UDC in Slovenia

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Abstract: In Slovenia, the majority of libraries use the Universal Decimal Classification (UDC). The authors give an overview of the extent of the use of classification in both open access and bibliographic control in their country. Since 1991 there have been no editions of the UDC published in the Slovenian language and this paper announces the change that occurred when two very important tools were made available to UDC users in 2006 and 2007 respectively. The new Slovenian translation of the UDC was produced by the National and University Library (NUL) in Ljubljana in 2007. This Web edition uses the original structure of the ISO 2709 file format which allows searching of UDC numbers (string searching and full text searching), searching UDC captions, notes, examples, etc. The tool has a user friendly web interface for browsing and navigating UDC schedules via hyperlinks, facilitating checking and selection of an appropriate class mark. At the same time a group of authors in the Slovenian National Library published a Slovenian UDC manual addressing the specific needs of Slovenian libraries and established practice in subject indexing. The manual is abundant with practical examples for both inexperienced and advanced users of UDC and represents a much needed resource for teaching and training of the classification.

Keywords: Slovenia, library practice, subject access, Slovenian language, translation, UDC online, UDC manual, classification tools

1. Introduction

In Slovenia libraries use UDC for both bibliographic control and for systematic arrangement of books in open access to collections. Shelf arrangement according to the UDC has a long tradition in public libraries and can also be found in some academic libraries. In general, subject access to information in Slovenian libraries is mainly based on UDC and subject headings. It is interesting to note that fiction and belle-lettres in general, which represent a large proportion of library collections, are primarily organized by UDC with subject headings only being added in recent years.

One of the most important recent contributions to the improvement of subject access in the Slovenian library network is the *Slovenian General List of Subject Headings* (Spletni splošni slovenski geslovnik, 2007) which is available online at http://www.nuk.uni-lj.si. This database contains a continuously maintained and updated list of preferred subject headings in the Slovenian language. In 2004 subject headings were mapped to UDC numbers taken from the UDC MRF 2001.
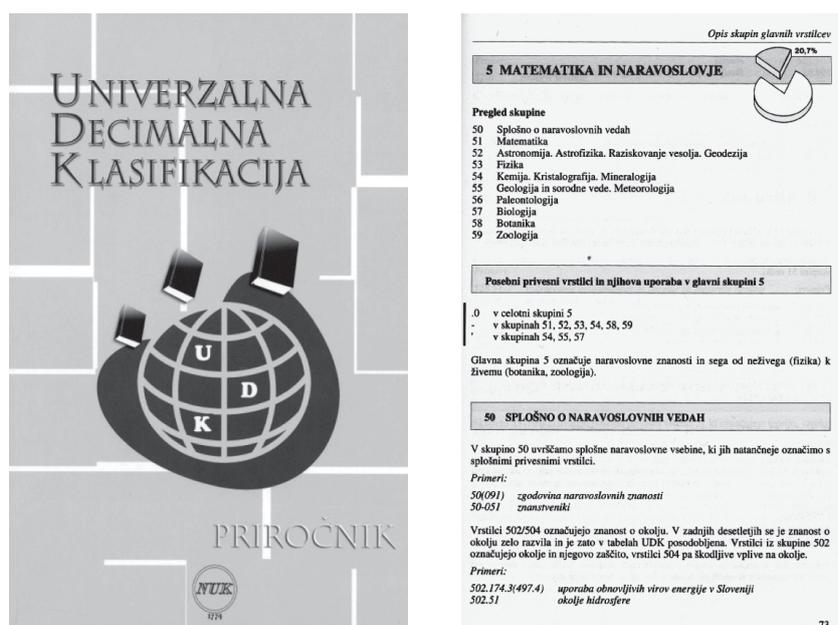
UDC was originally introduced to Slovenian librarians through French, English and German manuals and schedules and first started to be used in public and special libraries after the Second World War. In the following decades the UDC was widely adopted as a tool for the organization of systematic card catalogues which allowed collocation and searching of documents by subject. The tradition of assigning UDC numbers in the process of cataloguing is still very much alive and is also present in CIP (Cataloguing in Publications) data for books published in Slovenia. As a natural consequence the UDC is also used as a system for arrangement of the Slovenian National Bibliography both current and retrospective.

