Conspectus and the Scottish Collections Network: landscaping the Scottish common information environment

Gordon Dunsire

The article briefly gives the background to the concept of a common information environment, followed by a history of the development of two major components of a common information environment for Scotland in the form of the Scottish Collections Network, a collections description service, and the Cooperative Information Retrieval Network for Scotland, a distributed union catalogue for meta-searching. The article discusses the application in Scotland of the Conspectus methodology for the subject mapping of general library collections, and describes how Conspectus data has been integrated in the information environment to allow the identification and selection of collections and associated catalogues with strength in specific subjects.

Background and history

The concept of an information environment (IE) emerged in the United Kingdom in 2001 as a result of the activities of the Joint Information Systems Committee (JISC) {1} in supporting research and further and higher education. The JISC IE was planned as a set of networked services supporting the online publishing and use of scholarly and educational materials by colleges and universities {2, 3, 4}. In 2004 the JISC Integrated Information Environment committee refined the idea by including resources of all types and developing common solutions across research, learning, teaching, and digital libraries {5}.

The committee established the Common Information Environment Working Group, comprising public sector organisations collaborating to meet the needs of UK citizens for information and information services across a range of sectors and domains {6}. A common information environment (CIE) can thus be characterised as a set of joined-up services supporting the widest range of users in processing information from the widest range of sources. A CIE supports the standard FRBR {7} tasks of finding, identifying, obtaining, and using information as well as the creation, management, and preservation of information resources by professionals and mediators. Information resources may be in digital and non-digital formats.

Components of a CIE for Scotland have been in development since 1998, starting with the Co-operative Academic Information Retrieval Network for Scotland (CAIRNS) project {8}. This three-year project was funded as part of the Electronic Libraries (e-Lib) programme to develop a distributed union catalogue or "clump" for the universities of Scotland using the Z39.50 protocol {9}. The result was an operating clump of 20 catalogues of 13 higher education and research libraries, including the National Library of Scotland.

The final report of the project in 2000 suggested that the work could be the basis of an "embryonic cross-sectoral, cross-domain national networked information service for Scotland" {10}, anticipating the idea of a CIE. The acronym expansion of the CAIRNS service was subsequently changed to "Cooperative Information Retrieval Network for Scotland" to generalise its scope beyond academic information resources and users {11}.

Extending collaborative collection management

Further development occurred with the Scottish Collections Network Expansion (SCONE) project funded by the Research Support Libraries Programme (RSLP) from 2000 to 2002 to extend collaborative collection management in research libraries in Scotland {12}. Very brief descriptions of collections were developed during the CAIRNS project to resolve the problem of some libraries having more than one Z39.50 catalogue; for example, the National Library of Scotland has separate catalogues for its manuscript and printed collections.

This forced CAIRNS to identify catalogues by the collection or collections which they described, rather than the library or organisation to which they belonged. The SCONE project was able to augment the CAIRNS collection descriptions with details of physical location, opening hours and other access conditions.

At the same time RSLP funded an entity-relationship analysis of collections and catalogues by Michael Heaney {13}. This analysis was used to develop a relational database instantiating a metadata schema for collection-level descriptions and their relationships suitable for the SCONE project.

The schema was tested by populating the database with relevant information derived from a number of sources: 1000 records were based on the directory of the Scottish Working Group on Official Publications (SWOP) {14}; 1400 records for collections held by Scottish libraries were generated from the Scottish Library and Information Resources (SLIR) directory; and 350 entries were created from Exploring Scottish history, a guide to family and local history resources in Scotland {15}.

SLIR gives information about access to libraries in all sectors, including public, school, academic and special. The other data sources were used to create descriptions for sub-collections covering official publications and genealogical and local history materials. SLIR is updated annually by the Chartered Institute of Library and Information Professionals in Scotland (CILIPS), so interfaces were developed for the SCONE database to allow additions, amendments and deletions to be carried out by their staff.

Software was created to enable CILIPS to generate printed records for distribution to libraries for checking, and to produce an updated version of the directory for layout, design and printing as a hard-copy publication. This process has been used for the directory since 2001, with the latest edition published in 2005 {16}. The regular checking of the SCONE data ensures that many volatile elements of collection-level description are kept up-to-date, such as physical location, hours of access, telephone, fax and email numbers for enquiries, and URLs for additional information.

The SCONE project also developed Web interfaces to allow the database to be used to drive an embryonic collection-level descriptions service for Scotland, the Scottish Collections Network (with the same acronym of SCONE) {17}.

