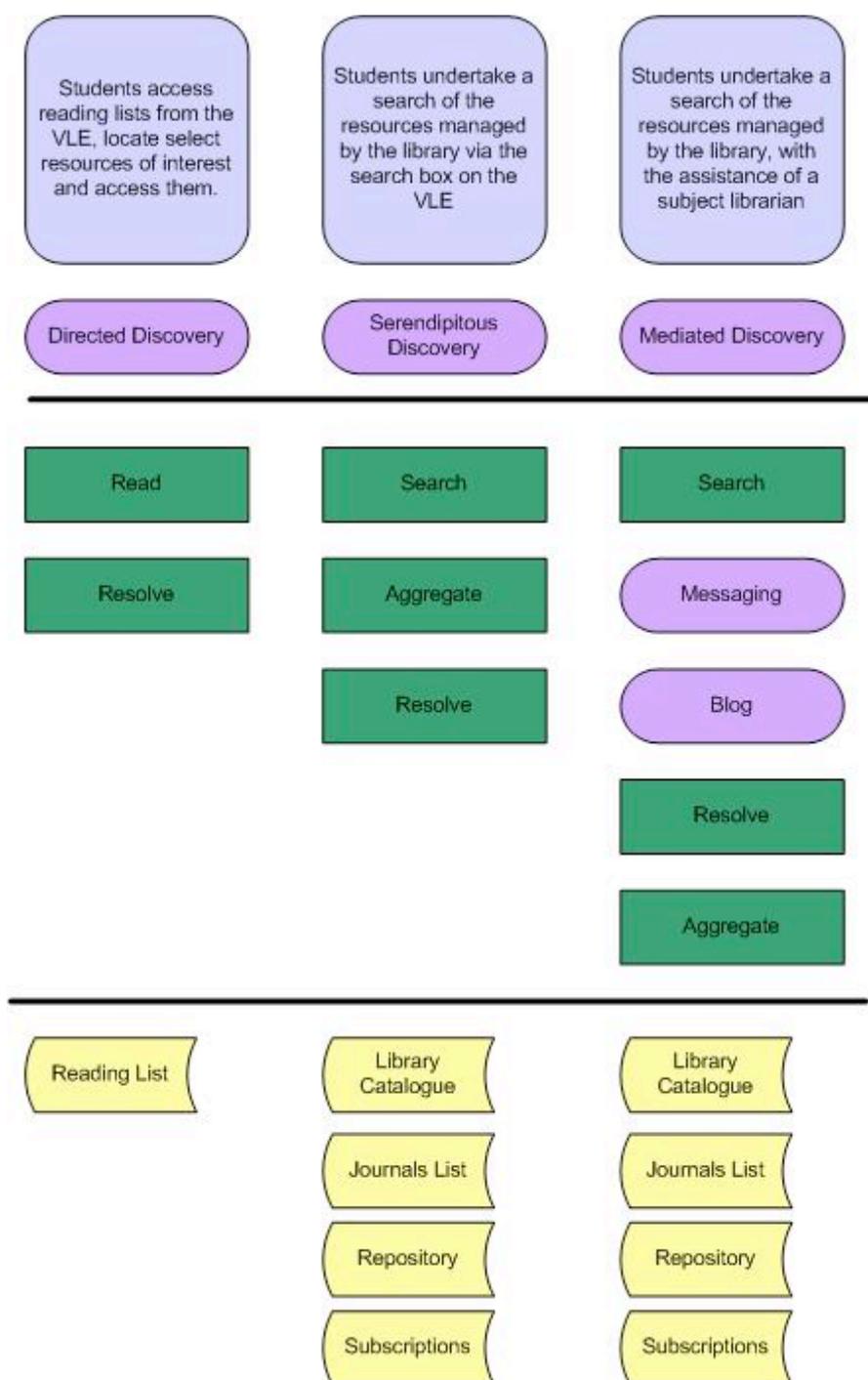- The resolver needs to perform resolution and redirection given the link data and the personal identifiers of the student.

## SUM diagram

**Figure 1: Discovery to Delivery SUM**