It is therefore no surprise that majority of bibliographic records in the Slovenian Cooperative Online Bibliographic System & Services (COBISS) http://www.cobiss.si/ contain subject headings as well as UDC numbers. The system, however, allows only a basic searching of UDC numbers through the content of the field 675 of the COMARC bibliographic format. This field of the bibliographic record, reserved for UDC data, contains a two subfields 675$a and 675$c - the latter being added for the specific purpose of searching UDC class marks. This is a mandatory field in the COBISS system and is populated by subject specialists from the National and University Library (NUL). Currently there are 960 UDC class marks selected for this purpose from the UDC MRF 2001.

Paradoxically to the classification's importance in the national bibliographic practice there have been relatively few UDC editions and manuals published in the Slovenian language in the past sixty years. In 1967, the first UDC Tables (FID 406) in the Slovenian language were published by the Central Technological Library at the University of Ljubljana (Centralna tehniška knjižnica Univerze v Ljabljani - CTK). Since 1971, CTK cooperated in the translation of the middle UDC edition to the languages of former Yugoslavia. Some Slovenian translations of UDC groups were published up to 1974: 2, 61, 63, 64, 669, 8, 9. The second, updated short edition from 1982 included all changes published in *Extensions and Corrections to the UDC* up until 1982. ue to new changes, CTK decided to prepare the third edition of Tables (1991) and Index (1994) including *Extensions and Corrections to the UDC* since 1982 to the end of the eighties. The introduction to the third edition included a short description of UDC structure and basic underlying principles of the system. This introduction was extracted from the trilingual original *DK Dreisprachige Kurzausgabe, UDC Trilingual abridged edition, CDU Edition abrégée trilingue (FID 277)* from 1958. This last printed Slovenian UDC edition, from 1991, included around 11,000 UDC classes. Subject-alphabetical index followed three years later in 1994. Most librarians in Slovenia have been using the above mentioned third edition up until today. However, the theory of UDC, which was included in the introduction, has become out of date, especially upon publication of *The UDC: A Guide to its Use* by I. C. McIlwaine (McIlwiane, 2000).

2. New Slovenian manual "Universal Decimal Classification"

The idea behind this classification manual was to produce a short, well layed out and easy to use book containing examples relevant for Slovenian library practice (Figure 1). The authors of the Slovenian manual "Universal Decimal Classification" (in Slovenian: Univerzalna decimalna klasifikacija):Tatjana Kovač, Aljoša Pelhan, Špela Razpotnik, Darija Rozman, Mojca Rupar Korošec, Metka Sternad, Darko Vrhovšek work in the Subject Cataloguing Department of the National and University Library (NUL). They are are UDC specialists and experienced practitioners of UDC.

Figure 1 The cover page and an example of the page layout of the Slovenian manual
"Universal Decimal Classification"

The introduction to the book provides a brief overview of the history of UDC use in Slovenia. This is followed by information on the UDC structure, important characteristics of compound numbers and an overview of symbols used in UDC. A special section is devoted to the filing order of UDC numbers which is illustrated with examples from class 8. The use of common auxiliary tables is shown on the examples taken from the Cooperative Bibliographic Data Base (COBIB) or by examples devised specifically for this manual. The changes in auxiliary tables that were introduced by the UDC Consortium in 2000 and 2003 respectively, are also presented and explained i.e. common auxiliaries of properties -02 and of relationships and processes -04. These common auxiliaries are new in the Slovenian library environment. Examples from the manual:

656.23.03-026.4	return train tickets
004-043.86	development of computer science and technology
27-05	Christians

At the very beginning there is a chapter devoted to subject retrieval using UDC, the classification's features in pre-coordination and post-coordination and its use in online catalogues. In the following section outlines of the main UDC classes were provided. The size of each main class is represented as a percentage using a pie chart giving a good illustration of the discrepancy in size between classes 5 and 6 and the rest of the schedules. Each main class summary is followed by special auxiliary tables to be used with this class and these are marked with a vertical line to make them stand out and be more easily noticeable for beginners. Explanation introducing main classes contain examples illustrating important changes introduced to the UDC in the last ten years, mainly up to 2001. The examples provided are either the UDC numbers already applied in classification of the NUL's legal deposit collection called "Slovenica" or are especially created for the manual. The examples used are aligned with the UDC MRF version from 2001:

811.163.41'276.5:355	Serbian military jargon
811.163.6'282(450.36)	Slovenian dialects in Friuli-Venezia Giulia region
811.161.1"18"	Russian language in the 19th century
811.133.1'276.3-053.5	French dialect spoken by school children
821.163.6(436.5)	Slovenian literature in Kärnten region in Austria
821.134.2(82)	Argentinean literature
821.163.6:801.676	Slovenian verse forms in Slovenian literature

Although the authors provide guidelines and examples for various depth in subject analysis, librarians are advised to make their own decisions with respect to the level of the specificity - providing they apply their approach consistently.