The SCONE service was further developed from 2002 to 2004 as part of the cc-interop (COPAC/Clumps continuing technical cooperation) project, funded by JISC to investigate issues in cross-searching physical and virtual, or distributed, union catalogues {18}. Work package B of this project used the SCONE database and service to explore the application of collection-level description in identifying and selecting components of distributed union catalogues for item-level searching.

Metadata and portal development

Part of this work analysed a number of metadata schemas for collection-level description in the UK which had been used by RSLP projects in Wales and Northern Ireland, or were being developed by JISC. Schemas, including SCONE, were compared against Heaney's analytic model, and a number of changes to the SCONE schema identified to make it more interoperable {19}.

Subsequently, a number of mappings were developed to allow SCONE records to be output in a variety of formats, including RSLP Collection Level Description {20}, MARC21, the JISC Information Environment Services Registry {21}, and the proposed Dublin Core Collection Description {22}. The SCONE schema was also tested using collection descriptions used by the RID-ING clump in England {23}. Further details are available in a project report {24}.

Closer integration of the SCONE and CAIRNS services was achieved during the cc-interop project. High-level collection descriptions can be used to select sub-sets, or miniclumps, of the component catalogues of CAIRNS for item-level searching, in order to reduce response times from the distributed search queries and improve precision in search results. This arrangement follows the functional model of the JISC IE, with potential to develop into a Scottish CIE {25}.

Such development took place during the Scottish Portals for Education, Information and Research (SPEIR) project {26}, funded by the Scottish Library and Information Council (SLIC) from 2003 to 2005 in association with the creation of a pilot portal for Scottish cultural information, Scotland's Culture {27}. SPEIR extended the coverage of SCONE to archive and museum domains, building on the non-library collections already described in Exploring Scottish history.

This was carried out by importing data from the Scottish Museums Council directory {28}, creating high-level links to the Scottish Archives Network {29}, and obtaining information from the websites of relevant information organisations. The project also extended CAIRNS beyond higher education and research libraries by adding Z39.50 interfaces to 20 of the 31 Scottish public library services.

SCONE has also been used in the Harvesting Institutional Resources in Scotland Testbed

(HaIRST) project {30}, funded by JISC from 2002 to 2005, and is intended to be used in the Institutional Repository Infrastructure for Scotland (IRI-Scotland) project {31}, funded by JISC from 2005 to 2007. Both projects involve the creation of physical union catalogues by aggregating item-level metadata using the Open Archive Initiative protocol for metadata harvesting (OAI-PMH) {32}.

Current statistics for SCONE {33} show that there are over 5400 collections described by the database, covering archives, libraries and museums, and physical and digital collections.

The CAIRNS service allows approximately 50 separate library catalogues to be meta-searched. Sub-sets of catalogues can be specified directly by users, or through the selection of collections in SCONE, a process known as "landscaping".

Conspectus in Scotland

Conspectus surveys were carried out in 1987 by the original members of the Scottish Confederation of University and Research Libraries (SCURL) {34}, comprising the National Library of Scotland, eight "ancient" and "modern" Scottish universities, and the public libraries in Edinburgh and Glasgow. The main purpose of assigning Conspectus levels to the general collections of these libraries was to foster collaborative collection development {35, 36}. The Conspectus terms were modified to suit Scottish needs, resulting in 3000 terms being used. Only Conspectus levels 3 (instructional support), 4 (research support), and 5 (comprehensive) were assigned.

The Scottish Executive Education Department (SEED) funded a two-year project in 2000 to convert the Conspectus data to electronic format and develop an online maintenance interface {37}. The project also carried out Conspectus surveys of the "new" universities, or former polytechnics and Scottish central institutions, which had become members of SCURL in the mid-1990s. The original libraries were also re-surveyed.

The SEED project also investigated alternative approaches to indicators of collection strength (38, 39, 40). The essential outcome was a recommendation to continue to use the Conspectus and assign subject strength levels by self-assessment.

One aim of the SCONE project was to investigate ways of using subject strengths to select catalogues for searching in CAIRNS, so the SEED project worked closely with the SCONE project. The 1987 Conspectus data was eventually incorporated into the SCONE database and linked to appropriate collection-level descriptions. During data processing a Conspectus level of 0 (meaning "out of scope") was added as a default value to terms which did not have any assigned level.

An interface for maintaining the Scottish Conspectus was developed and added to the SCONE database maintenance service {41}. Unfortunately, the updated information was not fully applied to the database because project resources were insufficient. The National Library of Scotland has retained the new data and continues to seek funds to complete the updating. The SWOP directory also contains Conspectus levels which have also been incorporated into the SCONE database, but no interfaces for public use or staff maintenance have yet been developed.

An online service, Research Collections Online (RCO) {42}, was developed and implemented to use the SCONE database for the identification of collections with a specific level assigned to a specific term, and display of Conspectus maps of all terms in a specific category for a specific collection.

During the SCONE project, the CAIRNS interface had been developed to allow catalogues to be selected by subject term and Conspectus level. This facility was subsequently moved from CAIRNS to the SCONE service during the SPEIR project, to implement a more logical task flow: subject strengths are used to search collections in SCONE, and then the corresponding catalogues in CAIRNS are identified automati-

cally. SPEIR also augmented the SCONE database and maintenance interface to accommodate Conspectus levels 1 and 2 for future application to public library collections.

Conspectus in the Scottish common information environment

Research Collections Online provides a distinct service dedicated to identifying Conspectus data for Scottish university and research libraries. RCO has a facility for selecting a collection and then navigating through the Conspectus division and category hierarchies to display a map of subject strengths for terms in a specified category for that collection.

There are also facilities for selecting a subject term with a specific Conspectus level and displaying a list of matching collections. Subject terms can be selected by navigating the division and category hierarchies as a thesaurus, browsing an alphabetic list of all terms, or searching for a term. RCO uses the SCONE database as its source.

Screen: RCO subject strengths map for a specific collection and Conspectus category.

The subject thesaurus of RCO consists of the Conspectus divisions at the top level, with categories grouped under divisions as a middle level, and the subject terms grouped under categories as a bottom level, forming a three-level hierarchy. The thesaurus does not include synonyms, and only accommodates narrower and broader relationships in the vocabulary set.

The SCONE service provides facilities for identifying collections matching one or more Conspectus subject terms with one or more Conspectus levels. There are options on the homepage menu to "Find collections ... by subject strength" using the same methods as RCO of browsing the subject hierarchy, or browsing or searching the subject terms.

Unlike RCO, however, more than one division, category and term can be selected during thesaurus browsing. This allows a user to increase the recall of a search by specifying multiple subject terms with a Boolean OR relationship. The user can also effectively search for collections matching a Conspectus category by selecting all terms within the category.

Screen shot: Top level of the Conspectus thesaurus incorporated into SCONE

When one or more subject terms and levels have been selected, SCONE displays a "landscape" which lists any matching collections and provides a facility for meta-searching for items in those collections via CAIRNS, where it includes the corresponding catalogues. SCONE also allows any relevant online public access catalogues to be searched, one by one, for items.

Screen shot: SCONE landscape for a specific Conspectus term at level 3 and above.

References

{1} Joint Information Systems Committee. Available at: http://www.jisc.ac.uk/

{2} Strategic activities: Information Environment. Available at: http://www.jisc.ac.uk/index.cfm?name=about_info_env

{3} Investing in the future: developing an online information environment. Available at: http://www.jisc.ac.uk/index.cfm?name=ie_home

{4} Information Environment: development strategy 2001 - 2005. Available at: http://www.jisc.ac.uk/index.cfm?name=strat_ieds0105_draft2

{5} JISC Integrated Information Environment committee terms of reference. Available at: http://www.jisc.ac.uk/index.cfm?name=jcie_tor

{6} Common Information Environment. Available at: http://www.common-info.org.uk/

{7} Functional Requirements for Bibliographic Records final report. 1998. Available at: http://www.ifla.org/VII/s13/frbr/frbr.htm

{8} CAIRNS: Co-operative Academic Information Retrieval Network for Scotland. Available at: http://cairns.lib.gla.ac.uk/

{9} Z39.50 international standard maintenance agency.

Available at: http://www.loc.gov/z3950/agency/

{10} Nicholson, D. CAIRNS final report: an embryonic cross-sectoral, cross-domain national networked information service for Scotland? 2001. Available at: http://cdlr.strath.ac.uk/pubs/nicholsond/cairnsfinal.pdf

{11} Cooperative Information Retrieval Network for Scotland. Available at: http://cairns.lib.strath.ac.uk/

{12} SCONE: Scottish Collections Network Extension. Available at: http://scone.strath.ac.uk/

{13} Heaney, M. An analytical model of collections and their catalogues. 3rd issue, rev. 2000. Available at: http://www.ukoln.ac.uk/metadata/rslp/model/amcc-v31.pdf

{14} Directory of official publications in Scotland. Available at: http://scurl.ac.uk/about/swop/index.html

{15} Exploring Scottish history: with a directory of resource centres for Scottish local and national history in Scotland / edited by Michael Cox. - 2nd ed. - [Hamilton] : Scottish Library Association; Scottish Local History Forum; Scottish Records Association, 1999.

{16} Scottish library and information resources / edited by Gordon Dunsire and Penny Robertson. - 17th ed. - Hamilton : Chartered Institute of Library and Information Professionals in Scotland, 2005.