Half of the published copies of the manual (thousands books) were sold in the first few months. One of the reasons for the great interest in the manual is the fact that the new schedules for religion were implemented in COBISS in January 2007 and librarians were interested in guidelines with respect to this specific change. Wider Slovenian library community learned more about this radical change of class 2 for the first time in 2005 from the article by Tatjana Kovač "New UDC notations for religion and theology" published in Slovenian library journal "Knjižnica" (Kovač, 2005).

3. The Slovenian online edition of UDC version UDC MRF 2001

The Slovenian translation of UDC version UDC MRF 2001 is available at http://www.nuk. uni-lj.si/udk with access allowed to registered Slovenian libraries only. I was released in February/March 2007. The tool provides user friendly interface for searching and browsing UDC schedules.

The process of the creation of this tool from the original UDC MRF database file the consisted of the following steps:

- The purchase of the ASCII export of the UDC MRF 2001
- Creation of the local database (Microsoft Access) to store the MRF file with matching MRF field structure. Each original UDC MRF tag was assigned an appropriate temporary tag for translation (e.g. 06a vs. 06a_translation). In addition to the existing codes a tag for special auxiliaries was added
- Import of the UDC MRF text file into the local database, and division of the schedules into 31 files corresponding to the number of translators working on the UDC
- Translation process of the UDC MRF 2001
- Merging and proofreading of translation files
- Creation of the online application (searching, hyperlinks, interface functions and additional sources)
- Testing of the UDC application by Slovenian librarians (January and February 2007)

3.1. Technology and platform

The Slovenian UDC MRF 2001 is made available as a separate directory on the NUL's main Web server which uses Internet Information Server 6.0 (IIS) on Windows 2003 Server. The UDC database uses Microsoft's Sequel Server 2005.

The application's user interface (UI) is written in HTML standard XHTML 1.0 with Active Server Pages (ASP) for server-side scripting and JavaScript for client-side scripting. The main objective was to develop an intuitive and user-friendly interface with fast response times. The page is divided in two main divisions – public pages and search (private) pages, which are accessible only to logged-in users (Figure 2).
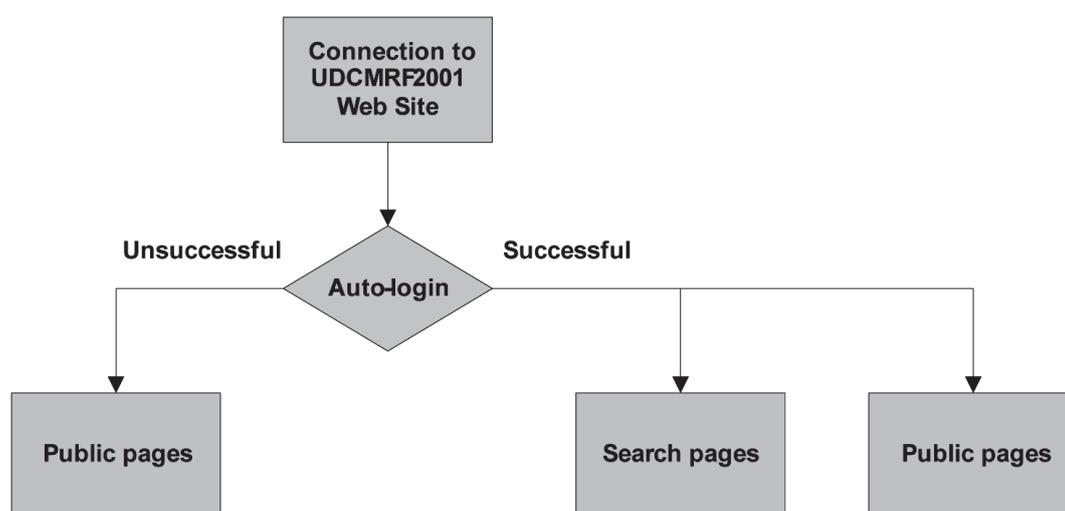