{17} Scottish Collections Network (SCONE). Available at: http://scone.strath.ac.uk/service/index.cfm

{18} CC-interop: COPAC/Clumps Continuing Technical Cooperation project. Available at: http://ccinterop.cdlr.strath.ac.uk/

{19} Dunsire, G. Extending the SCONE collection descriptions database for cc-interop: report for work package B of the cc-interop JISC project. 2002. Available at: http://cdlr.strath.ac.uk/pubs/dunsireg/CCIExtendSCONE.pdf

{20} RSLP collection description: collection description schema. URL: http://www.ukoln.ac.uk/metadata/rslp/schema/

{21} IESR: Information environment service registry. Available at: http://www.iesr.ac.uk/

{22} DCMI Collection Description Working Group. Available at: http://dublincore.org/groups/collections/

{23} RIDING gateway. Available at: http://riding.hostedbyfdi.net/riding/index.html

{24} Dunsire, G. Output formats for collection-level descriptions from the SCONE database [electronic resource] : report for Work Package B of the JISC CC-interop project. 2004. Available at: http://cdlr.strath.ac.uk/pubs/dunsireg/CCISCONEOutput.pdf

{25} Dunsire, G. Clumps and collection description in the information environment in the UK with particular reference to Scotland. In: Program. 37 (4). 2003.

{26} SPEIR: Scottish Portals for Education, Information and Research. Available at: http://speir.cdlr.strath.ac.uk/

{27} Scotland's culture. Available at: http://www.scotlandsculture.org/

{28} Scottish Museums Council: Museums by name. Available at: http://www.scottishmuseums.org.uk/museums/by_name/a/index.asp

{29} SCAN online catalogue. Available at: http://www.scan.org.uk/aboutus/indexonline.htm

{30} HaIRST: Harvesting Institutional Resources In Scotland Testbed. Available at: http://hairst.cdlr.strath.ac.uk/

{31} IRIScotland. Available at: http://www.iriscotland.lib.ed.ac.uk/

{32} The Open Archives Initiative protocol for metadata harvesting. Version 2.0. Available at: http://www.openarchives.org/OAI/openarchivesprotocol.html

{33} SCONE statistics. Available at: http://scone.strath.ac.uk/Service/sconeservicehelp/hStatistics.cfm

{34} Scottish Confederation of University and Research Libraries. Available at: http://scurl.ac.uk/

{35} Wade, A. Conspectus: a reappraisal. In: Library and Information Co-operation Council (LINC) Issues in Focus. No. 6, Dec 1992. Available at: http://scone.strath.ac.uk/rco/conspectus/wadea.cfm

{36} Murray, J. Co-operative collecting responsibilities. In: Library and Information Co-operation Council (LINC) Issues in Focus. No. 6, Dec 1992. Available at: http://scone.strath.ac.uk/rco/conspectus/murrayj.cfm

{37} Nicholson, D. SEED [electronic resource] : final report to the Scottish Executive Education Department : final report of the SCONE RSLP project, annexe D. 2002. Available at: http://cdlr.strath.ac.uk/pubs/nicholsond/SCONE-FPNXD.pdf

{38} Nicholson, D. Alternatives to Conspectus: report and recommendations to SCURL: overview of activity, conclusions, recommendations : final report of the SCONE RSLP project, annexe A.1. 2002. Available at: http://cdlr.strath.ac.uk/pubs/nicholsond/SCONEFPNXA1.pdf

{39} Nicholson, D. CURL study of the OCLC/Lacey iCAS software: external evaluator's report : final report of the SCONE RSLP project, annexe A.3. 2002. Available at: http://cdlr.strath.ac.uk/pubs/nicholsond/SCONE-FPNXA3.pdf

{40} Ekmekcioglu, C. An evaluation of the current approach to collaborative collection management in SCURL libraries and alternatives to Conspectus: report and recommendations on collection strength measurement methodologies for use in SCURL libraries: final report of the SCONE RSLP project, annexe A.2. 2002. Available at: http://cdlr.strath.ac.uk/pubs/nicholsond/SCONEFPNXA2.pdf

{41} Dunsire, G. Extending the Research Collections Online (RCO) service: final report of the SCONE RSLP project, annexe C. 2002. Available at: http://cdlr.strath.ac.uk/pubs/dunsireg/SCONEFPNXC.pdf

{42} Research collections online. Available at: http://scone.strath.ac.uk/rco/index.cfm

Gordon Dunshire, Deputy Director in the Centre for Digital Library Research (CDLR), Strathclyde University, Glasgow, Scotland
email. g.dunsire@strath.ac.uk