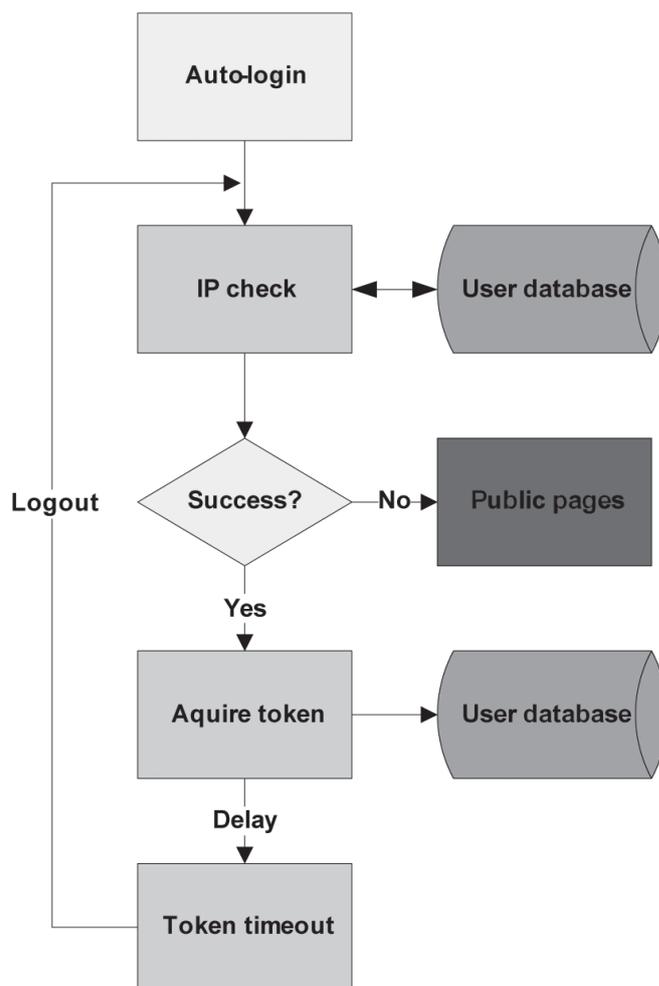**Figure 2** Connection diagram of UDC online application

3.2. Acquiring license on-line and automation of the authentication process

The process of getting a license for the Slovenian UDC MRF 2001 is very simple and almost fully automated. Upon filling in and submission of an online order form, a preliminary invoice is sent to the user's email. Users choose a number of licenses i.e. the number of simultaneous users or to the number of tokens, respectively and IP addresses from which they will connect to UDC MRF 2001. IP addresses serve as signature and tokens are used to identify users during the login process.

At the same time, an XML formatted email is sent to administrators informing them of a new request. This allows administrators to add a new user to the User database via Administrator's module of UDC MRF 2001 using a simple copy-paste operation.

The number of tokens is equal to the number of licenses bought. When the users connect to the database they require a valid token. If they do not have one, auto-login is executed (Figure 3).

- IP is checked in User database.
- If authentication is successful and there are available tokens, one of the tokens is requested to proceed. If authentication via IP is not successful, user gets redirected to public pages.
- When token is acquired the user may proceed with the search.
- After token times out, user gets »logged out« status and requires new login to continue.

Figure 3 Authentication process in the Slovenian UDC online application

When users launch a query, this triggers a token-checking procedure within the application. If authentication is approved query is sent to the database server and results are returned displayed in a standardized table format (Figure 4). Users are completely unaware of the entire authentication procedure which is executed without their input.
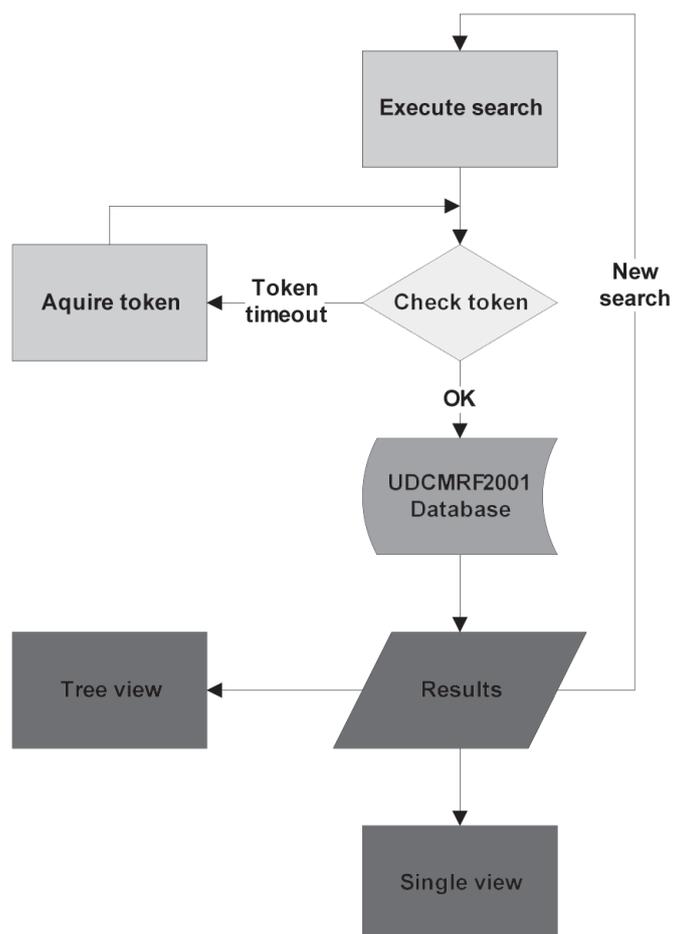
Figure 4 Searching process

3.3 Functionalities and interface

Searching in the UDC Online can be performed either on UDC numbers or on text of the UDC class description. As shown in Figure 5 the access to the UDC schedules is made available via two tabs: the main schedules (green tab) and common auxiliaries (blue tab). Within each of these options users can search complete schedules available or can chose only certain classes by ticking designated boxes. Thus potential homonyms in classes that are not relevant are being excluded in advance allowing for more precise searching. At the same time, if a larger recall is required a truncated search expression may be using the available option 'number beginning with'.

Once users choose the area of the main table (green) or the area of auxiliary tables (blue) they can select the type of search by setting parameters for searching fields and searching mode (e.g. string search or full text search, searching numbers or searching words). Upon searching the results appear displayed below the search box with UDC numbers presented on the left hand side and description, notes and examples on the right.
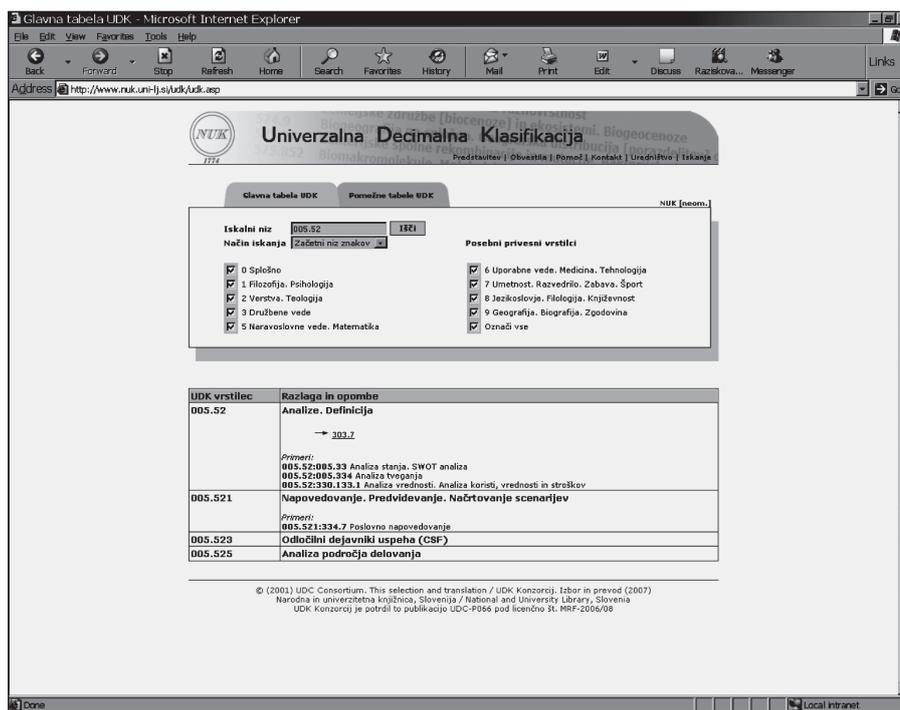
Figure 5 Searching interface of the Slovenian online edition of UDC

Two main searching techniques are enabled: string search (i.e. right truncation searching) and full text search. String search requires a beginning sequence of Arabic numerals or words from descriptions. This search is especially useful for UDC numbers and is enabled for all fields in the UDC MRF which contain numbers apart from the parallel division instructions field (MRF field tag 011) and reference field (MRF field tag 125). Searching using this technique is especially useful because of the fact that the Slovenian language is a flexive (inflective) language with numerous morphological endings that ought to be made neutral in searching. For instance, nouns will have different endings for six grammatical cases of singular and plural. The multiplicity of the endings is compounded by the fact that nouns in Slovenian have two kinds of plural: *plural of two* and *plural of many*. In addition to searching of nouns, right truncation is also necessary for adjectives that in Slovenian have different endings depending on whether they are attached to nouns in the singular or plural(s) and depending on grammatical cases but also depending on a noun's gender (masculine, feminine and neutral).

There are few additional functionalities in the Slovenian UDC MRF 2001 web portal that makes it easier to use:

• Tree-view. If one clicks on UDC class mark in the result page, a pop-up window is opens with the hierarchy surrounding the selected notation. This is important in the process of selecting of UDC numbers as it enables better understanding of their meaning, e.g.:

5   Natural Sciences. Mathematics
51   Mathematics
517   Analysis

0	General
00	*Prolegomena. Fundamentals of knowledge and culture. Propedeutics*
005	Management
005.5	Management operations. Direction
005.52	Analysis. Definition

- Pop-up windows. Many UDC numbers in result list contain hyperlinks that open pop-up windows containing information or notes allowing users to get additional information about the class mark without leaving the main search screen.
  For instance, around 900 instructions for parallel division from UDC MRF filed of parallel division instruction (tag 011) - "divided as" are added in this way with UDC number hyperlinked showing the appropriate subdivision.
  In addition common auxiliary numbers mentioned in the application notes of the main tables (UDC MRF field 111) are also hyperlinked showing their hirarchical context in the common auxiliary tables

- Extended search. This search functionality allows users to search all UDC numbers within a certain number range e.g. :
  Search UDC: 1/111.11
  Results: 1, 101, 101.1, 101.2, 101.3, 101.8, 101.9, 11, 111, 111.1, 111.11

In addition to the searching option the main menu of the application contain link to the following additional resources that librarians may find useful: introduction, news, help, contacts and editorial board.

3.4 Advantages of an online edition

Some users may find it strange that once a long awaited translation of the UDC MRF to Slovenian was completed this one was not published as a printed edition but rather as an online tool. Online editions, however, have several advantages:

- Improved access to UDC numbers and better explanations
- The searching is fast and precise
- Electronic edition allows a construction of links and appropriate extracted results
- Graphic presentation of searching results is clearer than in a printed edition

After publication of the UDC manual and the Slovenian translation of UDC, NUL opened a forum for online discussion about UDC changes. This provided an opportunity for librarians to discuss and exchange their experience and ask questions. This also encouraged some proposals and opinions for the future development of UDC. For instance the opinion that overhaul changes should be done all at once and not step-by-step was expressed. Religion was the centre of attention as an example of a class that has undergone complete revision, or more accurately, a complete reorganization. Faceting is not new in UDC but it was felt that this represents a far more demanding task for some classifiers than adding long UDC numbers directly from a main class. However, it has been agreed that facets are the future of library classifications. Also, many agreed that the changing of the meaning of UDC notation is not desired, i.e. the reuse of one cancelled notation to denote entirely new concept. It is preferred that cancelled UDC notations are not re-used at all, and new

knowledge is implemented using completely new UDC notations. It was also felt that Philosophy should be completely revised. The librarians hope that new knowledge would be integrated in UDC at a quicker pace.

4. Conclusion

In Slovenian libraries, UDC remains an essential knowledge organization system used in indexing and searching of various information resources. For a long time librarians had no up to date UDC tool in their own language. In 2006 and 2007 the National and University Library (NUL) in Ljubljana produced the UDC manual, a new Slovenian UDC online edition and has become a national centre for UDC publishing, training and support. NUL is a good example of how long neglected expertise in knowledge organization and subject access can be revived by national libraries.

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